

# Frequency Mixer

SYM-ED14579/1

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>IF FIXED<br>@IF(OUT)=30MHz<br>(dB) |      |      | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | IP-3 INPUT<br>(dBm) |       |       | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | COMPRESSION<br>@RF IN=+14dBm<br>(dB) |       |       |
|---------------------|-------------|-------------------------------------------------------|------|------|---------------------|-------------|---------------------|-------|-------|---------------------|-------------|--------------------------------------|-------|-------|
|                     |             | @LO (dBm)                                             |      |      |                     |             | @LO (dBm)           |       |       |                     |             | @LO (dBm)                            |       |       |
|                     |             | +14                                                   | +17  | +20  |                     |             | +14                 | +17   | +20   |                     |             | +14                                  | +17   | +20   |
| 1000.1              | 1030.1      | 8.19                                                  | 6.50 | 5.95 | 1000.1              | 1030.1      | 18.33               | 19.75 | 20.43 | 1000.1              | 1030.1      | -0.42                                | -0.07 | -0.04 |
| 1030.1              | 1060.1      | 7.81                                                  | 6.44 | 5.84 | 1030.1              | 1060.1      | 18.23               | 18.58 | 20.20 | 1030.1              | 1060.1      | -0.26                                | -0.03 | 0.03  |
| 1060.1              | 1090.1      | 7.79                                                  | 6.48 | 5.86 | 1060.1              | 1090.1      | 17.63               | 17.26 | 18.69 | 1060.1              | 1090.1      | -0.21                                | 0.03  | 0.05  |
| 1090.1              | 1120.1      | 7.72                                                  | 6.54 | 6.03 | 1090.1              | 1120.1      | 16.92               | 15.86 | 16.71 | 1090.1              | 1120.1      | -0.14                                | 0.08  | 0.07  |
| 1120.1              | 1150.1      | 7.42                                                  | 6.50 | 6.17 | 1120.1              | 1150.1      | 15.63               | 14.66 | 15.03 | 1120.1              | 1150.1      | -0.07                                | 0.13  | 0.06  |
| 1150.1              | 1180.1      | 7.41                                                  | 6.50 | 6.21 | 1150.1              | 1180.1      | 14.26               | 13.13 | 10.53 | 1150.1              | 1180.1      | -0.02                                | 0.20  | 0.10  |
| 1180.1              | 1210.1      | 7.49                                                  | 6.56 | 6.27 | 1180.1              | 1210.1      | 13.69               | 11.58 | 8.13  | 1180.1              | 1210.1      | -0.05                                | 0.22  | -0.04 |
| 1210.1              | 1240.1      | 7.48                                                  | 6.70 | 5.99 | 1210.1              | 1240.1      | 12.48               | 9.15  | 12.38 | 1210.1              | 1240.1      | -0.06                                | 0.09  | -0.01 |
| 1240.1              | 1270.1      | 7.32                                                  | 6.70 | 6.00 | 1240.1              | 1270.1      | 11.69               | 6.81  | 16.73 | 1240.1              | 1270.1      | 0.00                                 | -0.04 | -0.06 |
| 1270.1              | 1300.1      | 7.54                                                  | 6.78 | 5.64 | 1270.1              | 1300.1      | 11.06               | 7.55  | 19.82 | 1270.1              | 1300.1      | -0.06                                | -0.15 | 0.06  |
| 1300.1              | 1330.1      | 7.56                                                  | 6.36 | 5.59 | 1300.1              | 1330.1      | 9.98                | 14.20 | 21.30 | 1300.1              | 1330.1      | -0.10                                | 0.04  | 0.05  |
| 1330.1              | 1360.1      | 7.45                                                  | 5.97 | 5.62 | 1330.1              | 1360.1      | 8.52                | 19.91 | 22.28 | 1330.1              | 1360.1      | -0.12                                | 0.16  | 0.05  |
| 1360.1              | 1390.1      | 7.56                                                  | 6.05 | 5.79 | 1360.1              | 1390.1      | 8.36                | 21.72 | 23.92 | 1360.1              | 1390.1      | -0.09                                | 0.16  | 0.07  |
| 1400.1              | 1430.1      | 7.46                                                  | 6.14 | 5.97 | 1400.1              | 1430.1      | 9.38                | 22.81 | 23.19 | 1400.1              | 1430.1      | -0.10                                | 0.11  | 0.06  |
| 1430.1              | 1460.1      | 7.00                                                  | 6.16 | 6.04 | 1430.1              | 1460.1      | 14.33               | 22.74 | 23.48 | 1430.1              | 1460.1      | 0.13                                 | 0.10  | 0.06  |
| 1460.1              | 1490.1      | 6.94                                                  | 6.21 | 6.10 | 1460.1              | 1490.1      | 16.20               | 23.79 | 23.88 | 1460.1              | 1490.1      | 0.13                                 | 0.08  | 0.06  |
| 1490.1              | 1520.1      | 6.88                                                  | 6.25 | 6.14 | 1490.1              | 1520.1      | 20.42               | 25.50 | 24.57 | 1490.1              | 1520.1      | 0.16                                 | 0.06  | 0.04  |
| 1520.1              | 1550.1      | 6.64                                                  | 6.27 | 6.20 | 1520.1              | 1550.1      | 21.71               | 26.02 | 24.45 | 1520.1              | 1550.1      | 0.19                                 | 0.08  | 0.05  |
| 1550.1              | 1580.1      | 6.67                                                  | 6.34 | 6.29 | 1550.1              | 1580.1      | 21.05               | 26.66 | 27.00 | 1550.1              | 1580.1      | 0.17                                 | 0.06  | 0.04  |
| 1580.1              | 1610.1      | 6.78                                                  | 6.44 | 6.39 | 1580.1              | 1610.1      | 19.97               | 27.08 | 28.86 | 1580.1              | 1610.1      | 0.17                                 | 0.07  | 0.04  |
| 1610.1              | 1640.1      | 6.75                                                  | 6.51 | 6.47 | 1610.1              | 1640.1      | 20.71               | 28.58 | 27.39 | 1610.1              | 1640.1      | 0.14                                 | 0.06  | 0.03  |
| 1650.1              | 1680.1      | 6.84                                                  | 6.64 | 6.62 | 1650.1              | 1680.1      | 21.10               | 26.99 | 27.83 | 1650.1              | 1680.1      | 0.14                                 | 0.05  | 0.03  |
| 1670.1              | 1700.1      | 6.90                                                  | 6.68 | 6.66 | 1670.1              | 1700.1      | 21.26               | 26.70 | 31.51 | 1670.1              | 1700.1      | 0.11                                 | 0.04  | 0.02  |
| 1700.1              | 1730.1      | 7.00                                                  | 6.77 | 6.74 | 1700.1              | 1730.1      | 21.57               | 26.70 | 30.06 | 1700.1              | 1730.1      | 0.11                                 | 0.05  | 0.02  |
| 1730.1              | 1760.1      | 7.01                                                  | 6.81 | 6.78 | 1730.1              | 1760.1      | 23.47               | 26.34 | 31.02 | 1730.1              | 1760.1      | 0.10                                 | 0.05  | 0.03  |
| 1760.1              | 1790.1      | 7.18                                                  | 6.94 | 6.90 | 1760.1              | 1790.1      | 23.77               | 26.61 | 28.00 | 1760.1              | 1790.1      | 0.08                                 | 0.04  | 0.02  |
| 1800.1              | 1830.1      | 7.29                                                  | 7.07 | 7.00 | 1800.1              | 1830.1      | 26.50               | 28.35 | 29.75 | 1800.1              | 1830.1      | 0.07                                 | 0.03  | 0.03  |
| 1830.1              | 1860.1      | 7.33                                                  | 7.12 | 7.07 | 1830.1              | 1860.1      | 27.02               | 29.70 | 32.34 | 1830.1              | 1860.1      | 0.06                                 | 0.03  | 0.02  |
| 1860.1              | 1890.1      | 7.42                                                  | 7.19 | 7.14 | 1860.1              | 1890.1      | 26.02               | 29.60 | 32.14 | 1860.1              | 1890.1      | 0.05                                 | 0.03  | 0.02  |
| 1890.1              | 1920.1      | 7.46                                                  | 7.24 | 7.18 | 1890.1              | 1920.1      | 25.28               | 30.56 | 30.68 | 1890.1              | 1920.1      | 0.06                                 | 0.02  | 0.02  |
| 1920.1              | 1950.1      | 7.47                                                  | 7.28 | 7.22 | 1920.1              | 1950.1      | 25.33               | 27.21 | 31.22 | 1920.1              | 1950.1      | 0.06                                 | 0.03  | 0.02  |
| 1950.1              | 1980.1      | 7.49                                                  | 7.29 | 7.23 | 1950.1              | 1980.1      | 26.65               | 25.67 | 30.10 | 1950.1              | 1980.1      | 0.07                                 | 0.02  | 0.01  |
| 1980.1              | 2010.1      | 7.57                                                  | 7.34 | 7.27 | 1980.1              | 2010.1      | 25.98               | 26.06 | 29.71 | 1980.1              | 2010.1      | 0.07                                 | 0.02  | 0.01  |
| 2010.1              | 2040.1      | 7.55                                                  | 7.34 | 7.23 | 2010.1              | 2040.1      | 26.93               | 26.72 | 29.11 | 2010.1              | 2040.1      | 0.06                                 | 0.01  | 0.01  |
| 2040.1              | 2070.1      | 7.60                                                  | 7.35 | 7.26 | 2040.1              | 2070.1      | 25.09               | 26.52 | 27.77 | 2040.1              | 2070.1      | 0.06                                 | 0.03  | 0.00  |
| 2070.1              | 2100.1      | 7.67                                                  | 7.39 | 7.25 | 2070.1              | 2100.1      | 24.89               | 27.70 | 30.12 | 2070.1              | 2100.1      | 0.05                                 | 0.01  | 0.02  |
| 2100.1              | 2130.1      | 7.76                                                  | 7.46 | 7.30 | 2100.1              | 2130.1      | 24.35               | 28.26 | 28.25 | 2100.1              | 2130.1      | 0.06                                 | 0.03  | 0.02  |
| 2130.1              | 2160.1      | 7.85                                                  | 7.52 | 7.34 | 2130.1              | 2160.1      | 23.77               | 29.64 | 29.39 | 2130.1              | 2160.1      | 0.06                                 | 0.02  | 0.01  |
| 2160.1              | 2190.1      | 7.99                                                  | 7.61 | 7.41 | 2160.1              | 2190.1      | 24.61               | 26.11 | 29.06 | 2160.1              | 2190.1      | 0.06                                 | 0.03  | 0.01  |
| 2200.1              | 2230.1      | 8.25                                                  | 7.82 | 7.56 | 2200.1              | 2230.1      | 25.45               | 26.97 | 29.84 | 2200.1              | 2230.1      | 0.05                                 | 0.02  | 0.02  |

# Frequency Mixer

SYM-ED14579/1

## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=1625MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=1600MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=1670MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|----------------------------------------------------------------|
|                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                      |
|                      |             | +17                                                            |                      |             | +17                                                            |                      |             | +17                                                            |
| 374.9                | 1250.1      | 10.78                                                          | 10.1                 | 1610.1      | 6.62                                                           | 359.9                | 1310.1      | 11.42                                                          |
| 359.9                | 1265.1      | 10.60                                                          | 15.1                 | 1615.1      | 6.59                                                           | 354.9                | 1315.1      | 11.38                                                          |
| 339.9                | 1285.1      | 10.52                                                          | 20.1                 | 1620.1      | 6.58                                                           | 344.9                | 1325.1      | 11.36                                                          |
| 319.9                | 1305.1      | 10.68                                                          | 25.1                 | 1625.1      | 6.55                                                           | 334.9                | 1335.1      | 11.34                                                          |
| 304.9                | 1320.1      | 10.87                                                          | 30.1                 | 1630.1      | 6.51                                                           | 324.9                | 1345.1      | 11.34                                                          |
| 284.9                | 1340.1      | 10.72                                                          | 40.1                 | 1640.1      | 6.48                                                           | 319.9                | 1350.1      | 11.29                                                          |
| 264.9                | 1360.1      | 10.21                                                          | 45.1                 | 1645.1      | 6.52                                                           | 309.9                | 1360.1      | 11.14                                                          |
| 249.9                | 1375.1      | 9.81                                                           | 50.1                 | 1650.1      | 6.56                                                           | 299.9                | 1370.1      | 10.99                                                          |
| 229.9                | 1395.1      | 9.28                                                           | 55.1                 | 1655.1      | 6.61                                                           | 289.9                | 1380.1      | 10.74                                                          |
| 209.9                | 1415.1      | 8.98                                                           | 65.1                 | 1665.1      | 6.72                                                           | 279.9                | 1390.1      | 10.47                                                          |
| 194.9                | 1430.1      | 8.67                                                           | 70.1                 | 1670.1      | 6.80                                                           | 274.9                | 1395.1      | 10.32                                                          |
| 174.9                | 1450.1      | 8.15                                                           | 75.1                 | 1675.1      | 6.88                                                           | 264.9                | 1405.1      | 9.98                                                           |
| 154.9                | 1470.1      | 7.68                                                           | 80.1                 | 1680.1      | 6.94                                                           | 254.9                | 1415.1      | 9.64                                                           |
| 134.9                | 1490.1      | 7.44                                                           | 90.1                 | 1690.1      | 7.06                                                           | 244.9                | 1425.1      | 9.43                                                           |
| 119.9                | 1505.1      | 7.38                                                           | 95.1                 | 1695.1      | 7.16                                                           | 234.9                | 1435.1      | 9.22                                                           |
| 99.9                 | 1525.1      | 7.21                                                           | 100.1                | 1700.1      | 7.24                                                           | 229.9                | 1440.1      | 9.14                                                           |
| 79.9                 | 1545.1      | 7.03                                                           | 105.1                | 1705.1      | 7.31                                                           | 219.9                | 1450.1      | 9.02                                                           |
| 64.9                 | 1560.1      | 6.86                                                           | 110.1                | 1710.1      | 7.37                                                           | 209.9                | 1460.1      | 8.83                                                           |
| 44.9                 | 1580.1      | 6.65                                                           | 120.1                | 1720.1      | 7.46                                                           | 199.9                | 1470.1      | 8.66                                                           |
| 24.9                 | 1600.1      | 6.66                                                           | 125.1                | 1725.1      | 7.51                                                           | 189.9                | 1480.1      | 8.53                                                           |
| 15.1                 | 1640.1      | 6.70                                                           | 130.1                | 1730.1      | 7.56                                                           | 184.9                | 1485.1      | 8.41                                                           |
| 25.1                 | 1650.1      | 6.61                                                           | 135.1                | 1735.1      | 7.60                                                           | 174.9                | 1495.1      | 8.15                                                           |
| 35.1                 | 1660.1      | 6.52                                                           | 145.1                | 1745.1      | 7.70                                                           | 164.9                | 1505.1      | 7.94                                                           |
| 50.1                 | 1675.1      | 6.64                                                           | 150.1                | 1750.1      | 7.78                                                           | 154.9                | 1515.1      | 7.75                                                           |
| 60.1                 | 1685.1      | 6.76                                                           | 155.1                | 1755.1      | 7.88                                                           | 144.9                | 1525.1      | 7.67                                                           |
| 70.1                 | 1695.1      | 6.88                                                           | 160.1                | 1760.1      | 7.98                                                           | 139.9                | 1530.1      | 7.65                                                           |
| 85.1                 | 1710.1      | 7.11                                                           | 170.1                | 1770.1      | 8.20                                                           | 129.9                | 1540.1      | 7.59                                                           |
| 95.1                 | 1720.1      | 7.28                                                           | 175.1                | 1775.1      | 8.32                                                           | 119.9                | 1550.1      | 7.51                                                           |
| 105.1                | 1730.1      | 7.41                                                           | 180.1                | 1780.1      | 8.48                                                           | 109.9                | 1560.1      | 7.48                                                           |
| 120.1                | 1745.1      | 7.60                                                           | 185.1                | 1785.1      | 8.60                                                           | 99.9                 | 1570.1      | 7.40                                                           |
| 130.1                | 1755.1      | 7.70                                                           | 190.1                | 1790.1      | 8.72                                                           | 94.9                 | 1575.1      | 7.37                                                           |
| 140.1                | 1765.1      | 7.82                                                           | 200.1                | 1800.1      | 8.90                                                           | 84.9                 | 1585.1      | 7.27                                                           |
| 155.1                | 1780.1      | 8.02                                                           | 205.1                | 1805.1      | 8.99                                                           | 74.9                 | 1595.1      | 7.12                                                           |
| 165.1                | 1790.1      | 8.25                                                           | 210.1                | 1810.1      | 9.06                                                           | 64.9                 | 1605.1      | 7.00                                                           |
| 180.1                | 1805.1      | 8.68                                                           | 215.1                | 1815.1      | 9.11                                                           | 54.9                 | 1615.1      | 6.91                                                           |
| 190.1                | 1815.1      | 8.93                                                           | 225.1                | 1825.1      | 9.18                                                           | 49.9                 | 1620.1      | 6.85                                                           |
| 200.1                | 1825.1      | 9.12                                                           | 230.1                | 1830.1      | 9.25                                                           | 39.9                 | 1630.1      | 6.77                                                           |
| 215.1                | 1840.1      | 9.33                                                           | 235.1                | 1835.1      | 9.33                                                           | 29.9                 | 1640.1      | 6.75                                                           |
| 225.1                | 1850.1      | 9.44                                                           | 240.1                | 1840.1      | 9.41                                                           | 19.9                 | 1650.1      | 6.77                                                           |
| 235.1                | 1860.1      | 9.59                                                           | 250.1                | 1850.1      | 9.61                                                           | 9.9                  | 1660.1      | 6.74                                                           |

# Frequency Mixer

SYM-ED14579/1

## Typical Performance Data

| LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |       |       | LO-IF ISOLATION<br>(dB) |       |       |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
|             | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|             | +14                     | +17   | +20   | +14                     | +17   | +20   |
| 1030.1      | 44.28                   | 48.08 | 50.20 | 42.38                   | 43.17 | 34.08 |
| 1060.1      | 43.83                   | 48.63 | 50.77 | 43.51                   | 42.77 | 34.40 |
| 1090.1      | 43.50                   | 49.78 | 56.81 | 43.15                   | 44.26 | 35.36 |
| 1120.1      | 42.95                   | 49.63 | 64.92 | 43.64                   | 45.12 | 36.39 |
| 1150.1      | 42.17                   | 49.54 | 50.42 | 45.28                   | 44.44 | 36.88 |
| 1180.1      | 41.06                   | 47.04 | 55.46 | 45.22                   | 45.06 | 37.59 |
| 1210.1      | 40.22                   | 45.11 | 61.44 | 44.51                   | 46.68 | 39.03 |
| 1240.1      | 39.59                   | 43.97 | 49.76 | 45.25                   | 46.85 | 39.77 |
| 1270.1      | 39.07                   | 43.42 | 50.26 | 45.91                   | 47.17 | 40.64 |
| 1300.1      | 38.68                   | 42.81 | 47.82 | 45.64                   | 48.91 | 42.39 |
| 1330.1      | 38.32                   | 42.86 | 47.66 | 45.89                   | 49.30 | 43.20 |
| 1360.1      | 38.04                   | 42.41 | 46.25 | 46.03                   | 49.79 | 42.95 |
| 1390.1      | 38.08                   | 42.06 | 45.11 | 45.89                   | 51.51 | 43.89 |
| 1430.1      | 37.94                   | 41.14 | 43.71 | 45.83                   | 52.85 | 44.84 |
| 1460.1      | 36.58                   | 39.60 | 43.86 | 46.55                   | 52.45 | 44.60 |
| 1490.1      | 35.01                   | 38.17 | 41.45 | 47.35                   | 53.03 | 44.99 |
| 1520.1      | 33.96                   | 37.19 | 40.20 | 48.33                   | 53.55 | 45.55 |
| 1550.1      | 33.69                   | 36.84 | 39.75 | 49.78                   | 52.81 | 45.64 |
| 1580.1      | 33.41                   | 36.42 | 39.32 | 51.41                   | 53.29 | 46.01 |
| 1610.1      | 33.30                   | 36.29 | 39.48 | 52.41                   | 54.68 | 46.96 |
| 1640.1      | 33.08                   | 35.90 | 38.58 | 55.54                   | 53.64 | 46.71 |
| 1680.1      | 32.94                   | 35.56 | 38.55 | 60.66                   | 53.02 | 47.01 |
| 1700.1      | 32.78                   | 35.40 | 38.42 | 62.31                   | 53.33 | 47.46 |
| 1730.1      | 32.67                   | 35.26 | 38.47 | 72.02                   | 52.68 | 47.63 |
| 1760.1      | 32.48                   | 34.94 | 37.50 | 67.06                   | 51.34 | 47.12 |
| 1790.1      | 32.48                   | 34.81 | 37.72 | 61.85                   | 50.96 | 47.29 |
| 1830.1      | 32.33                   | 34.54 | 36.82 | 56.99                   | 50.11 | 47.24 |
| 1860.1      | 32.19                   | 34.26 | 36.18 | 53.69                   | 48.90 | 46.55 |
| 1890.1      | 32.31                   | 34.22 | 35.94 | 52.85                   | 48.61 | 46.54 |
| 1920.1      | 32.16                   | 34.10 | 35.77 | 51.40                   | 48.13 | 46.46 |
| 1950.1      | 32.28                   | 34.19 | 35.72 | 49.75                   | 47.21 | 45.85 |
| 1980.1      | 32.26                   | 34.11 | 35.48 | 49.02                   | 46.66 | 45.36 |
| 2010.1      | 32.33                   | 34.28 | 35.63 | 48.58                   | 46.55 | 45.45 |
| 2040.1      | 32.16                   | 34.13 | 35.42 | 47.48                   | 45.90 | 44.97 |
| 2070.1      | 32.19                   | 33.98 | 35.25 | 46.78                   | 45.23 | 44.34 |
| 2100.1      | 32.00                   | 33.80 | 34.99 | 46.44                   | 45.05 | 44.17 |
| 2130.1      | 31.92                   | 33.72 | 34.87 | 45.72                   | 44.63 | 43.84 |
| 2160.1      | 31.56                   | 33.17 | 34.03 | 45.20                   | 44.08 | 43.20 |
| 2190.1      | 31.25                   | 32.74 | 33.70 | 45.07                   | 43.88 | 42.98 |
| 2230.1      | 30.89                   | 32.41 | 33.47 | 45.13                   | 44.01 | 43.10 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +14                     | +17   | +20   |
| 1000.1              | 1030.1      | 24.11                   | 22.25 | 20.15 |
| 1030.1              | 1060.1      | 24.29                   | 22.63 | 20.50 |
| 1060.1              | 1090.1      | 23.83                   | 22.34 | 20.57 |
| 1090.1              | 1120.1      | 23.19                   | 21.91 | 20.58 |
| 1120.1              | 1150.1      | 22.49                   | 21.48 | 20.33 |
| 1150.1              | 1180.1      | 21.74                   | 20.85 | 20.27 |
| 1180.1              | 1210.1      | 21.26                   | 20.44 | 19.84 |
| 1210.1              | 1240.1      | 20.94                   | 20.33 | 19.46 |
| 1240.1              | 1270.1      | 20.46                   | 20.06 | 19.13 |
| 1270.1              | 1300.1      | 20.22                   | 19.90 | 18.99 |
| 1300.1              | 1330.1      | 20.24                   | 19.73 | 19.18 |
| 1330.1              | 1360.1      | 20.13                   | 19.66 | 19.49 |
| 1360.1              | 1390.1      | 20.09                   | 19.82 | 19.66 |
| 1400.1              | 1430.1      | 20.52                   | 20.45 | 20.30 |
| 1430.1              | 1460.1      | 20.70                   | 20.76 | 20.69 |
| 1460.1              | 1490.1      | 20.87                   | 21.19 | 21.20 |
| 1490.1              | 1520.1      | 21.30                   | 21.75 | 21.84 |
| 1520.1              | 1550.1      | 21.58                   | 21.98 | 22.05 |
| 1550.1              | 1580.1      | 21.91                   | 22.43 | 22.57 |
| 1580.1              | 1610.1      | 22.45                   | 23.01 | 23.19 |
| 1610.1              | 1640.1      | 22.99                   | 23.51 | 23.77 |
| 1650.1              | 1680.1      | 23.52                   | 24.08 | 24.34 |
| 1670.1              | 1700.1      | 24.05                   | 24.63 | 24.93 |
| 1700.1              | 1730.1      | 24.59                   | 25.14 | 25.45 |
| 1730.1              | 1760.1      | 25.12                   | 25.65 | 25.99 |
| 1760.1              | 1790.1      | 25.72                   | 26.29 | 26.66 |
| 1800.1              | 1830.1      | 26.82                   | 27.39 | 27.73 |
| 1830.1              | 1860.1      | 27.43                   | 28.01 | 28.38 |
| 1860.1              | 1890.1      | 28.19                   | 28.89 | 29.27 |
| 1890.1              | 1920.1      | 29.21                   | 29.98 | 30.43 |
| 1920.1              | 1950.1      | 29.81                   | 30.61 | 31.09 |
| 1950.1              | 1980.1      | 30.82                   | 31.77 | 32.35 |
| 1980.1              | 2010.1      | 31.73                   | 32.82 | 33.51 |
| 2010.1              | 2040.1      | 32.76                   | 33.91 | 34.72 |
| 2040.1              | 2070.1      | 33.47                   | 34.77 | 35.68 |
| 2070.1              | 2100.1      | 34.50                   | 35.80 | 36.78 |
| 2100.1              | 2130.1      | 34.92                   | 36.18 | 37.06 |
| 2130.1              | 2160.1      | 34.91                   | 35.97 | 36.71 |
| 2160.1              | 2190.1      | 34.41                   | 35.20 | 35.72 |
| 2200.1              | 2230.1      | 33.18                   | 33.66 | 33.91 |

## 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=1670MHz<br>(:1) |      |      |
|---------------------|-------------|-----------------|------|------|-------------|-----------------|------|------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)       |      |      |             | @LO (dBm)       |      |      |                      | @LO (dBm)                      |      |      |
|                     |             | +14             | +17  | +20  |             | +14             | +17  | +20  |                      | +14                            | +17  | +20  |
| 1000.1              | 1030.1      | 3.72            | 2.87 | 2.29 | 1030.1      | 8.28            | 3.08 | 1.96 | 10.1                 | 2.67                           | 2.38 | 2.19 |
| 1030.1              | 1060.1      | 3.36            | 2.71 | 2.20 | 1060.1      | 7.39            | 2.96 | 1.94 | 15.1                 | 2.65                           | 2.37 | 2.17 |
| 1060.1              | 1090.1      | 3.06            | 2.48 | 2.07 | 1090.1      | 7.93            | 3.06 | 2.00 | 20.1                 | 2.65                           | 2.37 | 2.18 |
| 1090.1              | 1120.1      | 2.84            | 2.30 | 1.95 | 1120.1      | 8.02            | 3.17 | 2.14 | 30.1                 | 2.65                           | 2.37 | 2.18 |
| 1120.1              | 1150.1      | 2.48            | 2.05 | 1.74 | 1150.1      | 6.94            | 3.16 | 2.27 | 35.1                 | 2.67                           | 2.39 | 2.21 |
| 1150.1              | 1180.1      | 2.28            | 1.86 | 1.63 | 1180.1      | 7.07            | 3.32 | 2.51 | 45.1                 | 2.68                           | 2.41 | 2.24 |
| 1180.1              | 1210.1      | 2.07            | 1.68 | 1.44 | 1210.1      | 7.50            | 3.58 | 2.81 | 50.1                 | 2.69                           | 2.42 | 2.26 |
| 1210.1              | 1240.1      | 1.87            | 1.53 | 1.35 | 1240.1      | 6.87            | 3.75 | 3.13 | 60.1                 | 2.73                           | 2.48 | 2.32 |
| 1240.1              | 1270.1      | 1.61            | 1.32 | 1.41 | 1270.1      | 6.48            | 3.94 | 3.03 | 65.1                 | 2.76                           | 2.51 | 2.35 |
| 1270.1              | 1300.1      | 1.50            | 1.24 | 1.49 | 1300.1      | 7.15            | 4.32 | 3.10 | 75.1                 | 2.83                           | 2.58 | 2.43 |
| 1300.1              | 1330.1      | 1.32            | 1.40 | 1.64 | 1330.1      | 7.08            | 4.50 | 3.04 | 80.1                 | 2.85                           | 2.60 | 2.47 |
| 1330.1              | 1360.1      | 1.16            | 1.66 | 1.82 | 1360.1      | 6.89            | 4.22 | 2.97 | 90.1                 | 2.88                           | 2.65 | 2.52 |
| 1360.1              | 1390.1      | 1.09            | 1.85 | 2.03 | 1390.1      | 7.40            | 4.12 | 2.93 | 95.1                 | 2.89                           | 2.67 | 2.55 |
| 1400.1              | 1430.1      | 1.24            | 2.10 | 2.31 | 1430.1      | 7.81            | 3.92 | 2.91 | 105.1                | 2.91                           | 2.70 | 2.59 |
| 1430.1              | 1460.1      | 1.55            | 2.25 | 2.47 | 1460.1      | 7.30            | 3.59 | 2.88 | 110.1                | 2.93                           | 2.72 | 2.62 |
| 1460.1              | 1490.1      | 1.65            | 2.37 | 2.62 | 1490.1      | 7.46            | 3.51 | 2.87 | 120.1                | 2.92                           | 2.73 | 2.64 |
| 1490.1              | 1520.1      | 1.82            | 2.49 | 2.76 | 1520.1      | 7.27            | 3.44 | 2.88 | 125.1                | 2.93                           | 2.75 | 2.66 |
| 1520.1              | 1550.1      | 2.14            | 2.68 | 2.94 | 1550.1      | 6.04            | 3.22 | 2.89 | 135.1                | 2.93                           | 2.76 | 2.70 |
| 1550.1              | 1580.1      | 2.30            | 2.80 | 3.05 | 1580.1      | 5.65            | 3.11 | 2.91 | 140.1                | 2.93                           | 2.78 | 2.71 |
| 1580.1              | 1610.1      | 2.49            | 3.00 | 3.27 | 1610.1      | 5.61            | 3.09 | 2.91 | 150.1                | 2.97                           | 2.83 | 2.78 |
| 1610.1              | 1640.1      | 2.70            | 3.12 | 3.36 | 1640.1      | 4.77            | 2.96 | 2.92 | 155.1                | 3.00                           | 2.86 | 2.82 |
| 1650.1              | 1680.1      | 2.96            | 3.32 | 3.55 | 1680.1      | 4.19            | 2.82 | 2.96 | 165.1                | 3.05                           | 2.93 | 2.89 |
| 1670.1              | 1700.1      | 3.01            | 3.36 | 3.58 | 1700.1      | 4.15            | 2.78 | 2.94 | 170.1                | 3.07                           | 2.96 | 2.92 |
| 1700.1              | 1730.1      | 3.29            | 3.58 | 3.78 | 1730.1      | 3.73            | 2.71 | 2.94 | 180.1                | 3.11                           | 3.00 | 2.98 |
| 1730.1              | 1760.1      | 3.39            | 3.60 | 3.77 | 1760.1      | 3.27            | 2.62 | 2.98 | 185.1                | 3.13                           | 3.03 | 3.01 |
| 1760.1              | 1790.1      | 3.57            | 3.76 | 3.90 | 1790.1      | 3.08            | 2.54 | 2.99 | 195.1                | 3.15                           | 3.07 | 3.07 |
| 1800.1              | 1830.1      | 3.78            | 3.93 | 4.04 | 1830.1      | 2.78            | 2.46 | 2.95 | 200.1                | 3.16                           | 3.08 | 3.09 |
| 1830.1              | 1860.1      | 3.82            | 3.94 | 4.03 | 1860.1      | 2.50            | 2.44 | 3.05 | 210.1                | 3.18                           | 3.12 | 3.13 |
| 1860.1              | 1890.1      | 3.90            | 4.01 | 4.09 | 1890.1      | 2.35            | 2.37 | 3.05 | 215.1                | 3.17                           | 3.12 | 3.14 |
| 1890.1              | 1920.1      | 3.94            | 4.02 | 4.07 | 1920.1      | 2.22            | 2.32 | 2.99 | 225.1                | 3.18                           | 3.15 | 3.17 |
| 1920.1              | 1950.1      | 4.04            | 4.09 | 4.13 | 1950.1      | 2.08            | 2.34 | 3.08 | 230.1                | 3.17                           | 3.15 | 3.18 |
| 1950.1              | 1980.1      | 3.92            | 3.94 | 3.95 | 1980.1      | 1.97            | 2.35 | 3.18 | 240.1                | 3.19                           | 3.18 | 3.22 |
| 1980.1              | 2010.1      | 4.03            | 4.00 | 4.00 | 2010.1      | 1.88            | 2.27 | 3.08 | 245.1                | 3.20                           | 3.20 | 3.24 |
| 2010.1              | 2040.1      | 3.94            | 3.88 | 3.85 | 2040.1      | 1.82            | 2.30 | 3.12 | 255.1                | 3.24                           | 3.25 | 3.30 |
| 2040.1              | 2070.1      | 4.04            | 3.93 | 3.87 | 2070.1      | 1.78            | 2.38 | 3.29 | 260.1                | 3.26                           | 3.28 | 3.33 |
| 2070.1              | 2100.1      | 3.92            | 3.79 | 3.70 | 2100.1      | 1.70            | 2.34 | 3.25 | 270.1                | 3.31                           | 3.34 | 3.39 |
| 2100.1              | 2130.1      | 4.07            | 3.91 | 3.80 | 2130.1      | 1.68            | 2.32 | 3.21 | 275.1                | 3.34                           | 3.37 | 3.43 |
| 2130.1              | 2160.1      | 4.02            | 3.85 | 3.73 | 2160.1      | 1.70            | 2.44 | 3.40 | 285.1                | 3.37                           | 3.41 | 3.48 |
| 2160.1              | 2190.1      | 4.17            | 3.97 | 3.84 | 2190.1      | 1.69            | 2.48 | 3.46 | 290.1                | 3.37                           | 3.42 | 3.48 |
| 2200.1              | 2230.1      | 4.34            | 4.14 | 4.00 | 2230.1      | 1.68            | 2.43 | 3.36 | 300.1                | 3.39                           | 3.45 | 3.53 |

## Harmonics Tables

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |        |        |        |        |        |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0  | ---    | ---    | 20.32  | 19.56  | 6.74   | 22.96  | 9.58   | 25.76  | 23.32  | 30.44  | 37.35  | 42.17  |
| 1  | ---    | 17.41  | ---    | 38.04  | 31.29  | 35.50  | 32.84  | 48.54  | 59.40  | 44.26  | 45.94  | 59.96  |
| 2  | 111.00 | 72.17  | 68.99  | 69.08  | 71.90  | 81.11  | 59.41  | 72.68  | 59.93  | 75.50  | 67.74  | 69.28  |
| 3  | 126.41 | 93.25  | 99.03  | 96.39  | 72.71  | 93.88  | 94.43  | 91.64  | 88.60  | 97.94  | 94.80  | 97.08  |
| 4  | 127.58 | 106.09 | 105.59 | 106.48 | 109.09 | 109.64 | 107.83 | 105.91 | 109.59 | 108.28 | 103.76 | 107.03 |
| 5  | 127.91 | 107.63 | 107.47 | 107.78 | 107.33 | 109.18 | 95.54  | 108.16 | 107.41 | 109.53 | 108.35 | 109.11 |
| 6  | 125.89 | 108.76 | 106.62 | 108.86 | 106.56 | 107.30 | 111.82 | 103.83 | 110.26 | 108.98 | 107.47 | 106.73 |
| 7  | 126.29 | 107.36 | 109.79 | 107.86 | 106.84 | 108.62 | 108.68 | 110.18 | 107.86 | 108.52 | 110.50 | 108.79 |
| 8  | 125.23 | 105.20 | 106.18 | 108.57 | 109.10 | 106.90 | 107.97 | 106.92 | 109.56 | 107.86 | 109.96 | 108.56 |
| 9  | 123.84 | 104.20 | 107.95 | 107.79 | 106.14 | 108.97 | 107.71 | 107.86 | 107.21 | 108.43 | 100.34 | 109.53 |
| 10 | 122.45 | 103.95 | 102.42 | 106.10 | 107.11 | 107.29 | 107.49 | 106.10 | 109.70 | 108.37 | 111.29 | 103.23 |
|    | RF CAL | 0      | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     |

### LO HARMONICS ORDER

Test conditions:

RF IN: 1625 MHz; -10.00 dBm  
LO IN: 1655 MHz; +17 dBm  
IF OUT: 30 MHz; -16.52 dBm

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |        |        |        |        |        |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0  | ---    | ---    | 31.02  | 29.51  | 16.95  | 32.92  | 20.22  | 36.02  | 34.33  | 41.22  | 49.06  | 54.05  |
| 1  | ---    | 17.42  | ---    | 38.09  | 31.41  | 35.72  | 33.19  | 48.57  | 62.52  | 44.64  | 47.24  | 61.04  |
| 2  | 97.61  | 63.06  | 59.64  | 58.38  | 62.88  | 74.19  | 50.27  | 63.96  | 51.03  | 66.49  | 59.06  | 61.06  |
| 3  | 122.28 | 72.69  | 79.17  | 76.16  | 53.28  | 74.11  | 74.82  | 72.07  | 70.07  | 77.10  | 76.39  | 76.82  |
| 4  | 124.55 | 89.38  | 83.92  | 89.94  | 89.61  | 85.29  | 91.79  | 89.15  | 80.29  | 88.28  | 80.35  | 89.33  |
| 5  | 121.81 | 112.72 | 102.54 | 107.70 | 106.72 | 122.71 | 88.34  | 110.10 | 110.53 | 106.01 | 97.63  | 99.85  |
| 6  | 123.92 | 120.30 | 116.94 | 113.50 | 111.65 | 118.67 | 117.87 | 108.27 | 119.40 | 113.00 | 108.04 | 112.12 |
| 7  | 123.07 | 120.42 | 119.56 | 118.49 | 119.52 | 121.04 | 121.19 | 123.26 | 115.87 | 121.58 | 120.62 | 120.01 |
| 8  | 122.38 | 117.69 | 117.40 | 119.90 | 121.29 | 120.68 | 121.62 | 117.21 | 121.59 | 114.52 | 122.58 | 121.72 |
| 9  | 117.84 | 115.50 | 119.14 | 119.74 | 118.16 | 120.92 | 120.15 | 121.72 | 119.24 | 122.64 | 109.74 | 121.95 |
| 10 | 120.78 | 117.25 | 117.44 | 119.51 | 118.41 | 119.66 | 120.17 | 118.47 | 121.87 | 120.28 | 121.13 | 115.34 |
|    | RF CAL | 0      | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     |

### LO HARMONICS ORDER

Test conditions:

RF IN: 1625 MHz; 0 dBm  
LO IN: 1655 MHz; +17 dBm  
IF OUT: 30 MHz; -6.64 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 represents the Harmonics level of the RF Input Signal to the mixer