

# Frequency Mixer

ZMX-8GH

## 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) | IP3 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   |
| 1560.1              | 1590.1      | 21.70                                                 | 10.22 | 10.20 | 1560.1              | 1590.1      | 10.23              | 22.56 | 22.58 | 1560.1              | 1590.1      | -7.77                                | 2.10  | 2.16  |
| 1813.6              | 1843.6      | 11.76                                                 | 8.98  | 7.20  | 1813.6              | 1843.6      | 20.27              | 26.21 | 24.87 | 1813.6              | 1843.6      | -0.16                                | 0.94  | 1.13  |
| 2067.1              | 2097.1      | 10.88                                                 | 8.23  | 7.06  | 2067.1              | 2097.1      | 16.36              | 26.05 | 25.97 | 2067.1              | 2097.1      | -0.48                                | 0.71  | 1.11  |
| 2320.6              | 2350.6      | 8.58                                                  | 7.00  | 6.47  | 2320.6              | 2350.6      | 24.17              | 24.38 | 24.49 | 2320.6              | 2350.6      | 0.74                                 | 0.97  | 1.04  |
| 2574.1              | 2604.1      | 7.22                                                  | 5.96  | 5.53  | 2574.1              | 2604.1      | 24.10              | 23.40 | 23.65 | 2574.1              | 2604.1      | 1.16                                 | 1.31  | 1.18  |
| 2827.6              | 2857.6      | 6.17                                                  | 5.60  | 5.38  | 2827.6              | 2857.6      | 23.40              | 25.76 | 25.43 | 2827.6              | 2857.6      | 1.49                                 | 1.22  | 1.08  |
| 3081.1              | 3111.1      | 5.72                                                  | 5.35  | 5.21  | 3081.1              | 3111.1      | 25.10              | 25.81 | 26.56 | 3081.1              | 3111.1      | 1.28                                 | 0.97  | 0.93  |
| 3334.6              | 3364.6      | 5.66                                                  | 5.33  | 5.19  | 3334.6              | 3364.6      | 24.50              | 25.42 | 25.75 | 3334.6              | 3364.6      | 0.99                                 | 0.72  | 0.70  |
| 3588.1              | 3618.1      | 5.83                                                  | 5.53  | 5.38  | 3588.1              | 3618.1      | 24.70              | 25.36 | 24.91 | 3588.1              | 3618.1      | 0.87                                 | 0.64  | 0.62  |
| 3841.6              | 3871.6      | 5.64                                                  | 5.32  | 5.21  | 3841.6              | 3871.6      | 23.14              | 24.67 | 24.31 | 3841.6              | 3871.6      | 0.96                                 | 0.70  | 0.71  |
| 4095.1              | 4125.1      | 5.94                                                  | 5.50  | 5.32  | 4095.1              | 4125.1      | 20.96              | 24.72 | 25.62 | 4095.1              | 4125.1      | 0.80                                 | 0.54  | 0.54  |
| 4348.6              | 4378.6      | 5.93                                                  | 5.38  | 5.21  | 4348.6              | 4378.6      | 21.37              | 23.13 | 25.41 | 4348.6              | 4378.6      | 0.84                                 | 0.62  | 0.57  |
| 4602.1              | 4632.1      | 6.05                                                  | 5.43  | 5.17  | 4602.1              | 4632.1      | 23.17              | 21.53 | 23.24 | 4602.1              | 4632.1      | 0.83                                 | 0.57  | 0.50  |
| 4855.6              | 4885.6      | 5.81                                                  | 5.28  | 5.04  | 4855.6              | 4885.6      | 22.84              | 22.02 | 22.82 | 4855.6              | 4885.6      | 1.00                                 | 0.65  | 0.53  |
| 5109.1              | 5139.1      | 5.66                                                  | 5.08  | 4.83  | 5109.1              | 5139.1      | 21.97              | 21.84 | 21.59 | 5109.1              | 5139.1      | 1.26                                 | 0.76  | 0.52  |
| 5362.6              | 5392.6      | 5.70                                                  | 5.11  | 4.82  | 5362.6              | 5392.6      | 20.76              | 22.05 | 21.62 | 5362.6              | 5392.6      | 1.19                                 | 0.67  | 0.53  |
| 5616.1              | 5646.1      | 5.62                                                  | 4.93  | 4.71  | 5616.1              | 5646.1      | 19.52              | 21.94 | 22.24 | 5616.1              | 5646.1      | 1.41                                 | 0.74  | 0.52  |
| 5869.6              | 5899.6      | 6.23                                                  | 5.50  | 5.19  | 5869.6              | 5899.6      | 21.39              | 25.19 | 24.42 | 5869.6              | 5899.6      | 0.97                                 | 0.55  | 0.44  |
| 6123.1              | 6153.1      | 6.26                                                  | 5.32  | 4.99  | 6123.1              | 6153.1      | 18.94              | 22.92 | 23.24 | 6123.1              | 6153.1      | 1.23                                 | 0.80  | 0.67  |
| 6376.6              | 6406.6      | 6.16                                                  | 5.20  | 4.93  | 6376.6              | 6406.6      | 18.83              | 23.26 | 24.04 | 6376.6              | 6406.6      | 1.33                                 | 0.88  | 0.79  |
| 6630.1              | 6660.1      | 6.03                                                  | 4.96  | 4.73  | 6630.1              | 6660.1      | 17.37              | 23.05 | 24.10 | 6630.1              | 6660.1      | 1.48                                 | 1.04  | 0.97  |
| 6909.0              | 6939.0      | 5.50                                                  | 4.76  | 4.62  | 6909.0              | 6939.0      | 18.63              | 23.82 | 24.62 | 6909.0              | 6939.0      | 1.47                                 | 0.95  | 1.00  |
| 7162.4              | 7192.4      | 5.97                                                  | 4.98  | 4.79  | 7162.4              | 7192.4      | 19.32              | 24.15 | 25.04 | 7162.4              | 7192.4      | 1.19                                 | 0.79  | 0.87  |
| 7441.3              | 7471.3      | 5.89                                                  | 5.16  | 5.00  | 7441.3              | 7471.3      | 21.07              | 24.26 | 24.88 | 7441.3              | 7471.3      | 1.12                                 | 0.70  | 0.83  |
| 7694.8              | 7724.8      | 5.78                                                  | 5.31  | 5.22  | 7694.8              | 7724.8      | 21.39              | 24.29 | 25.06 | 7694.8              | 7724.8      | 1.17                                 | 0.73  | 0.86  |
| 7973.6              | 8003.6      | 5.52                                                  | 5.21  | 5.19  | 7973.6              | 8003.6      | 21.88              | 24.41 | 24.64 | 7973.6              | 8003.6      | 1.04                                 | 0.77  | 0.94  |
| 8227.1              | 8257.1      | 5.45                                                  | 5.16  | 5.12  | 8227.1              | 8257.1      | 22.92              | 25.33 | 25.46 | 8227.1              | 8257.1      | 1.10                                 | 0.79  | 0.96  |
| 8506.0              | 8536.0      | 5.42                                                  | 5.18  | 5.14  | 8506.0              | 8536.0      | 23.27              | 25.37 | 25.44 | 8506.0              | 8536.0      | 1.19                                 | 0.81  | 0.92  |
| 8759.5              | 8789.5      | 5.58                                                  | 5.30  | 5.22  | 8759.5              | 8789.5      | 22.84              | 25.21 | 25.69 | 8759.5              | 8789.5      | 1.23                                 | 0.83  | 0.95  |
| 9038.4              | 9068.4      | 5.86                                                  | 5.58  | 5.42  | 9038.4              | 9068.4      | 22.19              | 24.92 | 25.85 | 9038.4              | 9068.4      | 1.13                                 | 0.78  | 0.99  |
| 9291.8              | 9321.8      | 6.33                                                  | 6.01  | 5.85  | 9291.8              | 9321.8      | 21.58              | 24.28 | 26.41 | 9291.8              | 9321.8      | 1.22                                 | 0.64  | 0.85  |
| 9570.7              | 9600.7      | 6.46                                                  | 6.04  | 5.91  | 9570.7              | 9600.7      | 20.18              | 22.75 | 25.31 | 9570.7              | 9600.7      | 1.63                                 | 0.62  | 0.78  |
| 9824.2              | 9854.2      | 7.37                                                  | 6.14  | 5.97  | 9824.2              | 9854.2      | 17.40              | 21.36 | 23.95 | 9824.2              | 9854.2      | 1.64                                 | 0.81  | 0.67  |
| 10103.0             | 10133.0     | 15.20                                                 | 6.90  | 6.29  | 10103.0             | 10133.0     | 9.09               | 20.74 | 22.98 | 10103.0             | 10133.0     | -5.08                                | 1.13  | 0.54  |
| 10356.5             | 10386.5     | 30.91                                                 | 11.65 | 7.05  | 10356.5             | 10386.5     | 1.17               | 16.07 | 22.54 | 10356.5             | 10386.5     | -18.31                               | -1.81 | 0.56  |
| 10635.4             | 10665.4     | 34.37                                                 | 14.37 | 7.23  | 10635.4             | 10665.4     | 0.24               | 11.62 | 22.43 | 10635.4             | 10665.4     | -21.87                               | -4.02 | 0.58  |
| 10888.9             | 10918.9     | 27.24                                                 | 10.14 | 7.48  | 10888.9             | 10918.9     | 3.42               | 21.28 | 24.78 | 10888.9             | 10918.9     | -15.21                               | -0.78 | 0.35  |
| 11167.8             | 11197.8     | 33.01                                                 | 11.20 | 8.68  | 11167.8             | 11197.8     | 0.99               | 18.93 | 23.78 | 11167.8             | 11197.8     | -20.85                               | -1.68 | -0.26 |
| 11421.3             | 11451.3     | 37.33                                                 | 12.40 | 9.63  | 11421.3             | 11451.3     | -0.38              | 17.73 | 21.73 | 11421.3             | 11451.3     | -23.95                               | -2.36 | -0.68 |
| 11700.1             | 11730.1     | 36.01                                                 | 13.95 | 10.62 | 11700.1             | 11730.1     | 0.33               | 19.87 | 21.94 | 11700.1             | 11730.1     | -21.28                               | -1.99 | 0.00  |



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant  
P.O. Box 350186, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4861



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## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=5850MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=3690MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=8010.1MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|------------------------------------------------------------------|
|                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                        |
|                      |             | +17                                                            |                      |             | +17                                                            |                      |             | +17                                                              |
| 2149.9               | 3700.1      | 5.33                                                           | 10.1                 | 3700.1      | 5.79                                                           | 2910.0               | 5100.1      | 10.74                                                            |
| 2029.9               | 3820.1      | 5.10                                                           | 90.1                 | 3780.1      | 5.51                                                           | 2830.0               | 5180.1      | 9.62                                                             |
| 1909.9               | 3940.1      | 4.99                                                           | 170.1                | 3860.1      | 5.54                                                           | 2750.0               | 5260.1      | 8.55                                                             |
| 1809.9               | 4040.1      | 4.97                                                           | 250.1                | 3940.1      | 5.58                                                           | 2670.0               | 5340.1      | 7.72                                                             |
| 1689.9               | 4160.1      | 5.20                                                           | 330.1                | 4020.1      | 5.62                                                           | 2590.0               | 5420.1      | 7.38                                                             |
| 1589.9               | 4260.1      | 5.22                                                           | 410.1                | 4100.1      | 5.63                                                           | 2510.0               | 5500.1      | 7.36                                                             |
| 1469.9               | 4380.1      | 5.19                                                           | 490.1                | 4180.1      | 5.79                                                           | 2430.0               | 5580.1      | 7.23                                                             |
| 1369.9               | 4480.1      | 5.07                                                           | 570.1                | 4260.1      | 5.83                                                           | 2350.0               | 5660.1      | 7.14                                                             |
| 1249.9               | 4600.1      | 5.08                                                           | 650.1                | 4340.1      | 5.86                                                           | 2270.0               | 5740.1      | 7.18                                                             |
| 1149.9               | 4700.1      | 4.99                                                           | 730.1                | 4420.1      | 5.98                                                           | 2190.0               | 5820.1      | 7.02                                                             |
| 1030.0               | 4820.0      | 4.91                                                           | 810.1                | 4500.1      | 6.16                                                           | 2110.0               | 5900.1      | 6.77                                                             |
| 930.0                | 4920.0      | 4.93                                                           | 890.1                | 4580.1      | 6.26                                                           | 2030.0               | 5980.1      | 6.65                                                             |
| 810.0                | 5040.0      | 4.97                                                           | 970.1                | 4660.1      | 6.38                                                           | 1950.0               | 6060.1      | 6.60                                                             |
| 710.0                | 5140.0      | 4.95                                                           | 1050.1               | 4740.1      | 6.42                                                           | 1870.0               | 6140.1      | 6.44                                                             |
| 590.0                | 5260.0      | 4.93                                                           | 1130.1               | 4820.1      | 6.58                                                           | 1790.0               | 6220.1      | 6.24                                                             |
| 490.0                | 5360.0      | 4.95                                                           | 1210.1               | 4900.1      | 6.60                                                           | 1710.0               | 6300.1      | 6.18                                                             |
| 370.0                | 5480.0      | 4.93                                                           | 1290.1               | 4980.1      | 6.49                                                           | 1630.0               | 6380.1      | 6.18                                                             |
| 270.0                | 5580.0      | 4.95                                                           | 1370.1               | 5060.1      | 6.57                                                           | 1550.0               | 6460.1      | 6.23                                                             |
| 150.0                | 5700.0      | 5.05                                                           | 1450.1               | 5140.1      | 6.78                                                           | 1470.0               | 6540.1      | 6.17                                                             |
| 50.0                 | 5800.0      | 5.24                                                           | 1510.1               | 5200.1      | 6.84                                                           | 1410.0               | 6600.1      | 5.90                                                             |
| 70.0                 | 5920.0      | 5.44                                                           | 1590.1               | 5280.1      | 7.10                                                           | 1330.0               | 6680.1      | 5.89                                                             |
| 170.0                | 6020.0      | 5.57                                                           | 1650.1               | 5340.1      | 7.34                                                           | 1270.0               | 6740.1      | 5.90                                                             |
| 290.0                | 6140.0      | 5.51                                                           | 1730.1               | 5420.1      | 7.46                                                           | 1190.0               | 6820.1      | 5.75                                                             |
| 390.0                | 6240.0      | 5.48                                                           | 1790.1               | 5480.1      | 7.60                                                           | 1130.0               | 6880.1      | 5.82                                                             |
| 510.0                | 6360.0      | 5.57                                                           | 1870.1               | 5560.1      | 7.97                                                           | 1050.0               | 6960.1      | 5.68                                                             |
| 610.0                | 6460.0      | 5.67                                                           | 1930.1               | 5620.1      | 7.98                                                           | 990.0                | 7020.1      | 5.63                                                             |
| 730.0                | 6580.0      | 5.85                                                           | 2010.1               | 5700.1      | 8.21                                                           | 910.0                | 7100.1      | 5.72                                                             |
| 830.0                | 6680.0      | 5.98                                                           | 2070.1               | 5760.1      | 8.47                                                           | 850.0                | 7160.1      | 5.62                                                             |
| 950.0                | 6800.0      | 6.13                                                           | 2150.1               | 5840.1      | 8.59                                                           | 770.0                | 7240.1      | 5.57                                                             |
| 1050.0               | 6900.0      | 6.22                                                           | 2210.1               | 5900.1      | 8.65                                                           | 710.0                | 7300.1      | 5.53                                                             |
| 1170.1               | 7020.1      | 6.36                                                           | 2290.1               | 5980.1      | 8.79                                                           | 630.0                | 7380.1      | 5.48                                                             |
| 1270.1               | 7120.1      | 6.35                                                           | 2350.1               | 6040.1      | 8.95                                                           | 570.0                | 7440.1      | 5.39                                                             |
| 1390.1               | 7240.1      | 6.47                                                           | 2430.1               | 6120.1      | 9.07                                                           | 490.0                | 7520.1      | 5.39                                                             |
| 1490.1               | 7340.1      | 6.46                                                           | 2490.1               | 6180.1      | 9.12                                                           | 430.0                | 7580.1      | 5.31                                                             |
| 1610.1               | 7460.1      | 6.51                                                           | 2570.1               | 6260.1      | 9.26                                                           | 350.0                | 7660.1      | 5.34                                                             |
| 1710.1               | 7560.1      | 6.57                                                           | 2630.1               | 6320.1      | 9.48                                                           | 290.0                | 7720.1      | 5.26                                                             |
| 1830.1               | 7680.1      | 6.47                                                           | 2710.1               | 6400.1      | 9.72                                                           | 210.0                | 7800.1      | 5.29                                                             |
| 1930.1               | 7780.1      | 6.50                                                           | 2770.1               | 6460.1      | 10.18                                                          | 150.0                | 7860.1      | 5.26                                                             |
| 2050.1               | 7900.1      | 6.65                                                           | 2850.1               | 6540.1      | 10.71                                                          | 70.0                 | 7940.1      | 5.30                                                             |
| 2150.1               | 8000.1      | 6.70                                                           | 2910.1               | 6600.1      | 11.26                                                          | 10.0                 | 8000.1      | 5.59                                                             |

# Frequency Mixer

ZMX-8GH

## 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   |
| 1590.1      | 24.82                   | 25.34 | 25.43 | 7.11                    | 12.49 | 12.76 |
| 1843.6      | 36.15                   | 33.19 | 30.11 | 6.96                    | 9.04  | 12.95 |
| 2097.1      | 36.19                   | 28.76 | 28.37 | 7.10                    | 8.48  | 10.48 |
| 2350.6      | 27.40                   | 25.62 | 26.19 | 6.97                    | 7.79  | 9.07  |
| 2604.1      | 26.36                   | 26.04 | 26.16 | 6.42                    | 7.31  | 8.13  |
| 2857.6      | 29.82                   | 29.21 | 28.77 | 7.39                    | 8.49  | 9.27  |
| 3111.1      | 33.28                   | 31.33 | 30.48 | 9.37                    | 10.09 | 10.38 |
| 3364.6      | 34.65                   | 33.13 | 31.70 | 11.31                   | 11.64 | 10.96 |
| 3618.1      | 35.25                   | 34.15 | 32.90 | 13.51                   | 13.00 | 12.02 |
| 3871.6      | 34.93                   | 34.58 | 33.88 | 15.63                   | 14.21 | 13.12 |
| 4125.1      | 42.84                   | 40.10 | 37.09 | 17.44                   | 15.11 | 13.82 |
| 4378.6      | 38.93                   | 40.63 | 38.26 | 18.04                   | 15.95 | 14.36 |
| 4632.1      | 37.89                   | 38.04 | 38.05 | 18.90                   | 16.99 | 15.24 |
| 4885.6      | 39.90                   | 38.53 | 37.63 | 19.30                   | 17.55 | 16.02 |
| 5139.1      | 40.08                   | 42.18 | 40.79 | 19.47                   | 17.96 | 16.57 |
| 5392.6      | 37.86                   | 40.85 | 41.51 | 19.46                   | 18.38 | 17.10 |
| 5646.1      | 36.73                   | 41.10 | 42.47 | 19.58                   | 19.04 | 17.85 |
| 5899.6      | 33.24                   | 36.03 | 39.92 | 19.24                   | 18.96 | 18.20 |
| 6153.1      | 31.53                   | 34.53 | 38.02 | 19.22                   | 19.26 | 18.56 |
| 6406.6      | 30.84                   | 33.88 | 37.47 | 19.46                   | 19.55 | 19.27 |
| 6660.1      | 28.92                   | 32.24 | 35.97 | 19.27                   | 19.51 | 19.62 |
| 6939.0      | 28.05                   | 31.44 | 35.62 | 19.04                   | 19.69 | 19.82 |
| 7192.5      | 26.72                   | 30.23 | 36.10 | 19.55                   | 20.14 | 20.49 |
| 7471.3      | 26.52                   | 29.68 | 33.77 | 19.22                   | 20.07 | 20.45 |
| 7724.8      | 26.44                   | 28.92 | 32.43 | 20.91                   | 21.61 | 22.03 |
| 8003.6      | 25.75                   | 27.97 | 30.12 | 24.93                   | 25.56 | 26.24 |
| 8257.2      | 25.09                   | 26.93 | 28.21 | 27.59                   | 29.17 | 30.35 |
| 8536.0      | 24.26                   | 25.61 | 26.47 | 29.27                   | 31.59 | 33.93 |
| 8789.5      | 23.38                   | 24.71 | 25.54 | 30.32                   | 32.89 | 35.41 |
| 9068.4      | 22.04                   | 23.55 | 24.50 | 31.40                   | 33.42 | 34.87 |
| 9321.8      | 20.21                   | 21.89 | 22.86 | 32.29                   | 33.30 | 33.62 |
| 9600.7      | 19.07                   | 20.87 | 21.97 | 33.24                   | 32.73 | 32.05 |
| 9854.2      | 17.82                   | 19.72 | 21.10 | 32.29                   | 31.07 | 30.27 |
| 10133.1     | 16.53                   | 17.57 | 19.20 | 28.82                   | 28.29 | 27.81 |
| 10386.5     | 15.20                   | 15.71 | 16.92 | 25.24                   | 25.13 | 25.06 |
| 10665.4     | 14.34                   | 14.91 | 16.16 | 22.89                   | 23.05 | 23.17 |
| 10918.9     | 16.31                   | 17.04 | 17.87 | 24.18                   | 24.52 | 24.88 |
| 11197.8     | 20.44                   | 20.63 | 21.15 | 28.50                   | 28.71 | 28.88 |
| 11451.3     | 23.24                   | 23.70 | 24.32 | 33.95                   | 34.14 | 33.35 |
| 11730.1     | 26.68                   | 29.33 | 30.39 | 41.30                   | 37.47 | 33.79 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +14                     | +17   | +20   |
| 1560.1              | 1590.1      | 13.38                   | 11.87 | 11.86 |
| 1813.6              | 1843.6      | 12.73                   | 10.92 | 10.11 |
| 2067.1              | 2097.1      | 15.26                   | 12.40 | 11.12 |
| 2320.6              | 2350.6      | 16.47                   | 14.96 | 14.43 |
| 2574.1              | 2604.1      | 18.05                   | 19.61 | 19.90 |
| 2827.6              | 2857.6      | 24.30                   | 25.38 | 25.82 |
| 3081.1              | 3111.1      | 26.95                   | 26.59 | 26.26 |
| 3334.6              | 3364.6      | 27.48                   | 27.05 | 26.52 |
| 3588.1              | 3618.1      | 27.18                   | 27.03 | 26.75 |
| 3841.6              | 3871.6      | 27.69                   | 27.74 | 27.75 |
| 4095.1              | 4125.1      | 29.12                   | 29.15 | 29.07 |
| 4348.6              | 4378.6      | 30.04                   | 30.43 | 30.68 |
| 4602.1              | 4632.1      | 31.01                   | 31.34 | 31.80 |
| 4855.6              | 4885.6      | 32.62                   | 32.81 | 33.19 |
| 5109.1              | 5139.1      | 34.33                   | 34.61 | 35.09 |
| 5362.6              | 5392.6      | 35.18                   | 35.35 | 35.67 |
| 5616.1              | 5646.1      | 36.57                   | 36.52 | 36.35 |
| 5869.6              | 5899.6      | 37.24                   | 37.17 | 37.01 |
| 6123.1              | 6153.1      | 36.11                   | 35.46 | 35.01 |
| 6376.6              | 6406.6      | 35.71                   | 34.96 | 34.47 |
| 6630.1              | 6660.1      | 34.16                   | 33.27 | 32.69 |
| 6909.0              | 6939.0      | 30.93                   | 30.32 | 29.86 |
| 7162.4              | 7192.4      | 28.72                   | 28.32 | 27.94 |
| 7441.3              | 7471.3      | 26.30                   | 26.21 | 26.02 |
| 7694.8              | 7724.8      | 24.40                   | 24.48 | 24.44 |
| 7973.6              | 8003.6      | 25.13                   | 25.35 | 25.48 |
| 8227.1              | 8257.1      | 27.33                   | 27.63 | 27.78 |
| 8506.0              | 8536.0      | 30.05                   | 30.25 | 30.53 |
| 8759.5              | 8789.5      | 32.81                   | 33.00 | 33.25 |
| 9038.4              | 9068.4      | 35.85                   | 35.98 | 36.32 |
| 9291.8              | 9321.8      | 39.14                   | 39.28 | 39.36 |
| 9570.7              | 9600.7      | 43.30                   | 42.86 | 42.66 |
| 9824.2              | 9854.2      | 45.74                   | 44.75 | 44.02 |
| 10103.0             | 10133.0     | 41.25                   | 41.57 | 41.25 |
| 10356.5             | 10386.5     | 36.23                   | 36.78 | 37.33 |
| 10635.4             | 10665.4     | 32.77                   | 33.66 | 34.44 |
| 10888.9             | 10918.9     | 32.78                   | 34.61 | 35.79 |
| 11167.8             | 11197.8     | 33.52                   | 35.97 | 37.39 |
| 11421.3             | 11451.3     | 31.09                   | 32.74 | 33.51 |
| 11700.1             | 11730.1     | 23.69                   | 24.93 | 25.73 |

# Frequency Mixer

# ZMX-8GH

## 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=8000MHz<br>(:1) |      |      |
|---------------------|-------------|-----------------|------|------|-------------|-----------------|-------|-------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)       |      |      |             | @LO (dBm)       |       |       |                      | @LO (dBm)                      |      |      |
|                     |             | +14             | +17  | +20  |             | +14             | +17   | +20   |                      | +14                            | +17  | +20  |
| 1560.1              | 1590.1      | 15.39           | 5.19 | 5.09 | 1590.1      | 9.90            | 3.18  | 3.20  | 10.1                 | 1.46                           | 1.22 | 1.08 |
| 1813.6              | 1843.6      | 7.56            | 5.58 | 4.09 | 1843.6      | 7.66            | 4.17  | 3.14  | 90.1                 | 1.46                           | 1.22 | 1.08 |
| 2067.1              | 2097.1      | 7.08            | 4.80 | 3.82 | 2097.1      | 5.13            | 3.00  | 2.80  | 170.1                | 1.43                           | 1.20 | 1.07 |
| 2320.6              | 2350.6      | 5.41            | 4.06 | 3.50 | 2350.6      | 3.19            | 2.32  | 2.50  | 250.1                | 1.42                           | 1.20 | 1.09 |
| 2574.1              | 2604.1      | 5.07            | 4.05 | 3.50 | 2604.1      | 2.74            | 2.14  | 2.30  | 330.1                | 1.47                           | 1.26 | 1.14 |
| 2827.6              | 2857.6      | 4.08            | 3.50 | 3.18 | 2857.6      | 2.14            | 1.85  | 2.29  | 410.1                | 1.48                           | 1.26 | 1.15 |
| 3081.1              | 3111.1      | 3.95            | 3.43 | 3.15 | 3111.1      | 1.54            | 1.57  | 2.16  | 490.1                | 1.46                           | 1.25 | 1.16 |
| 3334.6              | 3364.6      | 3.94            | 3.42 | 3.05 | 3364.6      | 1.20            | 1.55  | 2.24  | 570.1                | 1.43                           | 1.25 | 1.20 |
| 3588.1              | 3618.1      | 3.86            | 3.40 | 3.05 | 3618.1      | 1.08            | 1.53  | 2.23  | 650.1                | 1.48                           | 1.33 | 1.29 |
| 3841.6              | 3871.6      | 3.90            | 3.34 | 2.94 | 3871.6      | 1.31            | 1.66  | 2.37  | 730.1                | 1.53                           | 1.40 | 1.37 |
| 4095.1              | 4125.1      | 3.84            | 3.23 | 2.78 | 4125.1      | 1.58            | 1.71  | 2.26  | 810.1                | 1.60                           | 1.47 | 1.44 |
| 4348.6              | 4378.6      | 4.03            | 3.20 | 2.74 | 4378.6      | 1.92            | 1.91  | 2.40  | 890.1                | 1.66                           | 1.53 | 1.48 |
| 4602.1              | 4632.1      | 4.11            | 3.20 | 2.60 | 4632.1      | 2.16            | 2.04  | 2.39  | 970.1                | 1.67                           | 1.53 | 1.49 |
| 4855.6              | 4885.6      | 3.88            | 3.11 | 2.48 | 4885.6      | 2.44            | 2.17  | 2.47  | 1050.1               | 1.69                           | 1.57 | 1.54 |
| 5109.1              | 5139.1      | 3.69            | 2.95 | 2.28 | 5139.1      | 2.90            | 2.34  | 2.47  | 1130.1               | 1.76                           | 1.66 | 1.64 |
| 5362.6              | 5392.6      | 3.38            | 2.70 | 2.08 | 5392.6      | 3.30            | 2.48  | 2.59  | 1210.1               | 1.95                           | 1.84 | 1.81 |
| 5616.1              | 5646.1      | 3.31            | 2.51 | 1.92 | 5646.1      | 3.86            | 2.52  | 2.43  | 1290.1               | 2.09                           | 1.95 | 1.89 |
| 5869.6              | 5899.6      | 3.10            | 2.50 | 2.02 | 5899.6      | 4.16            | 2.57  | 2.39  | 1370.1               | 2.13                           | 1.96 | 1.89 |
| 6123.1              | 6153.1      | 3.21            | 2.50 | 2.02 | 6153.1      | 4.72            | 2.60  | 2.26  | 1450.1               | 2.13                           | 1.97 | 1.89 |
| 6376.6              | 6406.6      | 2.95            | 2.29 | 1.97 | 6406.6      | 4.77            | 2.54  | 2.11  | 1530.1               | 2.21                           | 2.04 | 1.95 |
| 6630.1              | 6660.1      | 2.65            | 1.91 | 1.63 | 6660.1      | 5.49            | 2.54  | 1.90  | 1610.1               | 2.39                           | 2.17 | 2.06 |
| 6909.0              | 6939.0      | 2.20            | 1.67 | 1.42 | 6939.0      | 5.16            | 2.37  | 1.67  | 1690.1               | 2.52                           | 2.26 | 2.12 |
| 7162.4              | 7192.4      | 1.97            | 1.45 | 1.26 | 7192.5      | 5.03            | 2.16  | 1.39  | 1770.1               | 2.57                           | 2.30 | 2.15 |
| 7441.3              | 7471.3      | 1.76            | 1.39 | 1.20 | 7471.3      | 4.14            | 1.83  | 1.11  | 1850.1               | 2.69                           | 2.38 | 2.19 |
| 7694.8              | 7724.8      | 1.56            | 1.32 | 1.21 | 7724.8      | 2.99            | 1.50  | 1.14  | 1930.1               | 2.77                           | 2.41 | 2.20 |
| 7973.6              | 8003.6      | 1.63            | 1.44 | 1.35 | 8003.6      | 2.30            | 1.32  | 1.42  | 2010.1               | 2.75                           | 2.37 | 2.14 |
| 8227.1              | 8257.1      | 1.63            | 1.52 | 1.49 | 8257.2      | 1.75            | 1.30  | 1.74  | 2090.1               | 2.69                           | 2.31 | 2.07 |
| 8506.0              | 8536.0      | 1.82            | 1.73 | 1.69 | 8536.0      | 1.28            | 1.46  | 2.07  | 2170.1               | 2.72                           | 2.33 | 2.09 |
| 8759.5              | 8789.5      | 2.02            | 1.92 | 1.90 | 8789.5      | 1.17            | 1.80  | 2.57  | 2250.1               | 2.79                           | 2.39 | 2.15 |
| 9038.4              | 9068.4      | 2.44            | 2.34 | 2.30 | 9068.4      | 1.66            | 2.30  | 3.15  | 2310.1               | 2.74                           | 2.37 | 2.15 |
| 9291.8              | 9321.8      | 2.73            | 2.64 | 2.61 | 9321.8      | 2.38            | 2.82  | 3.59  | 2390.1               | 2.74                           | 2.43 | 2.25 |
| 9570.7              | 9600.7      | 3.31            | 3.14 | 3.09 | 9600.7      | 3.65            | 3.76  | 4.44  | 2450.1               | 2.78                           | 2.54 | 2.42 |
| 9824.2              | 9854.2      | 4.02            | 3.40 | 3.29 | 9854.2      | 5.47            | 4.80  | 5.16  | 2530.1               | 2.87                           | 2.74 | 2.69 |
| 10103.0             | 10133.0     | 8.86            | 4.35 | 3.87 | 10133.1     | 5.97            | 5.17  | 4.92  | 2590.1               | 2.95                           | 2.90 | 2.92 |
| 10356.5             | 10386.5     | 10.43           | 5.66 | 3.78 | 10386.5     | 4.27            | 4.24  | 3.99  | 2670.1               | 3.17                           | 3.27 | 3.40 |
| 10635.4             | 10665.4     | 10.02           | 6.46 | 3.77 | 10665.4     | 2.60            | 2.65  | 2.66  | 2730.1               | 3.50                           | 3.74 | 3.97 |
| 10888.9             | 10918.9     | 7.50            | 4.54 | 3.45 | 10918.9     | 4.05            | 3.83  | 3.54  | 2810.1               | 4.03                           | 4.47 | 4.83 |
| 11167.8             | 11197.8     | 10.37           | 5.66 | 4.59 | 11197.8     | 9.18            | 8.05  | 6.81  | 2870.1               | 4.21                           | 4.72 | 5.13 |
| 11421.3             | 11451.3     | 6.86            | 4.44 | 3.81 | 11451.3     | 16.11           | 13.70 | 11.17 | 2950.1               | 5.02                           | 5.74 | 6.30 |
| 11700.1             | 11730.1     | 2.83            | 2.52 | 2.39 | 11730.1     | 18.50           | 15.26 | 11.61 | 3010.1               | 6.01                           | 6.86 | 7.50 |

## Harmonics Tables

|        | RF HARMONICS ORDER | (-dBm) |     |     |     |     |     |     |     |     |     |     |     |
|--------|--------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        |                    | (-dBc) |     |     |     |     |     |     |     |     |     |     |     |
| 0      |                    | -      | -   | +4  | 50  | 12  | 42  | --- | --- | --- | --- | --- | --- |
| 1      |                    | -      | 33  | +0  | 56  | 37  | 39  | 51  | --- | --- | --- | --- | --- |
| 2      |                    | 64     | 67  | 59  | 48  | 54  | 71  | 52  | 76  | --- | --- | --- | --- |
| 3      |                    | >90    | 78  | 72  | >84 | 58  | >84 | 75  | >84 | 75  | --- | --- | --- |
| 4      |                    | >90    | >84 | >84 | >84 | >84 | >84 | >84 | >84 | >84 | >84 | --- | --- |
| 5      |                    | ---    | --- | >84 | >84 | >84 | >84 | >84 | >84 | >84 | >84 | >84 | --- |
| 6      |                    | ---    | --- | --- | >84 | >84 | >84 | >84 | >84 | >84 | >84 | >84 | >84 |
| 7      |                    | ---    | --- | --- | --- | >84 | >84 | >84 | >84 | >84 | >84 | >84 | >84 |
| 8      |                    | ---    | --- | --- | --- | --- | >84 | >84 | >84 | >84 | >84 | >84 | >84 |
| 9      |                    | ---    | --- | --- | --- | --- | --- | >84 | >84 | >84 | >84 | >84 | >84 |
| 10     |                    | ---    | --- | --- | --- | --- | --- | --- | >84 | >84 | >84 | >84 | >84 |
| RF CAL |                    | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |     |

## LO HARMONICS ORDER

Test conditions:

RF IN: 5850 MHz; -1.00 dBm.

LO IN: 5880 MHz; +17.00 dBm

IF OUT: 30 MHz; -6.28 dBm

|        | RF HARMONICS ORDER | (-dBm) |     |     |     |     |     |     |     |     |     |     |     |
|--------|--------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        |                    | (-dBc) |     |     |     |     |     |     |     |     |     |     |     |
| 0      |                    | -      | -   | 5   | 57  | 24  | 51  | --- | --- | --- | --- | --- | --- |
| 1      |                    | -      | 33  | +0  | 55  | 37  | 42  | 62  | --- | --- | --- | --- | --- |
| 2      |                    | 45     | 57  | 53  | 37  | 47  | 61  | 46  | 72  | --- | --- | --- | --- |
| 3      |                    | 63     | 59  | 55  | 71  | 37  | 74  | 65  | 62  | 64  | --- | --- | --- |
| 4      |                    | 84     | 75  | 73  | 80  | 65  | 62  | 63  | 79  | 64  | 77  | --- | --- |
| 5      |                    | ---    | --- | 93  | 80  | 77  | >94 | 66  | 93  | 73  | >94 | 73  | --- |
| 6      |                    | ---    | --- | --- | >94 | 87  | 90  | 79  | 81  | 77  | 90  | 75  | 90  |
| 7      |                    | ---    | --- | --- | --- | >94 | >94 | 93  | >94 | 71  | >94 | 86  | 89  |
| 8      |                    | ---    | --- | --- | --- | --- | >94 | 93  | >94 | 92  | 90  | 92  | >94 |
| 9      |                    | ---    | --- | --- | --- | --- | --- | >94 | >94 | >94 | >94 | 82  | >94 |
| 10     |                    | ---    | --- | --- | --- | --- | --- | --- | >94 | >94 | >94 | >94 | >94 |
| RF CAL |                    | 0      | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |     |

## LO HARMONICS ORDER

Test conditions:

RF IN: 5850 MHz; 9.00 dBm.

LO IN: 5880 MHz; +17.00 dBm

IF OUT: 30 MHz; 3.59 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.