

# Frequency Mixer

SKY-7G+

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>IF FIXED<br>@IF(OUT)=30MHz<br>(dB) |       |       |
|---------------------|-------------|-------------------------------------------------------|-------|-------|
|                     |             | @LO (dBm)                                             |       |       |
|                     |             | +4                                                    | +7    | +10   |
| 1500.1              | 1530.1      | 10.12                                                 | 8.16  | 7.46  |
| 1660.1              | 1690.1      | 8.95                                                  | 7.48  | 6.98  |
| 1820.1              | 1850.1      | 7.89                                                  | 7.13  | 6.78  |
| 1980.1              | 2010.1      | 7.15                                                  | 6.60  | 6.40  |
| 2140.1              | 2170.1      | 6.61                                                  | 6.15  | 5.99  |
| 2300.1              | 2330.1      | 6.65                                                  | 6.29  | 6.15  |
| 2460.1              | 2490.1      | 6.82                                                  | 6.54  | 6.43  |
| 2620.1              | 2650.1      | 6.82                                                  | 6.54  | 6.43  |
| 2780.1              | 2810.1      | 7.05                                                  | 6.68  | 6.51  |
| 2940.1              | 2970.1      | 7.22                                                  | 6.74  | 6.48  |
| 3100.1              | 3130.1      | 6.96                                                  | 6.60  | 6.36  |
| 3260.1              | 3290.1      | 6.87                                                  | 6.50  | 6.28  |
| 3420.1              | 3450.1      | 6.67                                                  | 6.31  | 6.10  |
| 3580.1              | 3610.1      | 6.36                                                  | 6.03  | 5.85  |
| 3740.1              | 3770.1      | 6.49                                                  | 6.13  | 5.94  |
| 3900.1              | 3930.1      | 6.75                                                  | 6.29  | 6.04  |
| 4060.1              | 4090.1      | 7.81                                                  | 7.30  | 6.89  |
| 4220.1              | 4250.1      | 7.66                                                  | 7.34  | 7.04  |
| 4380.1              | 4410.1      | 7.39                                                  | 7.21  | 7.06  |
| 4540.1              | 4570.1      | 6.80                                                  | 6.64  | 6.63  |
| 4700.1              | 4730.1      | 6.72                                                  | 6.37  | 6.35  |
| 4860.1              | 4890.1      | 7.48                                                  | 6.97  | 6.85  |
| 5020.1              | 5050.1      | 7.93                                                  | 7.11  | 6.79  |
| 5180.1              | 5210.1      | 7.37                                                  | 6.71  | 6.48  |
| 5340.1              | 5370.1      | 7.01                                                  | 6.50  | 6.36  |
| 5500.1              | 5530.1      | 6.83                                                  | 6.32  | 6.22  |
| 5660.1              | 5690.1      | 7.07                                                  | 6.54  | 6.34  |
| 5820.1              | 5850.1      | 6.81                                                  | 6.33  | 6.18  |
| 5980.1              | 6010.1      | 7.04                                                  | 6.66  | 6.57  |
| 6140.1              | 6170.1      | 7.10                                                  | 6.83  | 6.76  |
| 6300.1              | 6330.1      | 7.14                                                  | 6.87  | 6.79  |
| 6460.1              | 6490.1      | 8.18                                                  | 7.79  | 7.55  |
| 6620.1              | 6650.1      | 8.80                                                  | 8.41  | 8.15  |
| 6780.1              | 6810.1      | 9.26                                                  | 8.91  | 8.63  |
| 6940.1              | 6970.1      | 9.45                                                  | 9.05  | 8.78  |
| 7120.1              | 7150.1      | 10.02                                                 | 9.56  | 9.27  |
| 7280.1              | 7310.1      | 10.81                                                 | 10.20 | 9.88  |
| 7460.1              | 7490.1      | 12.01                                                 | 10.89 | 10.51 |
| 7620.1              | 7650.1      | 13.81                                                 | 11.69 | 11.18 |
| 7800.1              | 7830.1      | 15.57                                                 | 12.21 | 11.62 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | IP3 INPUT<br>(dBm) |       |       |
|---------------------|-------------|--------------------|-------|-------|
|                     |             | @LO (dBm)          |       |       |
|                     |             | +4                 | +7    | +10   |
| 1500.1              | 1530.1      | 8.38               | 10.75 | 9.60  |
| 1660.1              | 1690.1      | 11.66              | 10.77 | 10.22 |
| 1820.1              | 1850.1      | 11.50              | 10.56 | 10.73 |
| 1980.1              | 2010.1      | 12.77              | 13.53 | 12.18 |
| 2140.1              | 2170.1      | 11.35              | 13.27 | 11.69 |
| 2300.1              | 2330.1      | 12.93              | 14.63 | 13.08 |
| 2460.1              | 2490.1      | 11.91              | 10.90 | 9.90  |
| 2620.1              | 2650.1      | 10.77              | 11.34 | 11.29 |
| 2780.1              | 2810.1      | 9.44               | 9.17  | 9.19  |
| 2940.1              | 2970.1      | 8.99               | 8.26  | 7.95  |
| 3100.1              | 3130.1      | 7.32               | 7.31  | 7.19  |
| 3260.1              | 3290.1      | 7.49               | 8.53  | 9.41  |
| 3420.1              | 3450.1      | 6.58               | 7.72  | 8.80  |
| 3580.1              | 3610.1      | 6.53               | 7.93  | 9.28  |
| 3740.1              | 3770.1      | 6.92               | 8.59  | 10.07 |
| 3900.1              | 3930.1      | 9.46               | 12.04 | 13.89 |
| 4060.1              | 4090.1      | 8.59               | 10.73 | 12.29 |
| 4220.1              | 4250.1      | 6.15               | 7.67  | 9.63  |
| 4380.1              | 4410.1      | 7.11               | 10.69 | 14.48 |
| 4540.1              | 4570.1      | 7.46               | 9.99  | 11.87 |
| 4700.1              | 4730.1      | 10.31              | 10.21 | 11.41 |
| 4860.1              | 4890.1      | 11.34              | 14.17 | 12.96 |
| 5020.1              | 5050.1      | 8.56               | 9.00  | 9.12  |
| 5180.1              | 5210.1      | 7.26               | 7.98  | 8.82  |
| 5340.1              | 5370.1      | 8.31               | 8.20  | 8.82  |
| 5500.1              | 5530.1      | 9.35               | 9.52  | 9.44  |
| 5660.1              | 5690.1      | 9.28               | 9.63  | 9.45  |
| 5820.1              | 5850.1      | 9.40               | 10.39 | 10.78 |
| 5980.1              | 6010.1      | 12.55              | 12.93 | 12.52 |
| 6140.1              | 6170.1      | 13.76              | 14.21 | 13.38 |
| 6300.1              | 6330.1      | 12.71              | 14.81 | 15.96 |
| 6460.1              | 6490.1      | 14.88              | 16.67 | 16.65 |
| 6620.1              | 6650.1      | 16.77              | 18.47 | 17.37 |
| 6780.1              | 6810.1      | 16.56              | 18.34 | 16.46 |
| 6940.1              | 6970.1      | 15.11              | 17.85 | 18.80 |
| 7120.1              | 7150.1      | 13.48              | 16.78 | 19.14 |
| 7280.1              | 7310.1      | 11.83              | 16.13 | 18.58 |
| 7460.1              | 7490.1      | 9.30               | 13.71 | 15.60 |
| 7620.1              | 7650.1      | 6.41               | 10.37 | 13.51 |
| 7800.1              | 7830.1      | 3.01               | 8.02  | 11.03 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | COMPRESSION<br>@RF IN=+1dBm<br>(dB) |      |       |
|---------------------|-------------|-------------------------------------|------|-------|
|                     |             | @LO (dBm)                           |      |       |
|                     |             | +4                                  | +7   | +10   |
| 1500.1              | 1530.1      | 1.08                                | 1.45 | 1.25  |
| 1660.1              | 1690.1      | 1.27                                | 1.56 | 1.51  |
| 1820.1              | 1850.1      | 1.44                                | 1.42 | 1.41  |
| 1980.1              | 2010.1      | 1.49                                | 1.42 | 1.33  |
| 2140.1              | 2170.1      | 1.52                                | 1.33 | 1.24  |
| 2300.1              | 2330.1      | 1.27                                | 1.05 | 0.99  |
| 2460.1              | 2490.1      | 1.07                                | 0.89 | 0.83  |
| 2620.1              | 2650.1      | 1.02                                | 0.83 | 0.78  |
| 2780.1              | 2810.1      | 0.78                                | 0.74 | 0.75  |
| 2940.1              | 2970.1      | 0.54                                | 0.54 | 0.62  |
| 3100.1              | 3130.1      | 0.62                                | 0.48 | 0.47  |
| 3260.1              | 3290.1      | 0.63                                | 0.42 | 0.39  |
| 3420.1              | 3450.1      | 0.71                                | 0.39 | 0.32  |
| 3580.1              | 3610.1      | 0.74                                | 0.40 | 0.33  |
| 3740.1              | 3770.1      | 0.60                                | 0.23 | 0.16  |
| 3900.1              | 3930.1      | 0.83                                | 0.45 | 0.35  |
| 4060.1              | 4090.1      | 0.36                                | 0.27 | 0.31  |
| 4220.1              | 4250.1      | 0.35                                | 0.05 | 0.06  |
| 4380.1              | 4410.1      | 0.53                                | 0.10 | -0.01 |
| 4540.1              | 4570.1      | 1.05                                | 0.44 | 0.24  |
| 4700.1              | 4730.1      | 1.66                                | 1.04 | 0.66  |
| 4860.1              | 4890.1      | 1.70                                | 1.32 | 0.97  |
| 5020.1              | 5050.1      | 1.34                                | 1.19 | 1.05  |
| 5180.1              | 5210.1      | 1.19                                | 0.97 | 0.84  |
| 5340.1              | 5370.1      | 1.03                                | 0.77 | 0.67  |
| 5500.1              | 5530.1      | 1.06                                | 0.73 | 0.61  |
| 5660.1              | 5690.1      | 0.94                                | 0.74 | 0.63  |
| 5820.1              | 5850.1      | 0.93                                | 0.65 | 0.55  |
| 5980.1              | 6010.1      | 0.84                                | 0.57 | 0.48  |
| 6140.1              | 6170.1      | 0.71                                | 0.53 | 0.45  |
| 6300.1              | 6330.1      | 0.81                                | 0.56 | 0.48  |
| 6460.1              | 6490.1      | 0.67                                | 0.52 | 0.50  |
| 6620.1              | 6650.1      | 0.44                                | 0.37 | 0.37  |
| 6780.1              | 6810.1      | 0.40                                | 0.33 | 0.32  |
| 6940.1              | 6970.1      | 0.47                                | 0.40 | 0.38  |
| 7120.1              | 7150.1      | 0.51                                | 0.39 | 0.36  |
| 7280.1              | 7310.1      | 0.44                                | 0.32 | 0.30  |
| 7460.1              | 7490.1      | 0.37                                | 0.36 | 0.32  |
| 7620.1              | 7650.1      | -0.22                               | 0.52 | 0.52  |
| 7800.1              | 7830.1      | -0.85                               | 0.94 | 0.90  |

REV. X3

SKY-7G+

101031

Page 1 of 5



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## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=4500MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|
|                      |             | @LO (dBm)<br><br>+7                                            |
| 2399.9               | 2100.1      | 11.38                                                          |
| 2268.2               | 2231.8      | 9.71                                                           |
| 2136.4               | 2363.6      | 8.37                                                           |
| 2004.7               | 2495.3      | 7.39                                                           |
| 1891.8               | 2608.2      | 6.89                                                           |
| 1760.1               | 2739.9      | 6.49                                                           |
| 1647.2               | 2852.8      | 6.25                                                           |
| 1515.4               | 2984.6      | 6.15                                                           |
| 1402.5               | 3097.5      | 5.95                                                           |
| 1270.8               | 3229.2      | 6.02                                                           |
| 1157.9               | 3342.1      | 6.38                                                           |
| 1026.2               | 3473.8      | 6.61                                                           |
| 913.3                | 3586.7      | 6.70                                                           |
| 781.5                | 3718.5      | 6.77                                                           |
| 668.6                | 3831.4      | 6.76                                                           |
| 536.9                | 3963.1      | 6.86                                                           |
| 424.0                | 4076.0      | 6.71                                                           |
| 292.3                | 4207.7      | 6.48                                                           |
| 179.4                | 4320.6      | 6.90                                                           |
| 47.6                 | 4452.4      | 7.06                                                           |
| 73.5                 | 4573.5      | 6.35                                                           |
| 221.8                | 4721.8      | 5.88                                                           |
| 348.9                | 4848.9      | 6.14                                                           |
| 497.2                | 4997.2      | 6.62                                                           |
| 624.3                | 5124.3      | 7.19                                                           |
| 772.5                | 5272.5      | 7.69                                                           |
| 899.6                | 5399.6      | 8.18                                                           |
| 1047.9               | 5547.9      | 7.97                                                           |
| 1175.0               | 5675.0      | 7.46                                                           |
| 1323.3               | 5823.3      | 6.87                                                           |
| 1450.4               | 5950.4      | 6.79                                                           |
| 1598.6               | 6098.6      | 6.74                                                           |
| 1725.7               | 6225.7      | 6.96                                                           |
| 1874.0               | 6374.0      | 8.00                                                           |
| 2001.1               | 6501.1      | 8.52                                                           |
| 2149.4               | 6649.4      | 9.36                                                           |
| 2276.5               | 6776.5      | 9.51                                                           |
| 2424.7               | 6924.7      | 9.00                                                           |
| 2551.8               | 7051.8      | 10.03                                                          |
| 2700.1               | 7200.1      | 12.89                                                          |

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=1990MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|
|                      |             | @LO (dBm)<br><br>+7                                            |
| 10.1                 | 2000.1      | 6.87                                                           |
| 70.1                 | 2060.1      | 6.31                                                           |
| 130.1                | 2120.1      | 6.21                                                           |
| 190.1                | 2180.1      | 6.19                                                           |
| 250.1                | 2240.1      | 6.00                                                           |
| 310.1                | 2300.1      | 6.08                                                           |
| 370.1                | 2360.1      | 6.08                                                           |
| 430.1                | 2420.1      | 6.19                                                           |
| 490.1                | 2480.1      | 6.40                                                           |
| 550.1                | 2540.1      | 6.75                                                           |
| 610.1                | 2600.1      | 6.89                                                           |
| 670.1                | 2660.1      | 7.05                                                           |
| 730.1                | 2720.1      | 6.95                                                           |
| 790.1                | 2780.1      | 7.22                                                           |
| 850.1                | 2840.1      | 7.27                                                           |
| 910.1                | 2900.1      | 7.23                                                           |
| 970.1                | 2960.1      | 7.39                                                           |
| 1030.1               | 3020.1      | 7.48                                                           |
| 1090.1               | 3080.1      | 7.41                                                           |
| 1150.1               | 3140.1      | 7.43                                                           |
| 1210.1               | 3200.1      | 7.26                                                           |
| 1270.1               | 3260.1      | 7.05                                                           |
| 1330.1               | 3320.1      | 6.85                                                           |
| 1390.1               | 3380.1      | 6.80                                                           |
| 1470.1               | 3460.1      | 7.00                                                           |
| 1530.1               | 3520.1      | 7.08                                                           |
| 1610.1               | 3600.1      | 7.03                                                           |
| 1670.1               | 3660.1      | 7.14                                                           |
| 1750.1               | 3740.1      | 7.13                                                           |
| 1810.1               | 3800.1      | 6.89                                                           |
| 1890.1               | 3880.1      | 6.93                                                           |
| 1950.1               | 3940.1      | 6.99                                                           |
| 2030.1               | 4020.1      | 7.32                                                           |
| 2090.1               | 4080.1      | 7.66                                                           |
| 2170.1               | 4160.1      | 8.22                                                           |
| 2230.1               | 4220.1      | 8.67                                                           |
| 2310.1               | 4300.1      | 9.43                                                           |
| 2370.1               | 4360.1      | 10.25                                                          |
| 2450.1               | 4440.1      | 10.90                                                          |
| 2510.1               | 4500.1      | 11.74                                                          |

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=7010.1MHz<br>(dB) |
|----------------------|-------------|------------------------------------------------------------------|
|                      |             | @LO (dBm)<br><br>+7                                              |
| 1810.0               | 5200.1      | 10.79                                                            |
| 1769.6               | 5240.5      | 10.84                                                            |
| 1729.1               | 5281.0      | 10.72                                                            |
| 1688.7               | 5321.4      | 10.55                                                            |
| 1648.2               | 5361.9      | 10.32                                                            |
| 1607.8               | 5402.3      | 9.99                                                             |
| 1567.3               | 5442.8      | 9.85                                                             |
| 1526.9               | 5483.2      | 9.64                                                             |
| 1486.4               | 5523.7      | 9.53                                                             |
| 1446.0               | 5564.1      | 9.49                                                             |
| 1405.5               | 5604.6      | 9.22                                                             |
| 1365.1               | 5645.0      | 9.35                                                             |
| 1324.6               | 5685.5      | 9.42                                                             |
| 1284.2               | 5725.9      | 9.59                                                             |
| 1243.7               | 5766.4      | 9.74                                                             |
| 1203.3               | 5806.8      | 9.87                                                             |
| 1162.8               | 5847.3      | 9.90                                                             |
| 1122.4               | 5887.7      | 9.98                                                             |
| 1081.9               | 5928.2      | 10.00                                                            |
| 1021.2               | 5988.9      | 10.11                                                            |
| 980.8                | 6029.3      | 10.08                                                            |
| 920.1                | 6090.0      | 10.00                                                            |
| 879.7                | 6130.4      | 9.98                                                             |
| 819.0                | 6191.1      | 10.17                                                            |
| 778.5                | 6231.6      | 10.12                                                            |
| 717.9                | 6292.2      | 10.22                                                            |
| 677.4                | 6332.7      | 10.13                                                            |
| 616.7                | 6393.4      | 10.11                                                            |
| 576.3                | 6433.8      | 10.09                                                            |
| 515.6                | 6494.5      | 10.01                                                            |
| 475.2                | 6534.9      | 9.79                                                             |
| 414.5                | 6595.6      | 9.66                                                             |
| 374.0                | 6636.1      | 9.52                                                             |
| 313.4                | 6696.7      | 9.48                                                             |
| 272.9                | 6737.2      | 9.36                                                             |
| 212.2                | 6797.9      | 9.23                                                             |
| 171.8                | 6838.3      | 9.18                                                             |
| 111.1                | 6899.0      | 9.18                                                             |
| 70.7                 | 6939.4      | 9.08                                                             |
| 10.0                 | 7000.1      | 9.60                                                             |

## Typical Performance Data

| LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |       |       | LO-IF ISOLATION<br>(dB) |       |       |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
|             | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|             | +4                      | +7    | +10   | +4                      | +7    | +10   |
| 1530.1      | 32.46                   | 28.97 | 27.19 | 10.70                   | 13.43 | 16.38 |
| 1690.1      | 39.34                   | 34.62 | 32.10 | 11.07                   | 13.74 | 16.10 |
| 1850.1      | 45.50                   | 45.74 | 39.57 | 11.60                   | 13.40 | 14.40 |
| 2010.1      | 34.08                   | 34.13 | 34.83 | 11.66                   | 12.50 | 12.78 |
| 2170.1      | 31.15                   | 31.06 | 31.30 | 11.02                   | 11.51 | 11.69 |
| 2330.1      | 28.99                   | 28.95 | 28.84 | 11.37                   | 11.66 | 11.46 |
| 2490.1      | 28.15                   | 28.08 | 28.16 | 11.85                   | 11.81 | 11.68 |
| 2650.1      | 27.18                   | 27.36 | 27.72 | 12.16                   | 11.86 | 11.72 |
| 2810.1      | 27.46                   | 27.98 | 28.11 | 12.70                   | 12.48 | 11.92 |
| 2970.1      | 28.27                   | 29.07 | 29.70 | 13.45                   | 13.02 | 12.85 |
| 3130.1      | 29.71                   | 30.91 | 31.48 | 14.64                   | 14.27 | 13.68 |
| 3290.1      | 29.45                   | 30.02 | 30.51 | 16.18                   | 15.53 | 15.10 |
| 3450.1      | 31.69                   | 30.86 | 30.47 | 17.94                   | 17.03 | 16.63 |
| 3610.1      | 33.25                   | 31.11 | 29.93 | 19.39                   | 18.35 | 17.82 |
| 3770.1      | 30.81                   | 29.21 | 28.23 | 21.01                   | 19.80 | 19.10 |
| 3930.1      | 27.69                   | 26.52 | 25.52 | 22.39                   | 21.33 | 20.26 |
| 4090.1      | 29.07                   | 27.59 | 26.03 | 23.78                   | 22.59 | 21.32 |
| 4250.1      | 30.16                   | 28.60 | 27.09 | 24.81                   | 23.38 | 22.05 |
| 4410.1      | 30.36                   | 29.64 | 28.25 | 25.62                   | 24.02 | 22.51 |
| 4570.1      | 28.82                   | 27.88 | 26.70 | 26.77                   | 24.39 | 22.88 |
| 4730.1      | 27.55                   | 26.08 | 24.53 | 27.42                   | 24.68 | 22.92 |
| 4890.1      | 27.92                   | 27.09 | 26.06 | 27.63                   | 24.58 | 22.70 |
| 5050.1      | 29.05                   | 28.42 | 27.83 | 28.21                   | 24.37 | 22.42 |
| 5210.1      | 26.70                   | 26.55 | 25.98 | 27.66                   | 23.81 | 21.60 |
| 5370.1      | 24.02                   | 24.30 | 23.95 | 26.51                   | 23.25 | 20.99 |
| 5530.1      | 22.27                   | 22.91 | 23.04 | 26.05                   | 22.35 | 20.45 |
| 5690.1      | 20.57                   | 21.61 | 22.44 | 24.76                   | 21.66 | 20.05 |
| 5850.1      | 19.04                   | 20.53 | 21.83 | 24.38                   | 21.76 | 20.20 |
| 6010.1      | 18.46                   | 20.06 | 21.55 | 24.67                   | 22.70 | 21.51 |
| 6170.1      | 18.67                   | 20.90 | 23.06 | 23.86                   | 23.26 | 22.77 |
| 6330.1      | 18.19                   | 20.54 | 22.81 | 23.89                   | 23.92 | 23.56 |
| 6490.1      | 18.04                   | 19.89 | 21.60 | 24.78                   | 24.91 | 24.83 |
| 6650.1      | 19.02                   | 20.86 | 22.46 | 26.40                   | 26.73 | 26.66 |
| 6810.1      | 20.41                   | 22.37 | 24.14 | 28.64                   | 28.91 | 28.80 |
| 6970.1      | 21.51                   | 23.16 | 24.84 | 31.68                   | 31.43 | 31.29 |
| 7150.1      | 22.99                   | 24.36 | 25.71 | 36.33                   | 35.30 | 34.55 |
| 7310.1      | 24.57                   | 25.70 | 26.76 | 42.31                   | 39.36 | 37.37 |
| 7490.1      | 26.27                   | 26.77 | 27.72 | 44.97                   | 40.76 | 38.86 |
| 7650.1      | 26.60                   | 27.00 | 27.93 | 39.54                   | 37.40 | 36.42 |
| 7830.1      | 25.40                   | 26.47 | 28.21 | 34.06                   | 32.79 | 32.54 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +4                      | +7    | +10   |
| 1500.1              | 1530.1      | 16.06                   | 14.09 | 13.35 |
| 1660.1              | 1690.1      | 20.82                   | 18.17 | 17.67 |
| 1820.1              | 1850.1      | 39.57                   | 32.72 | 29.82 |
| 1980.1              | 2010.1      | 26.73                   | 27.45 | 26.39 |
| 2140.1              | 2170.1      | 22.11                   | 22.13 | 22.05 |
| 2300.1              | 2330.1      | 20.10                   | 19.96 | 19.66 |
| 2460.1              | 2490.1      | 18.02                   | 17.65 | 17.51 |
| 2620.1              | 2650.1      | 17.29                   | 17.02 | 16.89 |
| 2780.1              | 2810.1      | 17.15                   | 16.83 | 16.51 |
| 2940.1              | 2970.1      | 18.25                   | 18.07 | 17.72 |
| 3100.1              | 3130.1      | 17.98                   | 17.88 | 17.73 |
| 3260.1              | 3290.1      | 18.03                   | 18.10 | 18.15 |
| 3420.1              | 3450.1      | 18.43                   | 18.43 | 18.46 |
| 3580.1              | 3610.1      | 19.11                   | 19.15 | 19.09 |
| 3740.1              | 3770.1      | 19.87                   | 20.00 | 20.15 |
| 3900.1              | 3930.1      | 20.34                   | 20.53 | 20.74 |
| 4060.1              | 4090.1      | 20.84                   | 20.77 | 20.86 |
| 4220.1              | 4250.1      | 21.25                   | 21.19 | 21.05 |
| 4380.1              | 4410.1      | 22.55                   | 22.32 | 22.14 |
| 4540.1              | 4570.1      | 24.23                   | 23.95 | 23.67 |
| 4700.1              | 4730.1      | 25.39                   | 25.28 | 25.08 |
| 4860.1              | 4890.1      | 25.89                   | 25.45 | 25.24 |
| 5020.1              | 5050.1      | 28.40                   | 27.62 | 27.13 |
| 5180.1              | 5210.1      | 29.90                   | 28.80 | 28.05 |
| 5340.1              | 5370.1      | 28.46                   | 27.47 | 26.87 |
| 5500.1              | 5530.1      | 26.28                   | 25.86 | 25.60 |
| 5660.1              | 5690.1      | 23.88                   | 24.09 | 24.12 |
| 5820.1              | 5850.1      | 22.01                   | 22.31 | 22.51 |
| 5980.1              | 6010.1      | 21.03                   | 21.48 | 21.80 |
| 6140.1              | 6170.1      | 19.61                   | 20.02 | 20.29 |
| 6300.1              | 6330.1      | 18.94                   | 19.24 | 19.59 |
| 6460.1              | 6490.1      | 18.03                   | 18.18 | 18.42 |
| 6620.1              | 6650.1      | 17.51                   | 17.71 | 17.90 |
| 6780.1              | 6810.1      | 17.16                   | 17.31 | 17.47 |
| 6940.1              | 6970.1      | 17.12                   | 17.28 | 17.18 |
| 7120.1              | 7150.1      | 17.31                   | 17.49 | 17.62 |
| 7280.1              | 7310.1      | 17.79                   | 17.96 | 18.00 |
| 7460.1              | 7490.1      | 18.26                   | 18.53 | 18.62 |
| 7620.1              | 7650.1      | 19.14                   | 19.24 | 19.24 |
| 7800.1              | 7830.1      | 19.77                   | 19.04 | 18.72 |

## 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=7000MHz<br>(:1) |      |      |
|---------------------|-------------|-----------------|------|------|-------------|-----------------|------|------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)       |      |      |             | @LO (dBm)       |      |      |                      | @LO (dBm)                      |      |      |
|                     |             | +4              | +7   | +10  |             | +4              | +7   | +10  |                      | +4                             | +7   | +10  |
| 1500.1              | 1530.1      | 4.70            | 3.67 | 3.21 | 1530.1      | 8.60            | 6.26 | 5.52 | 10.0                 | 1.14                           | 1.34 | 1.50 |
| 1660.1              | 1690.1      | 4.33            | 3.45 | 3.04 | 1690.4      | 6.24            | 4.73 | 4.64 | 70.3                 | 1.15                           | 1.34 | 1.49 |
| 1820.1              | 1850.1      | 3.95            | 3.41 | 3.06 | 1850.6      | 4.59            | 3.90 | 4.18 | 130.6                | 1.13                           | 1.31 | 1.47 |
| 1980.1              | 2010.1      | 3.57            | 3.16 | 2.87 | 2010.9      | 3.95            | 3.64 | 3.97 | 190.9                | 1.17                           | 1.34 | 1.49 |
| 2140.1              | 2170.1      | 3.43            | 3.08 | 2.89 | 2171.1      | 3.45            | 3.21 | 3.56 | 231.1                | 1.15                           | 1.29 | 1.44 |
| 2300.1              | 2330.1      | 3.12            | 2.87 | 2.71 | 2331.4      | 2.88            | 2.98 | 3.48 | 291.4                | 1.20                           | 1.33 | 1.47 |
| 2460.1              | 2490.1      | 2.92            | 2.74 | 2.65 | 2491.6      | 2.57            | 2.90 | 3.48 | 331.6                | 1.19                           | 1.30 | 1.44 |
| 2620.1              | 2650.1      | 2.77            | 2.56 | 2.46 | 2651.9      | 2.32            | 2.75 | 3.37 | 391.9                | 1.23                           | 1.31 | 1.44 |
| 2780.1              | 2810.1      | 2.57            | 2.30 | 2.11 | 2812.1      | 2.27            | 2.85 | 3.53 | 432.1                | 1.24                           | 1.30 | 1.41 |
| 2940.1              | 2970.1      | 2.67            | 2.36 | 2.14 | 2972.4      | 2.28            | 2.89 | 3.64 | 492.4                | 1.27                           | 1.30 | 1.39 |
| 3100.1              | 3130.1      | 2.61            | 2.33 | 2.07 | 3132.7      | 2.21            | 2.90 | 3.62 | 532.6                | 1.29                           | 1.29 | 1.36 |
| 3260.1              | 3290.1      | 2.23            | 2.02 | 1.85 | 3292.9      | 2.35            | 3.12 | 3.95 | 592.9                | 1.32                           | 1.28 | 1.35 |
| 3420.1              | 3450.1      | 2.08            | 1.88 | 1.71 | 3453.2      | 2.41            | 3.14 | 3.93 | 633.1                | 1.33                           | 1.27 | 1.31 |
| 3580.1              | 3610.1      | 1.92            | 1.69 | 1.52 | 3613.4      | 2.63            | 3.33 | 4.15 | 693.4                | 1.39                           | 1.29 | 1.30 |
| 3740.1              | 3770.1      | 1.73            | 1.50 | 1.34 | 3773.7      | 2.72            | 3.35 | 4.12 | 733.6                | 1.40                           | 1.28 | 1.27 |
| 3900.1              | 3930.1      | 1.69            | 1.51 | 1.38 | 3933.9      | 2.80            | 3.26 | 3.90 | 793.9                | 1.45                           | 1.30 | 1.27 |
| 4060.1              | 4090.1      | 2.01            | 1.84 | 1.70 | 4094.2      | 3.02            | 3.39 | 3.96 | 834.1                | 1.46                           | 1.30 | 1.24 |
| 4220.1              | 4250.1      | 1.99            | 1.82 | 1.68 | 4254.4      | 2.96            | 3.18 | 3.67 | 894.4                | 1.46                           | 1.27 | 1.18 |
| 4380.1              | 4410.1      | 1.74            | 1.58 | 1.47 | 4414.7      | 3.10            | 3.08 | 3.43 | 934.6                | 1.49                           | 1.28 | 1.16 |
| 4540.1              | 4570.1      | 1.69            | 1.46 | 1.37 | 4575.0      | 3.52            | 3.29 | 3.50 | 994.9                | 1.50                           | 1.28 | 1.14 |
| 4700.1              | 4730.1      | 1.80            | 1.44 | 1.27 | 4735.2      | 3.80            | 3.36 | 3.39 | 1035.2               | 1.52                           | 1.29 | 1.14 |
| 4860.1              | 4890.1      | 2.20            | 1.91 | 1.76 | 4895.5      | 4.00            | 3.35 | 3.25 | 1095.5               | 1.55                           | 1.32 | 1.17 |
| 5020.1              | 5050.1      | 2.59            | 2.27 | 2.04 | 5055.7      | 4.26            | 3.35 | 3.09 | 1135.7               | 1.56                           | 1.33 | 1.20 |
| 5180.1              | 5210.1      | 2.36            | 2.07 | 1.89 | 5216.0      | 4.22            | 3.13 | 2.70 | 1196.0               | 1.61                           | 1.41 | 1.31 |
| 5340.1              | 5370.1      | 1.96            | 1.70 | 1.53 | 5376.2      | 4.12            | 2.91 | 2.37 | 1236.2               | 1.64                           | 1.47 | 1.40 |
| 5500.1              | 5530.1      | 1.88            | 1.58 | 1.38 | 5536.5      | 3.78            | 2.52 | 1.92 | 1296.5               | 1.65                           | 1.53 | 1.48 |
| 5660.1              | 5690.1      | 1.75            | 1.54 | 1.38 | 5696.7      | 3.27            | 2.13 | 1.56 | 1336.7               | 1.69                           | 1.59 | 1.56 |
| 5820.1              | 5850.1      | 1.66            | 1.50 | 1.39 | 5857.0      | 2.77            | 1.83 | 1.35 | 1397.0               | 1.80                           | 1.74 | 1.73 |
| 5980.1              | 6010.1      | 1.66            | 1.55 | 1.47 | 6017.3      | 2.25            | 1.62 | 1.42 | 1437.2               | 1.85                           | 1.82 | 1.83 |
| 6140.1              | 6170.1      | 1.68            | 1.60 | 1.53 | 6177.5      | 1.82            | 1.60 | 1.71 | 1497.5               | 2.03                           | 2.03 | 2.04 |
| 6300.1              | 6330.1      | 1.83            | 1.73 | 1.64 | 6337.8      | 1.62            | 1.75 | 2.06 | 1537.7               | 2.13                           | 2.15 | 2.18 |
| 6460.1              | 6490.1      | 2.15            | 2.07 | 1.97 | 6498.0      | 1.67            | 2.04 | 2.48 | 1598.0               | 2.26                           | 2.29 | 2.32 |
| 6620.1              | 6650.1      | 2.62            | 2.55 | 2.46 | 6658.3      | 1.83            | 2.31 | 2.82 | 1638.2               | 2.41                           | 2.46 | 2.49 |
| 6780.1              | 6810.1      | 3.07            | 3.00 | 2.91 | 6818.5      | 2.22            | 2.80 | 3.43 | 1698.5               | 2.49                           | 2.53 | 2.55 |
| 6940.1              | 6970.1      | 3.82            | 3.73 | 3.63 | 6978.8      | 2.62            | 3.17 | 3.80 | 1738.7               | 2.65                           | 2.71 | 2.73 |
| 7120.1              | 7150.1      | 4.30            | 4.15 | 4.01 | 7139.0      | 3.34            | 3.82 | 4.48 | 1799.0               | 2.74                           | 2.77 | 2.78 |
| 7280.1              | 7310.1      | 4.18            | 3.96 | 3.79 | 7299.3      | 4.40            | 4.68 | 5.33 | 1839.2               | 2.82                           | 2.86 | 2.87 |
| 7460.1              | 7490.1      | 4.47            | 4.09 | 3.86 | 7459.6      | 6.05            | 5.72 | 6.15 | 1899.5               | 2.91                           | 2.92 | 2.92 |
| 7620.1              | 7650.1      | 4.47            | 3.85 | 3.57 | 7619.8      | 8.64            | 7.47 | 7.63 | 1939.7               | 2.96                           | 2.98 | 2.96 |
| 7800.1              | 7830.1      | 3.80            | 3.21 | 3.00 | 7800.1      | 11.93           | 9.53 | 9.04 | 2000.0               | 2.82                           | 2.83 | 2.81 |

## Harmonics Tables

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | +4  | 16  | 14  | 32  | 26  | --- | --- | --- | --- | --- |
| 1  | -      | 15     | +0  | 32  | 22  | 39  | 38  | 51  | --- | --- | --- | --- |
| 2  | >90    | 44     | 57  | 43  | 55  | 48  | 55  | 48  | 60  | --- | --- | --- |
| 3  | >90    | >69    | 65  | >69 | 59  | >69 | 63  | >69 | >69 | >69 | --- | --- |
| 4  | >90    | >69    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | --- |
| 5  | >90    | >69    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 6  | ---    | ---    | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 7  | ---    | ---    | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 8  | ---    | ---    | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 9  | ---    | ---    | --- | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 | >69 |
| 10 | ---    | ---    | --- | --- | --- | --- | >69 | >69 | >69 | >69 | >69 | >69 |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

Test conditions: RF IN: 4500 MHz; -14.00 dBm.  
LO IN: 4530 MHz; +7.00 dBm  
IF OUT: 30 MHz; -21.04 dBm

RF HARMONICS ORDER

|    | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|----|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0  | -      | -      | 6   | 25  | 26  | 41  | 44  | --- | --- | --- | --- | --- |
| 1  | -      | 15     | +0  | 33  | 24  | 39  | 40  | 56  | --- | --- | --- | --- |
| 2  | 75     | 34     | 49  | 34  | 48  | 41  | 48  | 43  | 55  | --- | --- | --- |
| 3  | >90    | 58     | 45  | 57  | 43  | 53  | 46  | 62  | 57  | 77  | --- | --- |
| 4  | >90    | 58     | 69  | 62  | >79 | 53  | 65  | 56  | 66  | 58  | >79 | --- |
| 5  | >90    | >79    | 70  | >79 | 73  | 77  | 57  | 70  | 64  | 69  | 76  | 76  |
| 6  | ---    | ---    | >79 | 78  | >79 | >79 | >79 | 66  | 79  | 77  | >79 | 78  |
| 7  | ---    | ---    | --- | >79 | >79 | >79 | >79 | >79 | 75  | >79 | >79 | >79 |
| 8  | ---    | ---    | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 9  | ---    | ---    | --- | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 | >79 |
| 10 | ---    | ---    | --- | --- | --- | --- | >79 | >79 | >79 | >79 | >79 | >79 |
|    | RF CAL | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

### LO HARMONICS ORDER

Test conditions: RF IN: 4500 MHz; -4.00 dBm.  
LO IN: 4530 MHz; +7.00 dBm  
IF OUT: 30 MHz; -11.13 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.