

# Frequency Mixer

ADE-ED7490/1

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>IF FIXED<br>@IF(OUT)=30MHz<br>(dB) |       |      | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | IP3 INPUT<br>(dBm) |       |       | RF<br>(IN)<br>(MHz) | LO<br>(MHz) | COMPRESSION<br>@RF IN=+15dBm<br>(dB) |      |      |
|---------------------|-------------|-------------------------------------------------------|-------|------|---------------------|-------------|--------------------|-------|-------|---------------------|-------------|--------------------------------------|------|------|
|                     |             | @LO (dBm)                                             |       |      |                     |             | @LO (dBm)          |       |       |                     |             | @LO (dBm)                            |      |      |
|                     |             |                                                       |       |      |                     |             |                    |       |       |                     |             |                                      |      |      |
| +14                 | +17         | +20                                                   | +14   | +17  | +20                 | +14         | +17                | +20   | +14   | +17                 | +20         |                                      |      |      |
| 10.1                | 40.1        | 9.10                                                  | 8.28  | 7.94 | 10.1                | 40.1        | 18.32              | 20.56 | 21.78 | 10.1                | 40.1        | 1.22                                 | 0.73 | 0.46 |
| 70.1                | 100.1       | 8.52                                                  | 7.88  | 7.54 | 70.1                | 100.1       | 21.71              | 22.58 | 22.92 | 70.1                | 100.1       | 1.45                                 | 0.86 | 0.60 |
| 130.1               | 160.1       | 8.53                                                  | 7.85  | 7.52 | 130.1               | 160.1       | 22.36              | 21.20 | 23.40 | 130.1               | 160.1       | 1.55                                 | 0.89 | 0.59 |
| 190.1               | 220.1       | 8.42                                                  | 7.89  | 7.62 | 190.1               | 220.1       | 22.65              | 22.74 | 23.83 | 190.1               | 220.1       | 1.44                                 | 0.81 | 0.53 |
| 250.1               | 280.1       | 8.63                                                  | 8.06  | 7.78 | 250.1               | 280.1       | 20.96              | 21.55 | 21.50 | 250.1               | 280.1       | 1.58                                 | 0.87 | 0.52 |
| 310.1               | 340.1       | 8.76                                                  | 8.20  | 7.88 | 310.1               | 340.1       | 21.37              | 20.48 | 20.79 | 310.1               | 340.1       | 1.38                                 | 0.82 | 0.53 |
| 370.1               | 400.1       | 8.84                                                  | 8.31  | 7.88 | 370.1               | 400.1       | 19.96              | 19.62 | 21.12 | 370.1               | 400.1       | 1.44                                 | 0.84 | 0.62 |
| 430.1               | 460.1       | 9.24                                                  | 8.65  | 8.07 | 430.1               | 460.1       | 19.20              | 19.19 | 21.32 | 430.1               | 460.1       | 1.18                                 | 0.69 | 0.62 |
| 490.1               | 520.1       | 9.24                                                  | 8.57  | 7.86 | 490.1               | 520.1       | 18.73              | 19.58 | 23.10 | 490.1               | 520.1       | 1.39                                 | 0.91 | 0.91 |
| 550.1               | 580.1       | 9.63                                                  | 8.67  | 7.88 | 550.1               | 580.1       | 18.01              | 19.74 | 23.11 | 550.1               | 580.1       | 1.20                                 | 1.01 | 1.05 |
| 610.1               | 640.1       | 9.87                                                  | 8.70  | 7.83 | 610.1               | 640.1       | 17.82              | 21.08 | 25.30 | 610.1               | 640.1       | 1.08                                 | 1.10 | 1.16 |
| 670.1               | 700.1       | 10.02                                                 | 8.81  | 7.88 | 670.1               | 700.1       | 17.61              | 20.51 | 24.77 | 670.1               | 700.1       | 1.00                                 | 1.07 | 1.20 |
| 730.1               | 760.1       | 10.08                                                 | 8.88  | 8.02 | 730.1               | 760.1       | 17.49              | 20.43 | 23.53 | 730.1               | 760.1       | 1.11                                 | 1.21 | 1.25 |
| 790.1               | 820.1       | 9.93                                                  | 8.68  | 8.00 | 790.1               | 820.1       | 18.01              | 21.38 | 23.55 | 790.1               | 820.1       | 1.14                                 | 1.31 | 1.18 |
| 870.1               | 900.1       | 9.95                                                  | 8.54  | 7.80 | 870.1               | 900.1       | 17.32              | 22.16 | 25.02 | 870.1               | 900.1       | 1.30                                 | 1.51 | 1.39 |
| 930.1               | 960.1       | 10.11                                                 | 8.60  | 7.82 | 930.1               | 960.1       | 16.93              | 21.32 | 23.72 | 930.1               | 960.1       | 1.20                                 | 1.50 | 1.39 |
| 1010.1              | 1040.1      | 9.70                                                  | 8.34  | 7.72 | 1010.1              | 1040.1      | 18.42              | 22.64 | 24.33 | 1010.1              | 1040.1      | 1.56                                 | 1.66 | 1.43 |
| 1070.1              | 1100.1      | 9.46                                                  | 8.24  | 7.67 | 1070.1              | 1100.1      | 19.05              | 23.14 | 25.08 | 1070.1              | 1100.1      | 1.90                                 | 1.82 | 1.51 |
| 1150.1              | 1180.1      | 9.39                                                  | 8.41  | 7.92 | 1150.1              | 1180.1      | 21.51              | 25.52 | 26.95 | 1150.1              | 1180.1      | 2.18                                 | 1.83 | 1.53 |
| 1210.1              | 1240.1      | 9.48                                                  | 8.71  | 8.29 | 1210.1              | 1240.1      | 26.36              | 27.43 | 27.05 | 1210.1              | 1240.1      | 2.00                                 | 1.53 | 1.32 |
| 1290.1              | 1320.1      | 9.69                                                  | 9.08  | 8.67 | 1290.1              | 1320.1      | 25.99              | 25.45 | 25.87 | 1290.1              | 1320.1      | 1.70                                 | 1.15 | 1.01 |
| 1350.1              | 1380.1      | 9.64                                                  | 9.13  | 8.77 | 1350.1              | 1380.1      | 23.91              | 24.52 | 24.72 | 1350.1              | 1380.1      | 1.62                                 | 0.94 | 0.80 |
| 1430.1              | 1460.1      | 9.56                                                  | 9.14  | 8.85 | 1430.1              | 1460.1      | 22.64              | 23.10 | 23.62 | 1430.1              | 1460.1      | 1.42                                 | 0.67 | 0.51 |
| 1490.1              | 1520.1      | 9.44                                                  | 9.03  | 8.79 | 1490.1              | 1520.1      | 21.99              | 22.50 | 23.43 | 1490.1              | 1520.1      | 1.51                                 | 0.69 | 0.52 |
| 1570.1              | 1600.1      | 9.27                                                  | 8.78  | 8.56 | 1570.1              | 1600.1      | 21.48              | 22.97 | 23.86 | 1570.1              | 1600.1      | 1.62                                 | 0.78 | 0.54 |
| 1630.1              | 1660.1      | 9.44                                                  | 8.84  | 8.60 | 1630.1              | 1660.1      | 21.59              | 23.02 | 24.28 | 1630.1              | 1660.1      | 1.46                                 | 0.68 | 0.48 |
| 1710.1              | 1740.1      | 9.57                                                  | 8.91  | 8.63 | 1710.1              | 1740.1      | 22.41              | 23.55 | 24.96 | 1710.1              | 1740.1      | 1.24                                 | 0.57 | 0.41 |
| 1770.1              | 1800.1      | 9.61                                                  | 8.85  | 8.57 | 1770.1              | 1800.1      | 22.69              | 23.50 | 24.85 | 1770.1              | 1800.1      | 1.23                                 | 0.54 | 0.39 |
| 1850.1              | 1880.1      | 9.78                                                  | 8.85  | 8.55 | 1850.1              | 1880.1      | 23.29              | 24.53 | 25.41 | 1850.1              | 1880.1      | 1.19                                 | 0.48 | 0.30 |
| 1910.1              | 1940.1      | 9.98                                                  | 9.03  | 8.69 | 1910.1              | 1940.1      | 24.51              | 25.27 | 26.02 | 1910.1              | 1940.1      | 1.05                                 | 0.38 | 0.23 |
| 1990.1              | 2020.1      | 10.10                                                 | 9.07  | 8.68 | 1990.1              | 2020.1      | 24.88              | 26.17 | 27.38 | 1990.1              | 2020.1      | 0.98                                 | 0.33 | 0.25 |
| 2050.1              | 2080.1      | 10.12                                                 | 8.92  | 8.52 | 2050.1              | 2080.1      | 23.61              | 25.89 | 27.27 | 2050.1              | 2080.1      | 1.05                                 | 0.43 | 0.26 |
| 2130.1              | 2160.1      | 10.12                                                 | 8.91  | 8.48 | 2130.1              | 2160.1      | 23.92              | 27.98 | 27.02 | 2130.1              | 2160.1      | 1.03                                 | 0.41 | 0.23 |
| 2190.1              | 2220.1      | 10.11                                                 | 9.05  | 8.68 | 2190.1              | 2220.1      | 25.63              | 30.92 | 28.48 | 2190.1              | 2220.1      | 0.90                                 | 0.31 | 0.19 |
| 2270.1              | 2300.1      | 10.15                                                 | 8.97  | 8.61 | 2270.1              | 2300.1      | 24.46              | 34.62 | 30.62 | 2270.1              | 2300.1      | 0.92                                 | 0.36 | 0.19 |
| 2330.1              | 2360.1      | 10.35                                                 | 8.88  | 8.49 | 2330.1              | 2360.1      | 24.72              | 33.68 | 31.04 | 2330.1              | 2360.1      | 0.85                                 | 0.45 | 0.20 |
| 2410.1              | 2440.1      | 10.35                                                 | 9.00  | 8.58 | 2410.1              | 2440.1      | 23.89              | 27.33 | 33.18 | 2410.1              | 2440.1      | 0.84                                 | 0.47 | 0.23 |
| 2470.1              | 2500.1      | 10.50                                                 | 9.13  | 8.67 | 2470.1              | 2500.1      | 21.74              | 25.13 | 30.44 | 2470.1              | 2500.1      | 0.77                                 | 0.50 | 0.25 |
| 2550.1              | 2580.1      | 11.17                                                 | 9.51  | 8.95 | 2550.1              | 2580.1      | 18.87              | 23.37 | 28.55 | 2550.1              | 2580.1      | 0.55                                 | 0.56 | 0.32 |
| 2610.1              | 2640.1      | 12.10                                                 | 10.20 | 9.44 | 2610.1              | 2640.1      | 18.16              | 23.98 | 29.00 | 2610.1              | 2640.1      | 0.11                                 | 0.40 | 0.25 |

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# Frequency Mixer

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## Typical Performance Data

| IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@IF(OUT)=995.5MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=69.9MHz<br>(dB) | IF<br>(OUT)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>VS. IF FREQUENCY<br>@RF(IN)=1971MHz<br>(dB) |
|----------------------|-------------|------------------------------------------------------------------|----------------------|-------------|----------------------------------------------------------------|----------------------|-------------|----------------------------------------------------------------|
|                      |             | @LO (dBm)                                                        |                      |             | @LO (dBm)                                                      |                      |             | @LO (dBm)                                                      |
|                      |             | +17                                                              |                      |             | +17                                                            |                      |             | +17                                                            |
| 980.5                | 15.0        | 7.65                                                             | 10.1                 | 80.0        | 9.73                                                           | 1191.0               | 780.0       | 10.00                                                          |
| 960.7                | 34.8        | 7.38                                                             | 70.1                 | 140.0       | 7.70                                                           | 1151.0               | 820.0       | 9.88                                                           |
| 940.9                | 54.6        | 7.52                                                             | 130.1                | 200.0       | 7.66                                                           | 1111.0               | 860.0       | 9.77                                                           |
| 921.1                | 74.4        | 7.63                                                             | 190.1                | 260.0       | 7.62                                                           | 1091.0               | 880.0       | 9.76                                                           |
| 901.3                | 94.2        | 7.71                                                             | 250.1                | 320.0       | 7.54                                                           | 1051.0               | 920.0       | 9.64                                                           |
| 881.5                | 114.0       | 7.79                                                             | 310.1                | 380.0       | 7.54                                                           | 1031.0               | 940.0       | 9.63                                                           |
| 861.7                | 133.8       | 7.80                                                             | 370.1                | 440.0       | 7.43                                                           | 991.0                | 980.0       | 9.60                                                           |
| 841.9                | 153.6       | 7.83                                                             | 430.1                | 500.0       | 7.40                                                           | 971.0                | 1000.0      | 9.17                                                           |
| 822.1                | 173.4       | 7.92                                                             | 490.1                | 560.0       | 7.46                                                           | 931.0                | 1040.0      | 9.24                                                           |
| 802.3                | 193.2       | 7.79                                                             | 550.1                | 620.0       | 7.53                                                           | 911.0                | 1060.0      | 9.13                                                           |
| 782.5                | 213.0       | 7.93                                                             | 610.1                | 680.0       | 7.51                                                           | 871.0                | 1100.0      | 9.03                                                           |
| 762.7                | 232.8       | 7.87                                                             | 670.1                | 740.0       | 7.48                                                           | 851.0                | 1120.0      | 8.97                                                           |
| 742.9                | 252.6       | 7.92                                                             | 730.1                | 800.0       | 7.56                                                           | 811.0                | 1160.0      | 8.87                                                           |
| 723.2                | 272.3       | 8.01                                                             | 790.1                | 860.0       | 7.59                                                           | 791.0                | 1180.0      | 8.83                                                           |
| 703.4                | 292.1       | 8.01                                                             | 850.1                | 920.0       | 7.70                                                           | 751.0                | 1220.0      | 8.71                                                           |
| 683.6                | 311.9       | 8.01                                                             | 910.1                | 980.0       | 7.84                                                           | 731.0                | 1240.0      | 8.73                                                           |
| 663.8                | 331.7       | 8.13                                                             | 970.1                | 1040.0      | 7.83                                                           | 691.0                | 1280.0      | 8.57                                                           |
| 644.0                | 351.5       | 8.09                                                             | 1030.1               | 1100.0      | 7.88                                                           | 671.0                | 1300.0      | 8.53                                                           |
| 624.2                | 371.3       | 8.14                                                             | 1090.1               | 1160.0      | 7.97                                                           | 631.0                | 1340.0      | 8.42                                                           |
| 604.4                | 391.1       | 8.16                                                             | 1150.1               | 1220.0      | 8.10                                                           | 611.0                | 1360.0      | 8.32                                                           |
| 564.8                | 430.7       | 8.12                                                             | 1210.1               | 1280.0      | 8.20                                                           | 571.0                | 1400.0      | 8.31                                                           |
| 545.0                | 450.5       | 8.19                                                             | 1270.1               | 1340.0      | 8.40                                                           | 551.0                | 1420.0      | 8.26                                                           |
| 505.4                | 490.1       | 8.08                                                             | 1330.1               | 1400.0      | 8.57                                                           | 511.0                | 1460.0      | 8.28                                                           |
| 485.6                | 509.9       | 7.89                                                             | 1390.1               | 1460.0      | 8.72                                                           | 491.0                | 1480.0      | 8.32                                                           |
| 446.0                | 549.5       | 8.11                                                             | 1450.1               | 1520.0      | 8.88                                                           | 451.0                | 1520.0      | 8.35                                                           |
| 426.2                | 569.3       | 8.02                                                             | 1510.1               | 1580.0      | 8.99                                                           | 431.0                | 1540.0      | 8.32                                                           |
| 386.6                | 608.9       | 8.14                                                             | 1570.1               | 1640.0      | 9.19                                                           | 391.0                | 1580.0      | 8.52                                                           |
| 366.8                | 628.7       | 8.06                                                             | 1630.1               | 1700.0      | 9.24                                                           | 371.0                | 1600.0      | 8.57                                                           |
| 327.2                | 668.3       | 8.16                                                             | 1690.1               | 1760.0      | 9.12                                                           | 331.0                | 1640.0      | 8.62                                                           |
| 307.4                | 688.1       | 7.96                                                             | 1750.1               | 1820.0      | 9.11                                                           | 311.0                | 1660.0      | 8.72                                                           |
| 267.8                | 727.7       | 8.09                                                             | 1810.1               | 1880.0      | 9.21                                                           | 271.0                | 1700.0      | 8.74                                                           |
| 248.1                | 747.4       | 8.14                                                             | 1870.1               | 1940.0      | 9.32                                                           | 251.0                | 1720.0      | 8.75                                                           |
| 208.5                | 787.0       | 8.20                                                             | 1930.1               | 2000.0      | 9.47                                                           | 211.0                | 1760.0      | 8.77                                                           |
| 188.7                | 806.8       | 8.09                                                             | 1990.1               | 2060.0      | 9.54                                                           | 191.0                | 1780.0      | 8.79                                                           |
| 149.1                | 846.4       | 8.19                                                             | 2050.1               | 2120.0      | 9.58                                                           | 151.0                | 1820.0      | 8.80                                                           |
| 129.3                | 866.2       | 8.36                                                             | 2110.1               | 2180.0      | 9.66                                                           | 131.0                | 1840.0      | 8.80                                                           |
| 89.7                 | 905.8       | 8.36                                                             | 2150.1               | 2220.0      | 9.58                                                           | 91.0                 | 1880.0      | 8.88                                                           |
| 69.9                 | 925.6       | 8.56                                                             | 2210.1               | 2280.0      | 9.71                                                           | 71.0                 | 1900.0      | 8.87                                                           |
| 30.3                 | 965.2       | 8.44                                                             | 2250.1               | 2320.0      | 9.85                                                           | 31.0                 | 1940.0      | 9.00                                                           |
| 10.5                 | 985.0       | 10.45                                                            | 2310.1               | 2380.0      | 10.15                                                          | 11.0                 | 1960.0      | 10.75                                                          |

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# Frequency Mixer

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## 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   |
| 40.1        | 29.36                   | 34.22 | 38.99 | 22.91                   | 24.75 | 26.69 |
| 100.1       | 33.96                   | 39.73 | 46.49 | 26.09                   | 28.81 | 31.19 |
| 160.1       | 36.54                   | 43.96 | 47.57 | 26.61                   | 29.77 | 32.66 |
| 220.1       | 40.31                   | 47.05 | 44.68 | 27.51                   | 30.95 | 34.28 |
| 280.1       | 43.49                   | 44.38 | 41.49 | 27.94                   | 31.29 | 34.63 |
| 340.1       | 44.97                   | 41.52 | 38.99 | 28.59                   | 32.24 | 35.31 |
| 400.1       | 43.82                   | 39.52 | 37.76 | 29.35                   | 33.03 | 35.28 |
| 460.1       | 42.99                   | 38.79 | 37.24 | 30.21                   | 33.59 | 35.00 |
| 520.1       | 39.74                   | 36.67 | 35.78 | 31.09                   | 33.77 | 34.39 |
| 580.1       | 38.90                   | 35.97 | 35.24 | 31.73                   | 33.60 | 33.60 |
| 640.1       | 37.30                   | 35.32 | 34.85 | 32.19                   | 33.23 | 32.94 |
| 700.1       | 36.28                   | 34.69 | 34.35 | 32.41                   | 32.77 | 32.16 |
| 760.1       | 35.23                   | 34.39 | 34.34 | 32.66                   | 32.63 | 31.92 |
| 820.1       | 34.13                   | 34.04 | 34.27 | 32.64                   | 31.96 | 31.02 |
| 900.1       | 33.14                   | 33.59 | 34.05 | 32.47                   | 31.32 | 30.14 |
| 960.1       | 32.60                   | 33.23 | 33.91 | 32.25                   | 30.99 | 29.83 |
| 1040.1      | 31.90                   | 32.88 | 33.61 | 32.02                   | 30.89 | 29.59 |
| 1100.1      | 31.41                   | 32.67 | 33.37 | 31.57                   | 30.47 | 29.03 |
| 1180.1      | 31.23                   | 32.70 | 33.67 | 30.91                   | 29.85 | 28.73 |
| 1240.1      | 31.39                   | 33.00 | 34.00 | 30.63                   | 29.52 | 28.36 |
| 1320.1      | 31.94                   | 34.20 | 35.56 | 30.30                   | 28.99 | 27.95 |
| 1380.1      | 32.51                   | 35.15 | 36.56 | 30.42                   | 29.03 | 27.84 |
| 1460.1      | 33.41                   | 36.66 | 37.65 | 30.63                   | 28.90 | 27.64 |
| 1520.1      | 33.61                   | 37.39 | 38.25 | 30.72                   | 28.82 | 27.41 |
| 1600.1      | 33.65                   | 37.60 | 38.20 | 30.62                   | 28.53 | 27.13 |
| 1660.1      | 34.17                   | 38.64 | 38.41 | 30.48                   | 28.44 | 26.99 |
| 1740.1      | 34.74                   | 40.57 | 38.87 | 30.31                   | 28.30 | 26.77 |
| 1800.1      | 34.64                   | 41.86 | 39.38 | 30.40                   | 28.62 | 26.93 |
| 1880.1      | 34.86                   | 44.71 | 39.57 | 30.42                   | 28.41 | 27.03 |
| 1940.1      | 36.10                   | 47.70 | 38.14 | 29.97                   | 28.12 | 26.70 |
| 2020.1      | 36.39                   | 46.38 | 37.10 | 29.72                   | 28.03 | 26.74 |
| 2080.1      | 35.60                   | 48.18 | 37.55 | 29.86                   | 28.15 | 26.97 |
| 2160.1      | 36.05                   | 48.60 | 37.43 | 29.55                   | 27.98 | 26.94 |
| 2220.1      | 37.12                   | 46.46 | 36.48 | 29.55                   | 27.91 | 27.08 |
| 2300.1      | 35.67                   | 45.28 | 37.05 | 30.66                   | 28.41 | 27.64 |
| 2360.1      | 34.41                   | 44.49 | 38.51 | 31.69                   | 28.69 | 27.80 |
| 2440.1      | 34.01                   | 41.75 | 40.41 | 31.54                   | 28.99 | 27.64 |
| 2500.1      | 33.18                   | 39.13 | 41.57 | 31.66                   | 29.59 | 28.19 |
| 2580.1      | 31.50                   | 36.79 | 44.70 | 31.68                   | 29.67 | 28.57 |
| 2640.1      | 30.56                   | 35.99 | 47.34 | 31.50                   | 29.70 | 28.77 |

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | RF-IF ISOLATION<br>(dB) |       |       |
|---------------------|-------------|-------------------------|-------|-------|
|                     |             | @LO (dBm)               |       |       |
|                     |             | +14                     | +17   | +20   |
| 10.1                | 40.1        | 22.02                   | 21.68 | 21.53 |
| 70.1                | 100.1       | 20.56                   | 20.89 | 20.99 |
| 130.1               | 160.1       | 21.17                   | 21.46 | 21.45 |
| 190.1               | 220.1       | 21.64                   | 21.72 | 21.65 |
| 250.1               | 280.1       | 22.11                   | 22.21 | 21.96 |
| 310.1               | 340.1       | 22.58                   | 22.58 | 22.45 |
| 370.1               | 400.1       | 23.07                   | 22.97 | 22.76 |
| 430.1               | 460.1       | 23.82                   | 23.76 | 23.59 |
| 490.1               | 520.1       | 24.60                   | 24.42 | 24.47 |
| 550.1               | 580.1       | 25.41                   | 25.12 | 25.16 |
| 610.1               | 640.1       | 26.30                   | 25.99 | 25.85 |
| 670.1               | 700.1       | 27.32                   | 27.05 | 26.89 |
| 730.1               | 760.1       | 28.38                   | 27.89 | 27.57 |
| 790.1               | 820.1       | 29.58                   | 28.59 | 28.27 |
| 870.1               | 900.1       | 31.29                   | 29.53 | 28.33 |
| 930.1               | 960.1       | 33.03                   | 30.04 | 28.29 |
| 1010.1              | 1040.1      | 32.76                   | 30.07 | 28.89 |
| 1070.1              | 1100.1      | 31.28                   | 29.60 | 28.88 |
| 1150.1              | 1180.1      | 29.26                   | 28.81 | 28.49 |
| 1210.1              | 1240.1      | 28.28                   | 28.09 | 27.87 |
| 1290.1              | 1320.1      | 27.37                   | 27.08 | 26.84 |
| 1350.1              | 1380.1      | 26.96                   | 26.68 | 26.38 |
| 1430.1              | 1460.1      | 26.61                   | 26.16 | 25.85 |
| 1490.1              | 1520.1      | 26.66                   | 26.00 | 25.55 |
| 1570.1              | 1600.1      | 26.65                   | 25.69 | 25.23 |
| 1630.1              | 1660.1      | 26.64                   | 25.79 | 25.31 |
| 1710.1              | 1740.1      | 26.58                   | 25.81 | 25.31 |
| 1770.1              | 1800.1      | 26.26                   | 25.79 | 25.33 |
| 1850.1              | 1880.1      | 25.60                   | 25.69 | 25.44 |
| 1910.1              | 1940.1      | 25.22                   | 25.50 | 25.42 |
| 1990.1              | 2020.1      | 25.24                   | 25.30 | 25.42 |
| 2050.1              | 2080.1      | 25.49                   | 25.34 | 25.54 |
| 2130.1              | 2160.1      | 25.82                   | 25.73 | 25.89 |
| 2190.1              | 2220.1      | 25.92                   | 25.96 | 26.14 |
| 2270.1              | 2300.1      | 25.82                   | 26.03 | 26.29 |
| 2330.1              | 2360.1      | 25.73                   | 26.20 | 26.42 |
| 2410.1              | 2440.1      | 25.97                   | 26.53 | 26.76 |
| 2470.1              | 2500.1      | 26.24                   | 27.07 | 27.34 |
| 2550.1              | 2580.1      | 26.72                   | 27.79 | 28.27 |
| 2610.1              | 2640.1      | 27.14                   | 28.13 | 28.63 |

# Frequency Mixer

ADE-ED7490/1

## Typical Performance Data

| RF<br>(IN)<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS IF FIXED<br>@IF(OUT)=30MHz<br>(dB) |      |      | LO<br>(MHz) | LO VSWR<br>(:1) |      |      | IF<br>(OUT)<br>(MHz) | IF VSWR<br>@LO=1970MHz<br>(:1) |      |      |
|---------------------|-------------|----------------------------------------------------|------|------|-------------|-----------------|------|------|----------------------|--------------------------------|------|------|
|                     |             | @LO (dBm)                                          |      |      |             | @LO (dBm)       |      |      |                      | @LO (dBm)                      |      |      |
|                     |             | +14                                                | +17  | +20  |             | +14             | +17  | +20  |                      | +14                            | +17  | +20  |
| 10.1                | 40.1        | 3.66                                               | 3.29 | 3.24 | 40.1        | 1.36            | 1.85 | 2.66 | 10.1                 | 1.49                           | 1.98 | 2.33 |
| 70.1                | 100.1       | 1.21                                               | 1.27 | 1.34 | 100.1       | 1.11            | 1.61 | 2.32 | 50.1                 | 1.17                           | 1.33 | 1.46 |
| 130.1               | 160.1       | 1.15                                               | 1.17 | 1.23 | 160.1       | 1.08            | 1.63 | 2.37 | 90.1                 | 1.17                           | 1.29 | 1.41 |
| 190.1               | 220.1       | 1.13                                               | 1.11 | 1.15 | 220.1       | 1.04            | 1.63 | 2.39 | 130.1                | 1.16                           | 1.27 | 1.40 |
| 250.1               | 280.1       | 1.16                                               | 1.09 | 1.11 | 280.1       | 1.03            | 1.58 | 2.29 | 170.1                | 1.18                           | 1.29 | 1.42 |
| 310.1               | 340.1       | 1.21                                               | 1.11 | 1.07 | 340.1       | 1.08            | 1.62 | 2.35 | 210.1                | 1.20                           | 1.29 | 1.41 |
| 370.1               | 400.1       | 1.24                                               | 1.14 | 1.08 | 400.1       | 1.10            | 1.61 | 2.32 | 250.1                | 1.20                           | 1.30 | 1.42 |
| 430.1               | 460.1       | 1.33                                               | 1.22 | 1.15 | 460.1       | 1.16            | 1.62 | 2.29 | 290.1                | 1.22                           | 1.32 | 1.44 |
| 490.1               | 520.1       | 1.39                                               | 1.28 | 1.21 | 520.1       | 1.18            | 1.64 | 2.32 | 330.1                | 1.23                           | 1.33 | 1.44 |
| 550.1               | 580.1       | 1.52                                               | 1.39 | 1.32 | 580.1       | 1.21            | 1.63 | 2.29 | 370.1                | 1.24                           | 1.37 | 1.49 |
| 610.1               | 640.1       | 1.62                                               | 1.48 | 1.40 | 640.1       | 1.26            | 1.64 | 2.28 | 410.1                | 1.27                           | 1.38 | 1.50 |
| 670.1               | 700.1       | 1.76                                               | 1.60 | 1.52 | 700.1       | 1.26            | 1.66 | 2.30 | 450.1                | 1.27                           | 1.40 | 1.53 |
| 730.1               | 760.1       | 1.88                                               | 1.73 | 1.64 | 760.1       | 1.29            | 1.65 | 2.26 | 490.1                | 1.29                           | 1.45 | 1.58 |
| 790.1               | 820.1       | 1.97                                               | 1.81 | 1.73 | 820.1       | 1.32            | 1.67 | 2.28 | 550.1                | 1.32                           | 1.50 | 1.63 |
| 870.1               | 900.1       | 2.11                                               | 1.92 | 1.83 | 900.1       | 1.32            | 1.65 | 2.25 | 590.1                | 1.32                           | 1.49 | 1.62 |
| 930.1               | 960.1       | 2.22                                               | 2.02 | 1.93 | 960.1       | 1.31            | 1.61 | 2.20 | 650.1                | 1.33                           | 1.54 | 1.68 |
| 1010.1              | 1040.1      | 2.26                                               | 2.10 | 2.01 | 1040.1      | 1.35            | 1.62 | 2.19 | 690.1                | 1.36                           | 1.58 | 1.72 |
| 1070.1              | 1100.1      | 2.34                                               | 2.18 | 2.08 | 1100.1      | 1.38            | 1.62 | 2.17 | 750.1                | 1.39                           | 1.65 | 1.81 |
| 1150.1              | 1180.1      | 2.42                                               | 2.28 | 2.18 | 1180.1      | 1.43            | 1.62 | 2.14 | 790.1                | 1.39                           | 1.62 | 1.77 |
| 1210.1              | 1240.1      | 2.45                                               | 2.33 | 2.25 | 1240.1      | 1.55            | 1.68 | 2.17 | 850.1                | 1.42                           | 1.68 | 1.85 |
| 1290.1              | 1320.1      | 2.56                                               | 2.49 | 2.44 | 1320.1      | 1.70            | 1.73 | 2.17 | 890.1                | 1.43                           | 1.70 | 1.86 |
| 1350.1              | 1380.1      | 2.61                                               | 2.59 | 2.56 | 1380.1      | 1.80            | 1.76 | 2.13 | 950.1                | 1.46                           | 1.75 | 1.93 |
| 1430.1              | 1460.1      | 2.58                                               | 2.59 | 2.58 | 1460.1      | 1.93            | 1.80 | 2.13 | 990.1                | 1.46                           | 1.75 | 1.92 |
| 1490.1              | 1520.1      | 2.58                                               | 2.59 | 2.58 | 1520.1      | 2.05            | 1.84 | 2.14 | 1050.1               | 1.47                           | 1.77 | 1.95 |
| 1570.1              | 1600.1      | 2.60                                               | 2.59 | 2.58 | 1600.1      | 2.22            | 1.89 | 2.11 | 1090.1               | 1.44                           | 1.75 | 1.93 |
| 1630.1              | 1660.1      | 2.65                                               | 2.62 | 2.61 | 1660.1      | 2.30            | 1.93 | 2.09 | 1150.1               | 1.45                           | 1.77 | 1.96 |
| 1710.1              | 1740.1      | 2.67                                               | 2.62 | 2.60 | 1740.1      | 2.44            | 1.99 | 2.10 | 1190.1               | 1.44                           | 1.77 | 1.98 |
| 1770.1              | 1800.1      | 2.69                                               | 2.62 | 2.60 | 1800.1      | 2.59            | 2.04 | 2.10 | 1250.1               | 1.41                           | 1.77 | 1.98 |
| 1850.1              | 1880.1      | 2.74                                               | 2.62 | 2.59 | 1880.1      | 2.68            | 2.07 | 2.06 | 1290.1               | 1.38                           | 1.73 | 1.96 |
| 1910.1              | 1940.1      | 2.75                                               | 2.62 | 2.58 | 1940.1      | 2.67            | 2.05 | 2.02 | 1350.1               | 1.37                           | 1.77 | 2.03 |
| 1990.1              | 2020.1      | 2.76                                               | 2.59 | 2.53 | 2020.1      | 2.75            | 2.06 | 2.00 | 1390.1               | 1.40                           | 1.83 | 2.11 |
| 2050.1              | 2080.1      | 2.80                                               | 2.59 | 2.51 | 2080.1      | 2.86            | 2.07 | 1.95 | 1450.1               | 1.42                           | 1.88 | 2.18 |
| 2130.1              | 2160.1      | 2.80                                               | 2.59 | 2.49 | 2160.1      | 2.91            | 2.07 | 1.88 | 1490.1               | 1.46                           | 1.91 | 2.22 |
| 2190.1              | 2220.1      | 2.70                                               | 2.49 | 2.39 | 2220.1      | 2.78            | 2.01 | 1.84 | 1550.1               | 1.52                           | 1.98 | 2.30 |
| 2270.1              | 2300.1      | 2.67                                               | 2.41 | 2.29 | 2300.1      | 2.84            | 1.97 | 1.76 | 1590.1               | 1.62                           | 2.14 | 2.47 |
| 2330.1              | 2360.1      | 2.72                                               | 2.40 | 2.25 | 2360.1      | 2.95            | 1.98 | 1.68 | 1650.1               | 1.68                           | 2.18 | 2.52 |
| 2410.1              | 2440.1      | 2.60                                               | 2.28 | 2.11 | 2440.1      | 2.89            | 1.92 | 1.59 | 1690.1               | 1.77                           | 2.25 | 2.58 |
| 2470.1              | 2500.1      | 2.55                                               | 2.22 | 2.05 | 2500.1      | 2.85            | 1.87 | 1.52 | 1750.1               | 1.83                           | 2.29 | 2.61 |
| 2550.1              | 2580.1      | 2.64                                               | 2.31 | 2.16 | 2580.1      | 2.96            | 1.86 | 1.44 | 1790.1               | 1.98                           | 2.44 | 2.77 |
| 2610.1              | 2640.1      | 2.81                                               | 2.53 | 2.39 | 2640.1      | 2.95            | 1.84 | 1.38 | 1850.1               | 2.03                           | 2.46 | 2.78 |

REV. X3

ADE-ED7490/1

101013

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## Harmonics Tables

| RF HARMONICS ORDER                                                                   | (-dBm) |     |     |     |     |     |     |     |     |     |     |     |
|--------------------------------------------------------------------------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                                                                      | (-dBc) |     |     |     |     |     |     |     |     |     |     |     |
| 0                                                                                    | -      | -   | 6   | 27  | 23  | 25  | 18  | 35  | 32  | 45  | 32  | 52  |
| 1                                                                                    | -      | 22  | +0  | 37  | 14  | 42  | 27  | 43  | 38  | 45  | 44  | 44  |
| 2                                                                                    | 58     | 64  | 53  | 72  | 51  | 60  | 47  | 51  | 47  | 62  | 54  | 62  |
| 3                                                                                    | >90    | 60  | 52  | 59  | 49  | 63  | 52  | 68  | 58  | 68  | 65  | 69  |
| 4                                                                                    | >90    | >81 | 80  | >81 | 77  | >81 | 71  | >81 | 67  | 70  | 75  | 80  |
| 5                                                                                    | >90    | >81 | 79  | >81 | 77  | 79  | 75  | 79  | 80  | 81  | >81 | >81 |
| 6                                                                                    | >90    | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 7                                                                                    | >90    | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 8                                                                                    | >90    | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 9                                                                                    | >90    | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| 10                                                                                   | >90    | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 | >81 |
| RF CAL      0      1      2      3      4      5      6      7      8      9      10 |        |     |     |     |     |     |     |     |     |     |     |     |

### LO HARMONICS ORDER

Test conditions: RF IN: 1025 MHz; 0.00 dBm.  
LO IN: 1055 MHz; +17.00 dBm  
IF OUT: 30 MHz; -8.5 dBm

| RF HARMONICS ORDER                                                                   | (-dBm) |     |    |     |    |    |    |    |    |    |    |    |
|--------------------------------------------------------------------------------------|--------|-----|----|-----|----|----|----|----|----|----|----|----|
|                                                                                      | (-dBc) |     |    |     |    |    |    |    |    |    |    |    |
| 0                                                                                    | -      | -   | 16 | 41  | 32 | 34 | 32 | 48 | 49 | 67 | 50 | 63 |
| 1                                                                                    | -      | 21  | +0 | 33  | 16 | 42 | 32 | 52 | 44 | 88 | 55 | 55 |
| 2                                                                                    | 38     | 57  | 41 | 55  | 47 | 52 | 45 | 50 | 41 | 65 | 61 | 70 |
| 3                                                                                    | 66     | 45  | 33 | 40  | 37 | 48 | 46 | 52 | 38 | 69 | 55 | 71 |
| 4                                                                                    | 90     | 58  | 59 | 59  | 51 | 62 | 50 | 67 | 55 | 57 | 56 | 68 |
| 5                                                                                    | >90    | 60  | 45 | 57  | 54 | 61 | 48 | 57 | 46 | 59 | 55 | 61 |
| 6                                                                                    | >90    | 75  | 67 | 63  | 68 | 72 | 58 | 66 | 55 | 66 | 58 | 61 |
| 7                                                                                    | >90    | 82  | 67 | 59  | 57 | 68 | 57 | 61 | 56 | 69 | 58 | 63 |
| 8                                                                                    | >90    | >91 | 79 | 82  | 72 | 68 | 73 | 70 | 66 | 71 | 68 | 77 |
| 9                                                                                    | >90    | 82  | 82 | >91 | 82 | 76 | 72 | 72 | 71 | 91 | 72 | 71 |
| 10                                                                                   | >90    | 81  | 79 | 86  | 85 | 88 | 74 | 78 | 77 | 88 | 71 | 85 |
| RF CAL      0      1      2      3      4      5      6      7      8      9      10 |        |     |    |     |    |    |    |    |    |    |    |    |

### LO HARMONICS ORDER

Test conditions: RF IN: 1025 MHz; 10.00 dBm.  
LO IN: 1055 MHz; +17.00 dBm  
IF OUT: 30 MHz; 1.44 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.