

# Frequency Mixer

# MCA1-42LH+

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>IF FIXED<br>@IF(OUT)=30MHz<br>(dB) |       |      |
|---------------------|-------------|-------------------------------------------------------|-------|------|
|                     |             | @LO (dBm)                                             |       |      |
|                     |             | +7                                                    | +10   | +13  |
| 710.0               | 740.0       | 17.79                                                 | 10.82 | 7.31 |
| 810.0               | 840.0       | 10.88                                                 | 7.62  | 6.46 |
| 910.0               | 940.0       | 8.54                                                  | 6.75  | 6.13 |
| 1010.0              | 1040.0      | 7.87                                                  | 6.62  | 5.93 |
| 1110.0              | 1140.0      | 7.33                                                  | 6.52  | 5.90 |
| 1210.0              | 1240.0      | 6.49                                                  | 6.19  | 6.02 |
| 1310.0              | 1340.0      | 6.11                                                  | 5.85  | 5.74 |
| 1410.0              | 1440.0      | 5.96                                                  | 5.79  | 5.74 |
| 1510.0              | 1540.0      | 6.21                                                  | 5.84  | 5.71 |
| 1610.0              | 1640.0      | 6.47                                                  | 6.07  | 5.86 |
| 1710.0              | 1740.0      | 6.39                                                  | 6.08  | 5.91 |
| 1810.0              | 1840.0      | 6.38                                                  | 6.09  | 5.93 |
| 1910.0              | 1940.0      | 6.22                                                  | 6.04  | 5.97 |
| 2010.0              | 2040.0      | 6.54                                                  | 6.28  | 6.14 |
| 2110.0              | 2140.0      | 6.79                                                  | 6.45  | 6.25 |
| 2210.0              | 2240.0      | 6.89                                                  | 6.48  | 6.26 |
| 2290.0              | 2320.0      | 7.18                                                  | 6.60  | 6.30 |
| 2390.0              | 2420.0      | 6.97                                                  | 6.51  | 6.21 |
| 2470.0              | 2500.0      | 6.84                                                  | 6.34  | 6.10 |
| 2570.0              | 2600.0      | 7.88                                                  | 7.01  | 6.43 |
| 2650.0              | 2680.0      | 7.97                                                  | 7.06  | 6.57 |
| 2750.0              | 2780.0      | 7.50                                                  | 6.94  | 6.64 |
| 2830.0              | 2860.0      | 7.17                                                  | 6.53  | 6.21 |
| 2930.0              | 2960.0      | 6.99                                                  | 6.19  | 5.82 |
| 3010.0              | 3040.0      | 6.59                                                  | 5.57  | 5.40 |
| 3110.0              | 3140.0      | 6.12                                                  | 5.36  | 5.23 |
| 3190.0              | 3220.0      | 5.77                                                  | 5.25  | 5.14 |
| 3290.0              | 3320.0      | 5.66                                                  | 5.15  | 5.07 |
| 3370.0              | 3400.0      | 5.61                                                  | 5.19  | 5.19 |
| 3470.0              | 3500.0      | 5.86                                                  | 5.48  | 5.51 |
| 3550.0              | 3580.0      | 6.32                                                  | 5.75  | 5.64 |
| 3650.0              | 3680.0      | 6.34                                                  | 5.69  | 5.46 |
| 3730.0              | 3760.0      | 6.54                                                  | 5.74  | 5.36 |
| 3830.0              | 3860.0      | 6.57                                                  | 5.96  | 5.65 |
| 3910.0              | 3940.0      | 6.76                                                  | 6.09  | 5.71 |
| 4010.0              | 4040.0      | 7.12                                                  | 6.28  | 5.85 |
| 4090.0              | 4120.0      | 7.51                                                  | 6.52  | 6.05 |
| 4190.0              | 4220.0      | 8.32                                                  | 7.05  | 6.47 |
| 4270.0              | 4300.0      | 9.38                                                  | 7.22  | 6.46 |
| 4370.0              | 4400.0      | 11.86                                                 | 7.44  | 6.54 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | IP3 INPUT<br>(dBm) |       |       |
|---------------------|-------------|--------------------|-------|-------|
|                     |             | @LO (dBm)          |       |       |
|                     |             | +7                 | +10   | +13   |
| 710.0               | 740.0       | -4.00              | 2.69  | 7.86  |
| 810.0               | 840.0       | 1.90               | 6.61  | 20.19 |
| 910.0               | 940.0       | 6.97               | 12.96 | 15.29 |
| 1010.0              | 1040.0      | 9.11               | 12.22 | 15.31 |
| 1110.0              | 1140.0      | 8.15               | 9.80  | 11.79 |
| 1210.0              | 1240.0      | 10.84              | 10.37 | 10.57 |
| 1310.0              | 1340.0      | 13.90              | 13.42 | 15.16 |
| 1410.0              | 1440.0      | 12.36              | 18.25 | 13.19 |
| 1510.0              | 1540.0      | 14.98              | 13.79 | 14.36 |
| 1610.0              | 1640.0      | 24.26              | 15.53 | 15.85 |
| 1710.0              | 1740.0      | 22.52              | 26.05 | 20.49 |
| 1810.0              | 1840.0      | 16.71              | 15.64 | 16.09 |
| 1910.0              | 1940.0      | 15.61              | 22.93 | 25.98 |
| 2010.0              | 2040.0      | 17.71              | 18.18 | 19.46 |
| 2110.0              | 2140.0      | 17.39              | 17.47 | 18.27 |
| 2210.0              | 2240.0      | 16.74              | 16.46 | 16.42 |
| 2290.0              | 2320.0      | 12.44              | 14.37 | 15.78 |
| 2390.0              | 2420.0      | 13.04              | 13.19 | 12.71 |
| 2470.0              | 2500.0      | 13.63              | 17.43 | 19.69 |
| 2570.0              | 2600.0      | 13.25              | 16.14 | 16.49 |
| 2650.0              | 2680.0      | 11.87              | 12.06 | 14.15 |
| 2750.0              | 2780.0      | 14.15              | 14.59 | 13.30 |
| 2830.0              | 2860.0      | 10.01              | 10.30 | 9.99  |
| 2930.0              | 2960.0      | 7.69               | 9.69  | 12.34 |
| 3010.0              | 3040.0      | 8.58               | 15.02 | 16.16 |
| 3110.0              | 3140.0      | 10.46              | 14.89 | 17.10 |
| 3190.0              | 3220.0      | 10.17              | 12.97 | 15.02 |
| 3290.0              | 3320.0      | 9.51               | 13.48 | 15.80 |
| 3370.0              | 3400.0      | 12.10              | 17.76 | 21.40 |
| 3470.0              | 3500.0      | 11.69              | 19.24 | 22.85 |
| 3550.0              | 3580.0      | 9.89               | 21.15 | 22.46 |
| 3650.0              | 3680.0      | 10.86              | 17.72 | 15.13 |
| 3730.0              | 3760.0      | 13.97              | 15.06 | 13.60 |
| 3830.0              | 3860.0      | 17.01              | 22.10 | 20.54 |
| 3910.0              | 3940.0      | 13.64              | 15.63 | 16.71 |
| 4010.0              | 4040.0      | 11.09              | 13.05 | 15.06 |
| 4090.0              | 4120.0      | 9.27               | 12.41 | 14.12 |
| 4190.0              | 4220.0      | 7.57               | 10.38 | 12.79 |
| 4270.0              | 4300.0      | 6.86               | 9.42  | 12.55 |
| 4370.0              | 4400.0      | 4.10               | 10.38 | 14.24 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | COMPRESSION<br>@RF IN=+5dBm<br>(dB) |      |      |
|---------------------|-------------|-------------------------------------|------|------|
|                     |             | @LO (dBm)                           |      |      |
|                     |             | +7                                  | +10  | +13  |
| 710.0               | 740.0       | -3.59                               | 0.55 | 1.53 |
| 810.0               | 840.0       | 2.06                                | 2.55 | 2.00 |
| 910.0               | 940.0       | 2.69                                | 2.64 | 2.20 |
| 1010.0              | 1040.0      | 2.18                                | 2.17 | 2.02 |
| 1110.0              | 1140.0      | 1.91                                | 1.94 | 1.80 |
| 1210.0              | 1240.0      | 1.89                                | 1.62 | 1.36 |
| 1310.0              | 1340.0      | 1.36                                | 1.13 | 0.97 |
| 1410.0              | 1440.0      | 1.17                                | 0.84 | 0.62 |
| 1510.0              | 1540.0      | 1.07                                | 0.90 | 0.73 |
| 1610.0              | 1640.0      | 0.85                                | 0.65 | 0.50 |
| 1710.0              | 1740.0      | 0.85                                | 0.59 | 0.45 |
| 1810.0              | 1840.0      | 0.86                                | 0.57 | 0.40 |
| 1910.0              | 1940.0      | 0.86                                | 0.47 | 0.32 |
| 2010.0              | 2040.0      | 0.90                                | 0.61 | 0.45 |
| 2110.0              | 2140.0      | 0.99                                | 0.78 | 0.56 |
| 2210.0              | 2240.0      | 1.16                                | 0.88 | 0.69 |
| 2290.0              | 2320.0      | 1.10                                | 0.85 | 0.68 |
| 2390.0              | 2420.0      | 1.33                                | 0.93 | 0.69 |
| 2470.0              | 2500.0      | 1.02                                | 0.73 | 0.55 |
| 2570.0              | 2600.0      | 0.67                                | 0.65 | 0.58 |
| 2650.0              | 2680.0      | 0.79                                | 0.88 | 0.77 |
| 2750.0              | 2780.0      | 1.25                                | 1.07 | 0.97 |
| 2830.0              | 2860.0      | 1.34                                | 1.10 | 1.02 |
| 2930.0              | 2960.0      | 1.50                                | 1.20 | 1.01 |
| 3010.0              | 3040.0      | 1.74                                | 1.29 | 0.83 |
| 3110.0              | 3140.0      | 1.74                                | 0.88 | 0.58 |
| 3190.0              | 3220.0      | 1.50                                | 0.65 | 0.42 |
| 3290.0              | 3320.0      | 1.40                                | 0.57 | 0.33 |
| 3370.0              | 3400.0      | 1.30                                | 0.50 | 0.22 |
| 3470.0              | 3500.0      | 1.44                                | 0.82 | 0.44 |
| 3550.0              | 3580.0      | 1.52                                | 1.08 | 0.71 |
| 3650.0              | 3680.0      | 1.33                                | 0.99 | 0.66 |
| 3730.0              | 3760.0      | 1.30                                | 1.12 | 0.93 |
| 3830.0              | 3860.0      | 1.28                                | 1.12 | 0.94 |
| 3910.0              | 3940.0      | 1.24                                | 1.14 | 0.98 |
| 4010.0              | 4040.0      | 1.59                                | 1.44 | 1.29 |
| 4090.0              | 4120.0      | 1.62                                | 1.45 | 1.31 |
| 4190.0              | 4220.0      | 1.39                                | 1.17 | 1.10 |
| 4270.0              | 4300.0      | 1.02                                | 1.14 | 1.01 |
| 4370.0              | 4400.0      | -0.71                               | 1.10 | 0.95 |

# Frequency Mixer

# MCA1-42LH+

## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=2600MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=989.9MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=4210.1MHz<br>(dB) |
|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|-----------------------------------------------------------------|----------------------|-------------|------------------------------------------------------------------|
|                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                       |                      |             | @LO (dBm)                                                        |
|                      |             | +10                                                            |                      |             | +10                                                             |                      |             | +10                                                              |
| 1770.0               | 830.0       | 11.71                                                          | 10.1                 | 1000.0      | 7.06                                                            | 1810.1               | 2400.0      | 10.23                                                            |
| 1670.0               | 930.0       | 10.39                                                          | 50.1                 | 1040.0      | 6.44                                                            | 1768.2               | 2441.9      | 9.33                                                             |
| 1570.0               | 1030.0      | 9.78                                                           | 90.1                 | 1080.0      | 6.26                                                            | 1726.4               | 2483.7      | 8.75                                                             |
| 1470.0               | 1130.0      | 8.77                                                           | 130.1                | 1120.0      | 6.47                                                            | 1684.5               | 2525.6      | 8.61                                                             |
| 1390.0               | 1210.0      | 7.72                                                           | 170.1                | 1160.0      | 6.41                                                            | 1642.7               | 2567.4      | 8.57                                                             |
| 1290.0               | 1310.0      | 6.40                                                           | 210.1                | 1200.0      | 6.35                                                            | 1600.8               | 2609.3      | 8.46                                                             |
| 1210.0               | 1390.0      | 6.25                                                           | 250.1                | 1240.0      | 6.20                                                            | 1558.9               | 2651.2      | 8.04                                                             |
| 1110.0               | 1490.0      | 7.30                                                           | 290.1                | 1280.0      | 6.01                                                            | 1517.1               | 2693.0      | 7.81                                                             |
| 1030.0               | 1570.0      | 8.09                                                           | 330.1                | 1320.0      | 5.87                                                            | 1475.2               | 2734.9      | 7.79                                                             |
| 930.0                | 1670.0      | 8.64                                                           | 370.1                | 1360.0      | 5.89                                                            | 1433.4               | 2776.7      | 7.77                                                             |
| 850.0                | 1750.0      | 8.93                                                           | 410.1                | 1400.0      | 5.85                                                            | 1391.5               | 2818.6      | 7.67                                                             |
| 750.0                | 1850.0      | 7.94                                                           | 470.1                | 1460.0      | 5.65                                                            | 1349.6               | 2860.5      | 7.75                                                             |
| 670.0                | 1930.0      | 7.38                                                           | 510.1                | 1500.0      | 5.48                                                            | 1307.8               | 2902.3      | 7.71                                                             |
| 570.0                | 2030.0      | 7.19                                                           | 570.1                | 1560.0      | 5.64                                                            | 1265.9               | 2944.2      | 7.68                                                             |
| 490.0                | 2110.0      | 6.89                                                           | 610.1                | 1600.0      | 5.87                                                            | 1224.1               | 2986.0      | 7.47                                                             |
| 390.0                | 2210.0      | 6.25                                                           | 670.1                | 1660.0      | 5.94                                                            | 1182.2               | 3027.9      | 7.45                                                             |
| 310.0                | 2290.0      | 6.01                                                           | 710.1                | 1700.0      | 5.76                                                            | 1140.3               | 3069.8      | 7.42                                                             |
| 210.0                | 2390.0      | 6.01                                                           | 770.1                | 1760.0      | 5.74                                                            | 1098.5               | 3111.6      | 7.45                                                             |
| 130.0                | 2470.0      | 6.61                                                           | 810.1                | 1800.0      | 5.62                                                            | 1056.6               | 3153.5      | 7.42                                                             |
| 30.0                 | 2570.0      | 6.87                                                           | 870.1                | 1860.0      | 5.55                                                            | 1014.8               | 3195.3      | 7.27                                                             |
| 50.0                 | 2650.0      | 6.86                                                           | 910.1                | 1900.0      | 5.52                                                            | 972.9                | 3237.2      | 7.38                                                             |
| 150.0                | 2750.0      | 7.63                                                           | 970.1                | 1960.0      | 5.63                                                            | 931.0                | 3279.1      | 7.33                                                             |
| 230.0                | 2830.0      | 7.42                                                           | 1010.1               | 2000.0      | 5.72                                                            | 889.2                | 3320.9      | 7.32                                                             |
| 330.0                | 2930.0      | 7.27                                                           | 1070.1               | 2060.0      | 5.98                                                            | 847.3                | 3362.8      | 6.95                                                             |
| 410.0                | 3010.0      | 6.74                                                           | 1110.1               | 2100.0      | 6.09                                                            | 805.4                | 3404.7      | 6.70                                                             |
| 510.0                | 3110.0      | 6.40                                                           | 1170.1               | 2160.0      | 6.20                                                            | 742.7                | 3467.4      | 6.73                                                             |
| 590.0                | 3190.0      | 6.31                                                           | 1210.1               | 2200.0      | 6.48                                                            | 700.8                | 3509.3      | 6.72                                                             |
| 690.0                | 3290.0      | 6.50                                                           | 1270.1               | 2260.0      | 7.01                                                            | 638.0                | 3572.1      | 6.80                                                             |
| 770.0                | 3370.0      | 6.65                                                           | 1310.1               | 2300.0      | 7.29                                                            | 596.1                | 3614.0      | 6.91                                                             |
| 870.0                | 3470.0      | 6.60                                                           | 1370.1               | 2360.0      | 7.40                                                            | 533.4                | 3676.7      | 6.77                                                             |
| 950.0                | 3550.0      | 6.52                                                           | 1410.1               | 2400.0      | 7.46                                                            | 491.5                | 3718.6      | 6.72                                                             |
| 1050.0               | 3650.0      | 6.44                                                           | 1470.1               | 2460.0      | 7.50                                                            | 428.7                | 3781.4      | 6.53                                                             |
| 1130.0               | 3730.0      | 6.48                                                           | 1510.1               | 2500.0      | 7.55                                                            | 386.8                | 3823.3      | 6.69                                                             |
| 1230.0               | 3830.0      | 6.65                                                           | 1570.1               | 2560.0      | 7.68                                                            | 324.1                | 3886.0      | 7.02                                                             |
| 1310.0               | 3910.0      | 6.76                                                           | 1610.1               | 2600.0      | 7.75                                                            | 282.2                | 3927.9      | 6.92                                                             |
| 1410.0               | 4010.0      | 6.97                                                           | 1670.1               | 2660.0      | 8.10                                                            | 219.4                | 3990.7      | 6.85                                                             |
| 1490.0               | 4090.0      | 7.37                                                           | 1710.1               | 2700.0      | 8.26                                                            | 177.5                | 4032.6      | 6.79                                                             |
| 1590.0               | 4190.0      | 8.34                                                           | 1770.1               | 2760.0      | 8.69                                                            | 114.8                | 4095.3      | 6.83                                                             |
| 1670.0               | 4270.0      | 9.26                                                           | 1810.1               | 2800.0      | 9.06                                                            | 72.9                 | 4137.2      | 6.86                                                             |
| 1770.0               | 4370.0      | 11.04                                                          | 1870.1               | 2860.0      | 10.17                                                           | 10.1                 | 4200.0      | 7.30                                                             |

# Frequency Mixer

# MCA1-42LH+

## Typical Performance Data

| LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |       |       | LO-IF ISOLATION<br>(dB) |       |       |
|-------------|-------------------------|-------|-------|-------------------------|-------|-------|
|             | @LO (dBm)               |       |       | @LO (dBm)               |       |       |
|             | +7                      | +10   | +13   | +7                      | +10   | +13   |
| 740.0       | 53.91                   | 57.17 | 43.68 | 21.71                   | 21.68 | 22.27 |
| 840.0       | 47.40                   | 39.06 | 37.76 | 19.23                   | 20.22 | 22.52 |
| 940.0       | 35.23                   | 34.77 | 35.40 | 18.06                   | 20.33 | 22.62 |
| 1040.0      | 33.25                   | 33.72 | 34.59 | 18.51                   | 20.98 | 23.18 |
| 1140.0      | 37.43                   | 36.92 | 37.10 | 19.73                   | 22.57 | 24.90 |
| 1240.0      | 46.71                   | 45.09 | 43.85 | 21.04                   | 23.45 | 25.00 |
| 1340.0      | 45.86                   | 43.36 | 42.26 | 22.12                   | 23.42 | 23.66 |
| 1440.0      | 43.59                   | 40.50 | 37.89 | 21.85                   | 22.18 | 21.75 |
| 1540.0      | 41.21                   | 39.09 | 36.77 | 21.54                   | 21.42 | 21.07 |
| 1640.0      | 37.16                   | 36.31 | 35.49 | 23.73                   | 22.93 | 21.75 |
| 1740.0      | 37.37                   | 37.39 | 37.45 | 22.64                   | 21.76 | 21.09 |
| 1840.0      | 39.66                   | 39.59 | 39.19 | 23.06                   | 22.21 | 21.56 |
| 1940.0      | 41.42                   | 41.01 | 40.43 | 23.56                   | 23.23 | 22.92 |
| 2040.0      | 39.44                   | 38.94 | 38.64 | 22.60                   | 23.77 | 24.73 |
| 2140.0      | 38.87                   | 38.26 | 37.75 | 20.21                   | 22.06 | 23.70 |
| 2240.0      | 38.96                   | 37.36 | 36.25 | 18.42                   | 19.39 | 19.88 |
| 2320.0      | 40.36                   | 37.60 | 35.90 | 18.18                   | 18.37 | 18.16 |
| 2420.0      | 46.44                   | 40.93 | 37.34 | 18.77                   | 18.27 | 17.62 |
| 2500.0      | 47.35                   | 42.54 | 39.83 | 20.06                   | 18.81 | 18.01 |
| 2600.0      | 46.80                   | 43.35 | 41.19 | 21.09                   | 19.82 | 18.74 |
| 2680.0      | 43.25                   | 41.39 | 39.93 | 22.66                   | 20.84 | 19.51 |
| 2780.0      | 45.38                   | 40.77 | 38.17 | 24.07                   | 22.64 | 21.74 |
| 2860.0      | 51.63                   | 44.72 | 41.28 | 24.91                   | 22.79 | 21.92 |
| 2960.0      | 56.44                   | 49.76 | 45.87 | 26.10                   | 23.80 | 23.09 |
| 3040.0      | 54.87                   | 57.66 | 46.29 | 27.44                   | 26.00 | 25.47 |
| 3140.0      | 44.87                   | 41.62 | 38.28 | 29.18                   | 28.05 | 27.70 |
| 3220.0      | 43.10                   | 39.47 | 36.18 | 29.23                   | 28.53 | 28.55 |
| 3320.0      | 40.44                   | 37.99 | 34.63 | 28.03                   | 27.73 | 28.30 |
| 3400.0      | 37.36                   | 34.68 | 32.24 | 26.26                   | 26.66 | 27.83 |
| 3500.0      | 35.60                   | 33.13 | 31.64 | 24.06                   | 24.88 | 26.36 |
| 3580.0      | 35.68                   | 32.98 | 31.60 | 22.58                   | 23.53 | 24.88 |
| 3680.0      | 33.46                   | 32.58 | 31.88 | 21.24                   | 22.39 | 23.92 |
| 3760.0      | 31.41                   | 30.57 | 30.09 | 19.16                   | 20.71 | 22.56 |
| 3860.0      | 30.37                   | 29.99 | 29.33 | 18.57                   | 20.47 | 22.31 |
| 3940.0      | 29.43                   | 29.11 | 28.55 | 18.82                   | 20.87 | 22.65 |
| 4040.0      | 30.75                   | 30.02 | 29.08 | 20.89                   | 22.93 | 24.06 |
| 4120.0      | 32.12                   | 31.17 | 29.86 | 19.07                   | 20.54 | 21.64 |
| 4220.0      | 32.28                   | 32.35 | 31.33 | 15.77                   | 17.04 | 18.45 |
| 4300.0      | 32.25                   | 32.92 | 32.32 | 14.41                   | 15.25 | 16.36 |
| 4400.0      | 31.95                   | 33.91 | 34.26 | 13.63                   | 14.35 | 15.66 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +7                      | +10   | +13   |
| 710.0               | 740.0       | 24.50                   | 22.66 | 16.79 |
| 810.0               | 840.0       | 20.47                   | 14.76 | 13.11 |
| 910.0               | 940.0       | 13.58                   | 12.09 | 11.68 |
| 1010.0              | 1040.0      | 13.21                   | 12.48 | 12.16 |
| 1110.0              | 1140.0      | 16.68                   | 15.54 | 14.82 |
| 1210.0              | 1240.0      | 21.78                   | 20.95 | 20.38 |
| 1310.0              | 1340.0      | 25.70                   | 24.29 | 23.38 |
| 1410.0              | 1440.0      | 26.91                   | 25.79 | 23.84 |
| 1510.0              | 1540.0      | 25.73                   | 23.95 | 22.56 |
| 1610.0              | 1640.0      | 24.07                   | 22.18 | 20.90 |
| 1710.0              | 1740.0      | 23.37                   | 22.14 | 21.06 |
| 1810.0              | 1840.0      | 22.25                   | 21.06 | 20.21 |
| 1910.0              | 1940.0      | 21.23                   | 20.65 | 20.26 |
| 2010.0              | 2040.0      | 22.77                   | 22.37 | 22.10 |
| 2110.0              | 2140.0      | 24.63                   | 24.24 | 24.01 |
| 2210.0              | 2240.0      | 29.31                   | 29.03 | 28.78 |
| 2290.0              | 2320.0      | 35.11                   | 34.78 | 34.36 |
| 2390.0              | 2420.0      | 26.00                   | 25.30 | 24.81 |
| 2470.0              | 2500.0      | 22.39                   | 21.86 | 21.58 |
| 2570.0              | 2600.0      | 20.40                   | 19.70 | 19.24 |
| 2650.0              | 2680.0      | 18.44                   | 17.47 | 17.04 |
| 2750.0              | 2780.0      | 18.64                   | 17.76 | 16.82 |
| 2830.0              | 2860.0      | 18.32                   | 17.62 | 17.04 |
| 2930.0              | 2960.0      | 18.56                   | 17.29 | 16.46 |
| 3010.0              | 3040.0      | 18.53                   | 17.18 | 16.76 |
| 3110.0              | 3140.0      | 19.18                   | 18.29 | 18.00 |
| 3190.0              | 3220.0      | 19.50                   | 18.75 | 18.59 |
| 3290.0              | 3320.0      | 20.71                   | 19.45 | 18.85 |
| 3370.0              | 3400.0      | 20.72                   | 19.24 | 18.64 |
| 3470.0              | 3500.0      | 21.44                   | 20.12 | 19.79 |
| 3550.0              | 3580.0      | 28.03                   | 28.77 | 29.67 |
| 3650.0              | 3680.0      | 21.50                   | 20.37 | 19.92 |
| 3730.0              | 3760.0      | 24.45                   | 23.10 | 22.41 |
| 3830.0              | 3860.0      | 29.35                   | 26.83 | 25.51 |
| 3910.0              | 3940.0      | 25.87                   | 24.24 | 23.51 |
| 4010.0              | 4040.0      | 32.61                   | 32.10 | 33.10 |
| 4090.0              | 4120.0      | 32.56                   | 39.51 | 43.07 |
| 4190.0              | 4220.0      | 28.08                   | 32.96 | 35.70 |
| 4270.0              | 4300.0      | 25.53                   | 32.38 | 41.28 |
| 4370.0              | 4400.0      | 23.21                   | 29.19 | 48.43 |

# Frequency Mixer

# MCA1-42LH+

## 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=4200MHz<br>(:1) |      |      |
|---------------------|-------------|-----------------|------|------|-------------|-----------------|-------|-------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)       |      |      |             | @LO (dBm)       |       |       |                      | @LO (dBm)                      |      |      |
|                     |             | +7              | +10  | +13  |             | +7              | +10   | +13   |                      | +7                             | +10  | +13  |
| 710.0               | 740.0       | 6.26            | 3.59 | 2.73 | 740.0       | 30.49           | 27.59 | 19.11 | 10.0                 | 1.92                           | 1.41 | 1.19 |
| 810.0               | 840.0       | 2.88            | 2.17 | 1.93 | 840.0       | 21.20           | 12.99 | 9.74  | 50.0                 | 1.95                           | 1.45 | 1.23 |
| 910.0               | 940.0       | 2.25            | 1.81 | 1.66 | 940.0       | 8.27            | 6.46  | 6.83  | 90.0                 | 1.96                           | 1.46 | 1.24 |
| 1010.0              | 1040.0      | 2.52            | 2.18 | 1.99 | 1040.0      | 3.98            | 4.30  | 5.16  | 130.0                | 2.02                           | 1.53 | 1.31 |
| 1110.0              | 1140.0      | 3.01            | 2.76 | 2.55 | 1140.0      | 2.62            | 3.18  | 4.02  | 170.0                | 2.06                           | 1.57 | 1.38 |
| 1210.0              | 1240.0      | 2.92            | 2.83 | 2.77 | 1240.0      | 2.02            | 2.58  | 3.33  | 210.0                | 2.13                           | 1.63 | 1.43 |
| 1310.0              | 1340.0      | 2.75            | 2.62 | 2.57 | 1340.0      | 1.65            | 2.17  | 2.86  | 250.0                | 2.20                           | 1.71 | 1.52 |
| 1410.0              | 1440.0      | 2.80            | 2.58 | 2.43 | 1440.0      | 1.58            | 2.08  | 2.72  | 290.0                | 2.25                           | 1.75 | 1.55 |
| 1510.0              | 1540.0      | 2.97            | 2.68 | 2.45 | 1540.0      | 1.72            | 2.22  | 2.87  | 330.0                | 2.34                           | 1.83 | 1.63 |
| 1610.0              | 1640.0      | 2.91            | 2.59 | 2.34 | 1640.0      | 1.89            | 2.43  | 3.11  | 370.0                | 2.40                           | 1.88 | 1.68 |
| 1710.0              | 1740.0      | 2.80            | 2.58 | 2.39 | 1740.0      | 2.08            | 2.68  | 3.43  | 410.0                | 2.49                           | 1.95 | 1.73 |
| 1810.0              | 1840.0      | 2.64            | 2.39 | 2.22 | 1840.0      | 2.12            | 2.80  | 3.62  | 450.0                | 2.58                           | 2.03 | 1.80 |
| 1910.0              | 1940.0      | 2.42            | 2.28 | 2.19 | 1940.0      | 2.01            | 2.78  | 3.70  | 490.0                | 2.66                           | 2.08 | 1.83 |
| 2010.0              | 2040.0      | 2.76            | 2.60 | 2.48 | 2040.0      | 2.10            | 2.90  | 3.86  | 530.0                | 2.78                           | 2.17 | 1.91 |
| 2110.0              | 2140.0      | 3.11            | 2.92 | 2.79 | 2140.0      | 2.29            | 3.06  | 3.99  | 570.0                | 2.84                           | 2.20 | 1.92 |
| 2210.0              | 2240.0      | 3.22            | 3.00 | 2.84 | 2240.0      | 2.62            | 3.27  | 4.12  | 610.0                | 2.93                           | 2.25 | 1.95 |
| 2290.0              | 2320.0      | 3.26            | 3.00 | 2.82 | 2320.0      | 2.89            | 3.43  | 4.20  | 650.0                | 3.00                           | 2.29 | 1.96 |
| 2390.0              | 2420.0      | 3.02            | 2.71 | 2.46 | 2420.0      | 3.14            | 3.62  | 4.34  | 690.0                | 2.97                           | 2.29 | 1.95 |
| 2470.0              | 2500.0      | 2.79            | 2.53 | 2.39 | 2500.0      | 3.45            | 3.73  | 4.34  | 730.0                | 3.09                           | 2.36 | 2.00 |
| 2570.0              | 2600.0      | 3.35            | 2.99 | 2.70 | 2600.0      | 3.56            | 3.82  | 4.36  | 770.0                | 3.10                           | 2.33 | 1.96 |
| 2650.0              | 2680.0      | 3.51            | 3.06 | 2.81 | 2680.0      | 3.88            | 3.79  | 4.16  | 810.0                | 3.24                           | 2.43 | 2.03 |
| 2750.0              | 2780.0      | 3.62            | 3.26 | 2.94 | 2780.0      | 4.17            | 4.00  | 4.36  | 850.0                | 3.23                           | 2.40 | 2.00 |
| 2830.0              | 2860.0      | 3.50            | 3.14 | 2.86 | 2860.0      | 4.23            | 3.77  | 4.00  | 890.0                | 3.34                           | 2.48 | 2.05 |
| 2930.0              | 2960.0      | 3.18            | 2.57 | 2.17 | 2960.0      | 4.09            | 3.18  | 3.31  | 930.0                | 3.33                           | 2.46 | 2.05 |
| 3010.0              | 3040.0      | 2.74            | 2.07 | 1.86 | 3040.0      | 4.06            | 3.14  | 3.24  | 970.0                | 3.32                           | 2.44 | 2.03 |
| 3110.0              | 3140.0      | 2.24            | 1.82 | 1.65 | 3140.0      | 5.02            | 3.42  | 3.15  | 1010.0               | 3.29                           | 2.42 | 2.02 |
| 3190.0              | 3220.0      | 2.01            | 1.64 | 1.45 | 3220.0      | 5.27            | 3.43  | 2.99  | 1050.0               | 3.21                           | 2.33 | 1.93 |
| 3290.0              | 3320.0      | 1.81            | 1.43 | 1.26 | 3320.0      | 5.10            | 3.07  | 2.55  | 1090.0               | 3.14                           | 2.28 | 1.90 |
| 3370.0              | 3400.0      | 1.54            | 1.18 | 1.08 | 3400.0      | 4.55            | 2.74  | 2.21  | 1130.0               | 3.09                           | 2.23 | 1.87 |
| 3470.0              | 3500.0      | 1.57            | 1.34 | 1.30 | 3500.0      | 3.73            | 2.33  | 1.84  | 1170.0               | 3.05                           | 2.24 | 1.91 |
| 3550.0              | 3580.0      | 1.79            | 1.57 | 1.49 | 3580.0      | 3.00            | 1.94  | 1.58  | 1210.0               | 2.99                           | 2.21 | 1.91 |
| 3650.0              | 3680.0      | 1.83            | 1.57 | 1.42 | 3680.0      | 2.27            | 1.61  | 1.46  | 1270.0               | 2.92                           | 2.23 | 2.00 |
| 3730.0              | 3760.0      | 2.00            | 1.72 | 1.51 | 3760.0      | 1.94            | 1.52  | 1.59  | 1310.0               | 2.86                           | 2.25 | 2.07 |
| 3830.0              | 3860.0      | 1.96            | 1.73 | 1.57 | 3860.0      | 1.92            | 1.71  | 1.90  | 1370.0               | 2.76                           | 2.33 | 2.24 |
| 3910.0              | 3940.0      | 2.03            | 1.82 | 1.67 | 3940.0      | 2.20            | 2.06  | 2.26  | 1410.0               | 2.73                           | 2.42 | 2.40 |
| 4010.0              | 4040.0      | 2.22            | 1.98 | 1.83 | 4040.0      | 2.95            | 2.63  | 2.77  | 1470.0               | 2.85                           | 2.73 | 2.83 |
| 4090.0              | 4120.0      | 2.49            | 2.23 | 2.07 | 4120.0      | 3.95            | 3.24  | 3.23  | 1510.0               | 2.91                           | 2.92 | 3.07 |
| 4190.0              | 4220.0      | 2.87            | 2.58 | 2.41 | 4220.0      | 5.93            | 4.14  | 3.65  | 1570.0               | 3.06                           | 3.23 | 3.46 |
| 4270.0              | 4300.0      | 3.33            | 2.80 | 2.58 | 4300.0      | 7.94            | 5.12  | 3.94  | 1610.0               | 3.23                           | 3.52 | 3.81 |
| 4370.0              | 4400.0      | 4.09            | 2.96 | 2.75 | 4400.0      | 9.96            | 7.50  | 5.10  | 1670.0               | 3.59                           | 4.02 | 4.39 |

## Harmonics Tables

### RF HARMONICS ORDER

|        | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|--------|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0      | -      | -      | +6  | 18  | 1   | 24  | 19  | 35  | 36  | 53  | 62  | --- |
| 1      | -      | 12     | +0  | 21  | 19  | 34  | 35  | 47  | 40  | 57  | 52  | 68  |
| 2      | 82     | 40     | 48  | 41  | 61  | 46  | 44  | 61  | 54  | 54  | 62  | 70  |
| 3      | >90    | 71     | 57  | 69  | 54  | 61  | 58  | 61  | 67  | >73 | 65  | >73 |
| 4      | >90    | >73    | >73 | >73 | >73 | 71  | >73 | 72  | >73 | >73 | >73 | >73 |
| 5      | >90    | >73    | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 |
| 6      | >90    | >73    | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 |
| 7      | >90    | >73    | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 |
| 8      | >90    | >73    | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 |
| 9      | >90    | >73    | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 | >73 |
| 10     | ---    | ---    | >73 | >73 | 72  | >73 | >73 | >73 | >73 | >73 | >73 | >73 |
| RF CAL | 0      | 1      | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |     |

Test conditions:

RF IN: 2600 MHz; -10.00 dBm.

LO IN: 2630 MHz; +10.00 dBm

IF OUT: 30 MHz; -17.01 dBm

### RF HARMONICS ORDER

|        | (-dBm) | (-dBc) |     |     |     |     |     |     |     |     |     |     |
|--------|--------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0      | -      | -      | 3   | 32  | 12  | 37  | 35  | 44  | 50  | 63  | 68  | --- |
| 1      | -      | 11     | +0  | 23  | 20  | 41  | 40  | 56  | 49  | 61  | 69  | >83 |
| 2      | 62     | 32     | 37  | 38  | 42  | 45  | 39  | 55  | 49  | 60  | 60  | 71  |
| 3      | >90    | 51     | 35  | 48  | 37  | 39  | 44  | 47  | 50  | 70  | 61  | 67  |
| 4      | >90    | 73     | 54  | 51  | 69  | 47  | 52  | 54  | 53  | 69  | 63  | 63  |
| 5      | >90    | 63     | 75  | 67  | 51  | 75  | 49  | 61  | 55  | 62  | 67  | 73  |
| 6      | >90    | 80     | 72  | 81  | 71  | 66  | 69  | 59  | 59  | 64  | 63  | 70  |
| 7      | >90    | >83    | >83 | >83 | >83 | 79  | 73  | >83 | 66  | 67  | 70  | 71  |
| 8      | >90    | >83    | >83 | >83 | >83 | >83 | >83 | 69  | >83 | 63  | 73  | 73  |
| 9      | >90    | >83    | >83 | >83 | >83 | >83 | >83 | >83 | 76  | >83 | 71  | 81  |
| 10     | ---    | ---    | >83 | >83 | >83 | >83 | >83 | >83 | >83 | 82  | >83 | 76  |
| RF CAL | 0      | 1      | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |     |

### LO HARMONICS ORDER

Test conditions:

RF IN: 2600 MHz; 0.00 dBm.

LO IN: 2630 MHz; +10.00 dBm

IF OUT: 30 MHz; -6.95 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.