Frequency Mixer ADE-2+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	6.92	6.45	6.28
50.1	80.1	7.02	6.57	6.34
90.1	120.1	7.05	6.67	6.44
130.1	160.1	7.04	6.62	6.42
170.1	200.1	7.07	6.71	6.55
210.1	240.1	6.99	6.68	6.50
250.1	280.1	7.09	6.75	6.57
290.1	320.1	7.00	6.72	6.56
330.1	360.1	7.02	6.71	6.53
370.1	400.1	7.01	6.74	6.58
410.1	440.1	6.99	6.71	6.56
450.1	480.1	7.05	6.74	6.58
490.1	520.1	7.07	6.78	6.60
530.1	560.1	7.15	6.84	6.64
570.1	600.1	7.15	6.86	6.68
610.1	640.1	7.14	6.81	6.61
650.1	680.1	7.22	6.91	6.71
690.1	720.1	7.28	6.97	6.77
730.1	760.1	7.38	7.09	6.89
770.1	800.1	7.38	7.12	6.93
810.1	840.1	7.43	7.15	6.96
850.1	880.1	7.44	7.13	6.93
890.1	920.1	7.50	7.16	6.95
930.1	960.1	7.60	7.19	6.97
970.1	1000.1	7.74	7.27	7.03
1010.1	1040.1	8.00	7.44	7.13
1050.1	1080.1	8.17	7.55	7.17
1090.1	1120.1	8.37	7.73	7.27
1130.1	1160.1	8.49	7.86	7.37
1170.1	1200.1	8.64	8.01	7.48
1210.1	1240.1	8.94	8.31	7.76
1250.1	1280.1	9.13	8.52	7.98
1290.1	1320.1	9.43	8.82	8.29
1340.1	1370.1	9.62	9.01	8.47
1380.1	1410.1	9.89	9.22	8.64
1430.1	1460.1	10.08	9.34	8.75
1470.1	1500.1	10.27	9.51	8.97
1520.1	1550.1	10.65	10.00	9.55
1560.1	1590.1	10.97	10.45	10.06
1610.1	1640.1	11.48	11.14	10.88

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
10.1	40.1	17.95	19.71	20.86
50.1	80.1	17.47	19.55	20.15
90.1	120.1	19.04	17.93	19.63
130.1	160.1	20.18	20.69	20.79
170.1	200.1	18.80	20.56	20.73
210.1	240.1	19.76	20.66	20.75
250.1	280.1	16.96	19.72	20.71
290.1	320.1	20.50	20.64	20.72
330.1	360.1	17.69	20.52	20.73
370.1	400.1	20.49	20.63	19.47
410.1	440.1	20.51	20.64	20.72
450.1	480.1	18.07	20.63	20.71
490.1	520.1	16.36	17.90	20.70
530.1	560.1	19.31	19.00	20.68
570.1	600.1	15.00	16.19	17.06
610.1	640.1	16.73	15.34	16.13
650.1	680.1	18.47	20.55	17.22
690.1	720.1	16.89	17.79	20.62
730.1	760.1	15.80	16.35	17.96
770.1	800.1	16.73	17.09	19.32
810.1	840.1	16.96	19.38	20.52
850.1	880.1	20.28	20.43	20.54
890.1	920.1	20.25	18.59	17.11
930.1	960.1	16.37	17.45	15.70
970.1	1000.1	11.98	20.37	16.88
1010.1	1040.1	9.64	20.28	17.65
1050.1	1080.1	8.43	15.66	16.89
1090.1	1120.1	7.45	11.78	18.08
1130.1	1160.1	7.70	10.95	17.98
1170.1	1200.1	8.29	11.07	17.11
1210.1	1240.1	8.47	10.77	14.82
1250.1	1280.1	8.19	9.88	12.39
1290.1	1320.1	7.18	8.30	9.69
1340.1	1370.1	6.20	6.87	7.79
1380.1	1410.1	5.65	6.40	7.53
1430.1	1460.1	6.02	7.35	9.09
1470.1	1500.1	6.81	8.64	10.30
1520.1	1550.1	8.17	9.85	10.83
1560.1	1590.1	8.82	10.39	11.15
1610.1	1640.1	9.83	11.21	11.83

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	0.75	0.44	0.36
50.1	80.1	0.64	0.41	0.28
90.1	120.1	0.66	0.42	0.25
130.1	160.1	0.61	0.40	0.25
170.1	200.1	0.63	0.41	0.26
210.1	240.1	0.60	0.37	0.23
250.1	280.1	0.56	0.34	0.22
290.1	320.1	0.58	0.35	0.23
330.1	360.1	0.57	0.35	0.24
370.1	400.1	0.57	0.38	0.25
410.1	440.1	0.54	0.34	0.25
450.1	480.1	0.54	0.37	0.26
490.1	520.1	0.51	0.34	0.25
530.1	560.1	0.49	0.31	0.22
570.1	600.1	0.53	0.35	0.25
610.1	640.1	0.56	0.39	0.28
650.1	680.1	0.61	0.42	0.28
690.1	720.1	0.63	0.42	0.30
730.1	760.1	0.68	0.44	0.31
770.1	800.1	0.77	0.51	0.36
810.1	840.1	0.83	0.56	0.40
850.1	880.1	0.97	0.67	0.51
890.1	920.1	1.03	0.74	0.57
930.1	960.1	1.11	0.82	0.62
970.1	1000.1	1.12	0.88	0.68
1010.1	1040.1	1.12	0.94	0.74
1050.1	1080.1	1.14	0.99	0.81
1090.1	1120.1	1.14	0.99	0.85
1130.1	1160.1	1.13	0.98	0.84
1170.1	1200.1	1.13	0.99	0.86
1210.1	1240.1	1.03	0.89	0.78
1250.1	1280.1	1.00	0.86	0.75
1290.1	1320.1	0.95	0.80	0.69
1340.1	1370.1	0.96	0.82	0.71
1380.1	1410.1	0.98	0.85	0.77
1430.1	1460.1	1.00	0.92	0.85
1470.1	1500.1	1.08	1.00	0.93
1520.1	1550.1	0.97	0.91	0.84
1560.1	1590.1	0.87	0.78	0.73
1610.1	1640.1	0.58	0.46	0.41

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB) @LO (dBm) +7
490.0	10.1	6.86
479.8	20.3	6.79
469.6	30.5	6.72
459.4	40.7	6.72
449.1	51.0	6.75
438.9	61.2	6.74
428.7	71.4	6.74
418.5	81.6	6.74
408.3	91.8	6.74
398.1	102.0	6.68
387.9	112.2	6.64
377.7	122.4	6.62
367.4	132.7	6.55
357.2	142.9	6.60
347.0	153.1	6.58
336.8	163.3	6.59
326.6	173.5	6.60
316.4	183.7	6.58
306.2	193.9	6.60
296.0	204.1	6.58
285.7	214.4	6.58
275.5	224.6	6.56
265.3	234.8	6.58
255.1	245.0	6.60
234.7	265.4	6.56
224.5	275.6	6.50
204.0	296.1	6.62
193.8	306.3	6.63
173.4	326.7	6.60
163.2	336.9	6.59
142.8	357.3	6.66
132.6	367.5	6.65
112.1	388.0	6.68
101.9	398.2	6.64
81.5	418.6	6.61
71.3	428.8	6.64
50.9	449.2	6.70
40.6	459.5	6.67
20.2	479.9	6.68
10.0	490.1	6.67

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10MHz (dB) @LO (dBm) +7
10.1	20.1	6.33
70.1	80.1	6.35
130.1	140.1	6.59
190.1	200.1	6.70
250.1	260.1	6.45
310.1	320.1	6.45
370.1	380.1	6.47
430.1	440.1	6.62
490.1	500.1	6.75
550.1	560.1	6.75
610.1	620.1	6.66
670.1	680.1	7.06
730.1	740.1	7.10
790.1	800.1	6.91
850.1	860.1	6.80
910.1	920.1	6.67
970.1	980.1	6.68
1030.1	1040.1	6.57
1090.1	1100.1	6.52
1150.1	1160.1	6.74
1210.1	1220.1	6.94
1270.1	1280.1	6.80
1330.1	1340.1	6.81
1390.1	1400.1	6.51
1450.1	1460.1	6.72
1510.1	1520.1	6.88
1570.1	1580.1	6.93
1630.1	1640.1	6.89
1690.1	1700.1	7.11
1750.1	1760.1	7.38
1810.1	1820.1	7.30
1870.1	1880.1	7.57
1930.1	1940.1	8.08
1990.1	2000.1	8.22
2050.1	2060.1	8.69
2110.1	2120.1	9.02
2170.1	2180.1	9.59
2230.1	2240.1	10.05
2270.1	2280.1	10.18
2330.1	2340.1	10.73

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB) @LO (dBm) +7
990.0	10.1	7.48
970.0	30.1	7.31
950.0	50.1	7.31
930.0	70.1	7.29
910.0	90.1	7.30
890.0	110.1	7.25
870.0	130.1	7.12
850.0	150.1	7.16
830.0	170.1	7.14
810.0	190.1	7.10
790.0	210.1	7.12
770.0	230.1	7.09
750.0	250.1	7.06
730.0	270.1	7.09
710.0	290.1	7.10
690.0	310.1	7.10
670.0	330.1	7.08
650.0	350.1	7.12
630.0	370.1	7.14
610.0	390.1	7.18
570.0	430.1	7.11
550.0	450.1	7.13
510.0	490.1	7.23
490.0	510.1	7.22
450.0	550.1	7.23
430.0	570.1	7.22
390.0	610.1	7.23
370.0	630.1	7.20
330.0	670.1	7.23
310.0	690.1	7.23
270.0	730.1	7.29
250.0	750.1	7.33
210.0	790.1	7.33
190.0	810.1	7.27
150.0	850.1	7.26
130.0	870.1	7.22
90.0	910.1	7.09
70.0	930.1	7.12
30.0	970.1	7.17
10.0	990.1	7.21

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
40.1	59.73	59.90	59.07	49.35	46.48	44.56
80.1	54.92	55.28	55.02	51.02	48.27	46.54
120.1	51.73	52.02	52.31	50.26	47.61	45.96
160.1	49.38	49.70	49.97	49.88	47.25	45.62
200.1	47.57	47.98	48.23	49.97	47.38	45.53
240.1	46.14	46.57	46.74	49.47	46.69	44.65
280.1	44.84	45.28	45.49	49.27	46.51	44.44
320.1	43.87	44.33	44.50	49.05	46.26	44.00
360.1	42.87	43.30	43.57	48.22	45.72	43.40
400.1	41.97	42.49	42.71	46.69	44.82	42.91
440.1	41.19	41.64	41.93	45.78	44.43	42.46
480.1	40.43	40.86	41.11	43.89	43.76	42.48
520.1	39.93	40.49	40.80	42.32	42.09	41.36
560.1	39.27	39.77	40.15	40.85	40.80	40.20
600.1	38.79	39.23	39.52	39.59	40.20	39.78
640.1	38.44	38.79	38.98	38.38	39.37	39.60
680.1	37.99	38.65	38.91	37.43	38.35	38.92
720.1	37.37	38.14	38.63	36.70	37.51	38.13
760.1	36.72	37.47	38.05	35.90	36.52	36.93
800.1	36.31	37.08	37.67	35.30	35.76	35.71
840.1	35.86	36.66	37.29	34.82	35.95	36.06
880.1	35.40	36.22	36.98	33.98	35.42	36.00
920.1	35.25	36.10	36.83	32.87	34.43	35.21
960.1	35.38	36.23	36.80	32.01	33.61	34.53
1000.1	35.25	36.15	36.66	31.32	32.97	34.16
1040.1	34.76	35.72	36.24	30.73	32.35	33.66
1080.1	34.14	35.08	35.63	30.27	31.79	33.19
1120.1	33.64	34.65	35.29	29.81	31.40	33.10
1160.1	33.10	34.09	34.84	29.19	30.67	32.45
1200.1	32.47	33.31	34.02	29.03	30.15	31.63
1240.1	32.08	32.72	33.32	29.00	29.95	31.11
1280.1	31.74	32.21	32.63	29.23	30.27	31.14
1320.1	31.47	31.83	32.16	29.78	31.02	31.82
1370.1	31.27	31.62	31.90	29.95	31.77	33.09
1410.1	31.06	31.40	31.71	30.06	32.20	33.98
1460.1	30.85	31.20	31.59	29.74	32.08	34.38
1500.1	30.54	30.88	31.28	29.31	31.73	34.30
1550.1	30.23	30.57	31.05	29.03	31.54	34.36
1590.1	30.23	30.57	31.01	28.64	31.12	33.98
1640.1	30.48	30.85	31.28	28.76	31.26	34.10

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	53.55	53.12	51.30
50.1	80.1	42.84	42.36	42.51
90.1	120.1	37.98	38.21	38.51
130.1	160.1	35.37	35.60	35.78
170.1	200.1	33.54	33.82	33.92
210.1	240.1	32.31	32.45	32.66
250.1	280.1	31.49	31.71	31.92
290.1	320.1	30.76	31.18	31.14
330.1	360.1	30.38	30.65	30.82
370.1	400.1	30.22	30.76	31.07
410.1	440.1	29.90	30.50	30.98
450.1	480.1	29.23	29.67	30.06
490.1	520.1	28.68	29.06	29.40
530.1	560.1	28.35	28.72	29.08
570.1	600.1	27.47	28.08	28.54
610.1	640.1	26.37	27.17	27.87
650.1	680.1	25.08	25.67	26.27
690.1	720.1	23.54	23.80	24.08
730.1	760.1	21.88	21.89	21.90
770.1	800.1	20.85	20.79	20.70
810.1	840.1	20.06	20.02	19.95
850.1	880.1	19.42	19.36	19.32
890.1	920.1	18.98	18.93	18.90
930.1	960.1	18.82	18.82	18.83
970.1	1000.1	18.59	18.66	18.81
1010.1	1040.1	18.47	18.65	18.93
1050.1	1080.1	18.47	18.74	19.17
1090.1	1120.1	18.70	18.93	19.42
1130.1	1160.1	18.89	19.06	19.46
1170.1	1200.1	19.07	19.13	19.20
1210.1	1240.1	19.33	19.41	19.28
1250.1	1280.1	19.30	19.50	19.42
1290.1	1320.1	18.92	19.22	19.25
1340.1	1370.1	18.09	18.36	18.39
1380.1	1410.1	17.24	17.42	17.39
1430.1	1460.1	16.09	16.07	15.90
1470.1	1500.1	15.12	14.97	14.77
1520.1	1550.1	13.91	13.65	13.42
1560.1	1590.1	13.00	12.67	12.42
1610.1	1640.1	11.84	11.46	11.16

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+4	+7	+10
10.1	40.1	1.37	1.71	1.45
50.1	80.1	1.17	1.26	1.31
90.1	120.1	1.17	1.27	1.32
130.1	160.1	1.21	1.30	1.37
170.1	200.1	1.18	1.26	1.32
210.1	240.1	1.23	1.31	1.37
250.1	280.1	1.22	1.30	1.37
290.1	320.1	1.24	1.32	1.38
330.1	360.1	1.26	1.35	1.40
370.1	400.1	1.27	1.35	1.41
410.1	440.1	1.31	1.39	1.45
450.1	480.1	1.30	1.39	1.45
490.1	520.1	1.32	1.39	1.45
530.1	560.1	1.33	1.40	1.46
570.1	600.1	1.36	1.44	1.49
610.1	640.1	1.39	1.48	1.55
650.1	680.1	1.41	1.50	1.58
690.1	720.1	1.44	1.52	1.59
730.1	760.1	1.46	1.54	1.60
770.1	800.1	1.47	1.54	1.60
810.1	840.1	1.49	1.56	1.62
850.1	880.1	1.49	1.56	1.62
890.1	920.1	1.50	1.58	1.64
930.1	960.1	1.49	1.57	1.63
970.1	1000.1	1.49	1.57	1.64
1010.1	1040.1	1.52	1.60	1.66
1050.1	1080.1	1.53	1.60	1.67
1090.1	1120.1	1.60	1.66	1.73
1130.1	1160.1	1.73	1.76	1.82
1170.1	1200.1	1.84	1.86	1.90
1210.1	1240.1	2.03	2.03	2.05
1250.1	1280.1	2.20	2.19	2.19
1290.1	1320.1	2.42	2.41	2.40
1340.1	1370.1	2.74	2.72	2.70
1380.1	1410.1	2.97	2.94	2.91
1430.1	1460.1	3.34	3.29	3.24
1470.1	1500.1	3.50	3.45	3.39
1520.1	1550.1	3.76	3.70	3.64
1560.1	1590.1	3.84	3.79	3.74
1610.1	1640.1	3.98	3.95	3.92

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+4	+7	+10
40.1	3.03	7.90	8.81
80.1	1.99	3.03	4.72
120.1	1.96	2.91	4.27
160.1	1.88	2.73	3.89
200.1	1.85	2.65	3.71
240.1	1.90	2.75	3.86
280.1	1.85	2.61	3.60
320.1	1.89	2.68	3.68
360.1	1.89	2.64	3.58
400.1	1.91	2.65	3.56
440.1	1.96	2.70	3.61
480.1	1.96	2.67	3.54
520.1	2.02	2.75	3.64
560.1	2.03	2.73	3.57
600.1	2.07	2.77	3.61
640.1	2.10	2.78	3.58
680.1	2.13	2.80	3.58
720.1	2.18	2.86	3.65
760.1	2.20	2.86	3.64
800.1	2.25	2.91	3.69
840.1	2.28	2.90	3.65
880.1	2.31	2.92	3.64
920.1	2.38	2.98	3.69
960.1	2.46	3.05	3.75
1000.1	2.52	3.10	3.79
1040.1	2.57	3.16	3.84
1080.1	2.61	3.21	3.87
1120.1	2.64	3.23	3.90
1160.1	2.68	3.27	3.94
1200.1	2.69	3.27	3.93
1240.1	2.73	3.30	3.98
1280.1	2.75	3.30	3.95
1320.1	2.73	3.26	3.90
1370.1	2.76	3.26	3.88
1410.1	2.73	3.20	3.81
1460.1	2.76	3.22	3.84
1500.1	2.75	3.18	3.79
1550.1	2.81	3.25	3.86
1590.1	2.87	3.27	3.86
1640.1	3.03	3.42	3.99

IF (OUT) (MHz)	IF VSWR @LO=1000MHz (:1) @LO (dBm)		
	+4	+7	+10
10.1	1.80	1.53	1.38
40.1	1.80	1.53	1.38
60.1	1.82	1.55	1.40
90.1	1.76	1.51	1.37
110.1	1.83	1.57	1.42
140.1	1.80	1.54	1.40
160.1	1.84	1.58	1.44
190.1	1.78	1.53	1.40
210.1	1.86	1.61	1.48
240.1	1.82	1.57	1.44
260.1	1.87	1.63	1.50
290.1	1.82	1.59	1.47
310.1	1.89	1.66	1.55
340.1	1.88	1.65	1.54
360.1	1.90	1.69	1.59
390.1	1.85	1.65	1.55
410.1	1.90	1.71	1.63
440.1	1.92	1.74	1.65
460.1	1.91	1.74	1.66
490.1	1.88	1.71	1.64
510.1	1.92	1.77	1.72
540.1	1.94	1.80	1.75
560.1	1.92	1.78	1.74
590.1	1.90	1.77	1.74
610.1	1.93	1.82	1.80
640.1	1.93	1.83	1.81
660.1	1.94	1.83	1.82
690.1	1.91	1.81	1.80
710.1	1.91	1.83	1.84
740.1	1.95	1.86	1.87
760.1	1.93	1.85	1.86
790.1	1.91	1.82	1.83
810.1	1.88	1.82	1.85
840.1	1.94	1.87	1.90
860.1	1.90	1.83	1.86
890.1	1.90	1.81	1.83
910.1	1.84	1.77	1.81
940.1	1.92	1.85	1.89
960.1	1.88	1.79	1.82
990.1	1.96	1.87	1.90

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	14	27	15	28	24	28	44	34	33	53
1	-	23	+0	37	12	36	19	32	38	38	41	39
2	>90	>69	56	66	55	>69	54	66	60	>69	>69	63
3	>90	>69	65	>69	65	>69	60	>69	69	>69	>69	>69
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
RF CAL		0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 500 MHz; -14.00 dBm.**
LO IN: 530 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.74 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	24	37	26	38	37	40	54	49	47	68
1	-	24	+0	36	12	36	19	35	38	43	46	45
2	73	63	48	63	47	>79	47	63	54	58	67	58
3	>90	65	47	60	73	71	44	58	49	51	59	53
4	>90	70	>79	71	70	74	68	75	61	68	69	>79
5	>90	72	65	73	61	73	57	71	56	69	58	>79
6	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>90	>79	>79	>79	75	>79	76	>79	77	>79	78	>79
8	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
RF CAL		0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 500 MHz; -4.00 dBm.**
LO IN: 530 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.77 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.