

Frequency Mixer

ADE-ED7288/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+4	+7	+10			+4	+7	+10			+4	+7	+10
70.0	100.0	18.84	11.20	6.91	70.0	100.0	-7.18	-0.55	9.40	70.0	100.0	-8.45	-2.41	-0.23
110.0	140.0	10.77	7.08	6.01	110.0	140.0	0.57	9.31	10.94	110.0	140.0	-1.81	-0.04	0.09
150.0	180.0	9.24	6.85	6.12	150.0	180.0	4.29	8.89	11.53	150.0	180.0	-0.90	0.03	0.01
190.0	220.0	7.29	6.33	5.95	190.0	220.0	7.95	11.40	17.39	190.0	220.0	0.19	0.08	0.03
230.0	260.0	7.37	6.43	6.03	230.0	260.0	8.07	13.56	15.15	230.0	260.0	0.24	0.06	0.02
270.0	300.0	7.10	6.37	6.04	270.0	300.0	9.50	14.88	12.76	270.0	300.0	0.19	0.08	0.05
310.0	340.0	7.12	6.40	6.08	310.0	340.0	10.56	12.73	11.92	310.0	340.0	0.11	0.08	0.05
350.0	380.0	6.99	6.37	6.08	350.0	380.0	12.50	13.24	13.39	350.0	380.0	0.23	0.12	0.07
390.0	420.0	6.98	6.39	6.07	390.0	420.0	11.30	10.05	11.92	390.0	420.0	0.21	0.10	0.08
430.0	460.0	7.13	6.50	6.18	430.0	460.0	11.40	9.68	10.76	430.0	460.0	0.22	0.13	0.08
470.0	500.0	7.02	6.45	6.15	470.0	500.0	9.57	9.87	11.97	470.0	500.0	0.24	0.14	0.10
510.0	540.0	7.21	6.65	6.31	510.0	540.0	7.62	9.08	12.76	510.0	540.0	0.15	0.07	0.07
550.0	580.0	7.20	6.72	6.39	550.0	580.0	6.74	7.85	11.31	550.0	580.0	0.20	0.06	0.05
590.0	620.0	7.08	6.65	6.37	590.0	620.0	6.92	8.13	11.20	590.0	620.0	0.32	0.12	0.09
630.0	660.0	6.98	6.58	6.33	630.0	660.0	7.59	8.93	11.81	630.0	660.0	0.39	0.19	0.13
670.0	700.0	6.87	6.42	6.21	670.0	700.0	9.10	10.36	12.85	670.0	700.0	0.43	0.26	0.17
710.0	740.0	6.88	6.31	6.07	710.0	740.0	10.51	13.46	15.17	710.0	740.0	0.38	0.30	0.22
750.0	780.0	6.83	6.20	5.94	750.0	780.0	10.51	16.41	16.91	750.0	780.0	0.35	0.31	0.21
790.0	820.0	6.89	6.20	5.89	790.0	820.0	8.23	13.96	15.99	790.0	820.0	0.34	0.31	0.22
830.0	860.0	6.96	6.29	5.90	830.0	860.0	6.98	11.34	16.64	830.0	860.0	0.30	0.27	0.22
870.0	900.0	6.93	6.29	5.91	870.0	900.0	6.24	9.83	15.76	870.0	900.0	0.37	0.30	0.23
910.0	940.0	6.89	6.29	5.92	910.0	940.0	6.00	9.65	17.07	910.0	940.0	0.49	0.35	0.26
950.0	980.0	6.84	6.32	5.96	950.0	980.0	5.80	9.33	15.75	950.0	980.0	0.57	0.39	0.28
990.0	1020.0	6.87	6.44	6.10	990.0	1020.0	5.47	8.16	12.68	990.0	1020.0	0.63	0.40	0.29
1030.0	1060.0	6.82	6.46	6.19	1030.0	1060.0	5.82	9.26	13.44	1030.0	1060.0	0.62	0.40	0.26
1070.0	1100.0	6.82	6.47	6.25	1070.0	1100.0	7.36	12.47	15.85	1070.0	1100.0	0.64	0.40	0.23
1110.0	1140.0	6.83	6.48	6.31	1110.0	1140.0	9.82	14.48	17.72	1110.0	1140.0	0.65	0.40	0.21
1150.0	1180.0	6.91	6.55	6.40	1150.0	1180.0	11.86	14.84	18.38	1150.0	1180.0	0.65	0.39	0.20
1190.0	1220.0	7.05	6.69	6.55	1190.0	1220.0	12.02	16.34	18.73	1190.0	1220.0	0.62	0.32	0.14
1230.0	1260.0	7.17	6.83	6.68	1230.0	1260.0	12.95	15.90	16.68	1230.0	1260.0	0.57	0.24	0.10
1270.0	1300.0	7.30	6.98	6.83	1270.0	1300.0	12.39	12.83	14.26	1270.0	1300.0	0.56	0.21	0.08
1310.0	1340.0	7.43	7.13	6.98	1310.0	1340.0	10.93	11.87	13.78	1310.0	1340.0	0.53	0.17	0.06
1350.0	1380.0	7.61	7.31	7.15	1350.0	1380.0	10.39	11.96	13.92	1350.0	1380.0	0.48	0.15	0.05
1410.0	1440.0	7.91	7.61	7.47	1410.0	1440.0	10.91	12.78	15.22	1410.0	1440.0	0.45	0.14	0.05
1450.0	1480.0	8.17	7.89	7.76	1450.0	1480.0	11.11	13.40	16.26	1450.0	1480.0	0.42	0.14	0.06
1510.0	1540.0	8.61	8.32	8.18	1510.0	1540.0	11.34	14.64	18.29	1510.0	1540.0	0.36	0.12	0.06
1550.0	1580.0	9.00	8.73	8.60	1550.0	1580.0	12.38	15.82	19.69	1550.0	1580.0	0.32	0.11	0.06
1610.0	1640.0	9.56	9.25	9.12	1610.0	1640.0	12.74	17.24	19.44	1610.0	1640.0	0.25	0.09	0.05
1650.0	1680.0	10.07	9.78	9.66	1650.0	1680.0	13.82	18.60	19.17	1650.0	1680.0	0.22	0.08	0.05
1710.0	1740.0	10.71	10.39	10.29	1710.0	1740.0	17.28	18.80	18.85	1710.0	1740.0	0.19	0.08	0.05

Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=805.5MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=289.9MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1600.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
700.5	105.0	10.52	10.1	300.0	6.57	1410.1	190.0	10.61
680.5	125.0	8.01	50.1	340.0	6.48	1370.1	230.0	9.96
660.5	145.0	7.58	90.1	380.0	6.37	1330.1	270.0	9.56
640.5	165.0	7.59	130.1	420.0	6.48	1290.1	310.0	9.20
620.5	185.0	7.21	170.1	460.0	6.53	1250.1	350.0	8.91
600.5	205.0	6.98	210.1	500.0	6.51	1210.1	390.0	8.74
580.5	225.0	6.82	250.1	540.0	6.59	1170.1	430.0	8.43
560.5	245.0	6.75	290.1	580.0	6.68	1130.1	470.0	8.24
540.5	265.0	6.76	330.1	620.0	6.67	1090.1	510.0	8.03
520.5	285.0	6.72	370.1	660.0	6.64	1050.1	550.0	7.83
500.5	305.0	6.59	410.1	700.0	6.59	1010.1	590.0	7.88
480.5	325.0	6.56	450.1	740.0	6.62	970.1	630.0	7.83
460.5	345.0	6.60	490.1	780.0	6.62	930.1	670.0	7.85
440.5	365.0	6.59	530.1	820.0	6.58	890.1	710.0	7.98
420.5	385.0	6.57	570.1	860.0	6.67	850.1	750.0	8.15
400.5	405.0	6.56	610.1	900.0	6.81	810.1	790.0	8.31
380.5	425.0	6.49	650.1	940.0	6.89	770.1	830.0	8.27
360.5	445.0	6.54	690.1	980.0	6.99	730.1	870.0	8.32
340.5	465.0	6.53	730.1	1020.0	7.27	690.1	910.0	8.33
320.5	485.0	6.48	770.1	1060.0	7.22	650.1	950.0	8.28
300.5	505.0	6.52	810.1	1100.0	6.95	610.1	990.0	8.26
280.5	525.0	6.50	850.1	1140.0	6.75	570.1	1030.0	8.41
260.5	545.0	6.48	890.1	1180.0	6.77	530.1	1070.0	8.58
250.5	555.0	6.45	930.1	1220.0	6.77	490.1	1110.0	8.61
230.5	575.0	6.44	970.1	1260.0	6.87	450.1	1150.0	8.58
220.5	585.0	6.43	1010.1	1300.0	7.40	430.1	1170.0	8.59
200.5	605.0	6.44	1050.1	1340.0	7.80	390.1	1210.0	8.62
190.5	615.0	6.41	1090.1	1380.0	8.38	370.1	1230.0	8.67
170.5	635.0	6.39	1130.1	1420.0	8.89	330.1	1270.0	8.71
160.5	645.0	6.38	1170.1	1460.0	9.29	310.1	1290.0	8.75
140.5	665.0	6.34	1210.1	1500.0	9.45	270.1	1330.0	8.78
130.5	675.0	6.37	1250.1	1540.0	9.19	250.1	1350.0	8.81
110.5	695.0	6.32	1290.1	1580.0	9.09	210.1	1390.0	8.90
100.5	705.0	6.28	1330.1	1620.0	9.06	190.1	1410.0	8.94
80.5	725.0	6.24	1370.1	1660.0	9.18	150.1	1450.0	9.08
70.5	735.0	6.28	1410.1	1700.0	9.40	130.1	1470.0	9.12
50.5	755.0	6.29	1450.1	1740.0	9.67	90.1	1510.0	9.14
40.5	765.0	6.25	1490.1	1780.0	9.96	70.1	1530.0	9.17
20.5	785.0	6.29	1530.1	1820.0	10.33	30.1	1570.0	9.15
10.5	795.0	6.36	1550.1	1840.0	10.47	10.1	1590.0	9.35

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
100.0	44.06	32.65	27.75	54.99	53.67	54.16
140.0	29.08	25.45	25.58	48.27	48.44	51.23
180.0	25.81	24.18	24.95	44.61	45.99	49.29
220.0	23.16	23.63	25.08	42.32	45.22	49.35
260.0	22.48	23.22	24.83	40.21	43.65	48.10
300.0	22.50	23.48	25.17	39.49	42.99	47.30
340.0	22.39	23.65	25.47	38.65	42.27	46.82
380.0	22.33	23.75	25.51	37.94	41.63	46.05
420.0	22.63	24.25	26.05	37.23	41.16	45.81
460.0	22.93	24.49	26.23	36.64	40.49	45.03
500.0	23.42	25.11	26.62	35.73	39.33	43.63
540.0	23.66	25.47	26.96	34.60	38.08	42.26
580.0	24.14	25.91	27.24	33.80	37.10	40.98
620.0	24.32	25.94	26.96	33.26	36.69	40.62
660.0	24.44	25.64	26.23	32.72	35.91	39.46
700.0	24.93	25.91	25.96	32.43	35.58	38.95
740.0	25.36	26.08	25.88	32.12	35.14	38.28
780.0	25.91	26.51	26.08	32.02	35.04	38.27
820.0	26.46	27.00	26.37	31.66	34.68	38.05
860.0	27.05	27.62	26.86	31.37	34.41	37.98
900.0	27.60	27.94	26.95	31.05	34.09	37.67
940.0	27.71	27.65	26.60	30.89	33.91	37.44
980.0	27.76	27.26	26.35	31.01	34.15	37.86
1020.0	27.33	26.42	25.62	31.34	34.78	39.13
1060.0	27.01	25.29	24.37	31.97	36.18	42.00
1100.0	26.72	24.42	23.27	32.81	38.21	47.03
1140.0	26.40	23.93	22.66	33.68	40.47	54.66
1180.0	26.21	23.64	22.30	34.86	43.70	50.20
1220.0	26.01	23.53	22.23	35.98	47.39	45.00
1260.0	26.12	23.80	22.34	37.12	48.22	41.72
1300.0	26.41	24.24	22.68	37.36	45.95	40.35
1340.0	26.60	24.49	22.89	37.13	44.26	39.21
1380.0	26.59	24.45	22.93	36.82	42.20	37.88
1440.0	26.32	24.49	23.14	35.76	40.47	36.81
1480.0	25.99	24.49	23.24	35.33	39.26	36.12
1540.0	25.67	24.39	23.07	34.03	37.56	34.51
1580.0	25.51	24.56	23.25	33.61	37.12	34.45
1640.0	25.43	24.56	23.43	32.59	35.97	33.84
1680.0	25.41	24.78	23.72	32.06	35.44	33.86
1740.0	25.44	25.08	24.13	31.76	35.40	33.98

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
70.0	100.0	30.26	32.40	34.47
110.0	140.0	28.85	31.36	31.75
150.0	180.0	26.91	29.02	30.16
190.0	220.0	27.21	28.44	28.93
230.0	260.0	26.33	27.42	28.01
270.0	300.0	26.04	26.92	27.69
310.0	340.0	25.23	26.56	27.42
350.0	380.0	25.18	26.29	27.42
390.0	420.0	25.33	26.32	27.13
430.0	460.0	25.20	26.46	27.57
470.0	500.0	25.63	27.30	29.22
510.0	540.0	25.80	27.40	29.36
550.0	580.0	25.29	26.68	27.72
590.0	620.0	23.76	24.80	25.25
630.0	660.0	21.75	22.20	22.23
670.0	700.0	20.31	20.30	19.97
710.0	740.0	19.39	19.09	18.62
750.0	780.0	18.73	18.29	17.93
790.0	820.0	18.35	18.10	17.86
830.0	860.0	18.33	18.23	18.23
870.0	900.0	18.30	18.25	18.08
910.0	940.0	18.34	18.16	17.73
950.0	980.0	18.77	18.43	17.92
990.0	1020.0	19.42	19.17	18.85
1030.0	1060.0	19.19	18.96	18.65
1070.0	1100.0	18.18	17.75	17.35
1110.0	1140.0	16.67	16.20	15.77
1150.0	1180.0	15.02	14.49	14.13
1190.0	1220.0	13.40	12.86	12.52
1230.0	1260.0	12.00	11.46	11.15
1270.0	1300.0	11.08	10.54	10.14
1310.0	1340.0	10.30	9.73	9.33
1350.0	1380.0	9.71	9.00	8.59
1410.0	1440.0	8.90	8.13	7.65
1450.0	1480.0	8.24	7.50	7.07
1510.0	1540.0	7.38	6.65	6.20
1550.0	1580.0	6.83	6.19	5.75
1610.0	1640.0	6.18	5.50	5.19
1650.0	1680.0	5.82	5.20	4.87
1710.0	1740.0	5.28	4.74	4.50

Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1590MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
70.0	100.0	12.01	4.05	1.80	100.0	54.29	38.61	16.41	10.1	1.68	1.62	1.57
110.0	140.0	3.45	1.65	1.19	140.0	25.19	10.37	5.99	50.1	1.63	1.57	1.51
150.0	180.0	2.75	1.62	1.29	180.0	12.99	5.83	4.30	90.1	1.61	1.55	1.49
190.0	220.0	1.86	1.44	1.28	220.0	5.47	3.54	3.47	130.1	1.59	1.53	1.47
230.0	260.0	1.80	1.47	1.32	260.0	4.27	2.94	3.08	170.1	1.59	1.53	1.47
270.0	300.0	1.79	1.53	1.38	300.0	2.95	2.51	2.90	210.1	1.58	1.51	1.45
310.0	340.0	1.84	1.56	1.40	340.0	2.39	2.22	2.79	250.1	1.58	1.51	1.44
350.0	380.0	1.83	1.59	1.43	380.0	2.05	2.06	2.65	290.1	1.58	1.51	1.44
390.0	420.0	1.84	1.61	1.44	420.0	1.83	2.00	2.69	330.1	1.59	1.51	1.44
430.0	460.0	1.95	1.68	1.49	460.0	1.60	1.87	2.58	370.1	1.60	1.51	1.45
470.0	500.0	1.93	1.67	1.46	500.0	1.47	1.86	2.61	410.1	1.61	1.52	1.46
510.0	540.0	1.98	1.73	1.52	540.0	1.37	1.81	2.58	450.1	1.63	1.54	1.48
550.0	580.0	2.02	1.77	1.58	580.0	1.28	1.79	2.56	490.1	1.65	1.56	1.50
590.0	620.0	1.91	1.68	1.52	620.0	1.21	1.80	2.60	530.1	1.68	1.60	1.54
630.0	660.0	1.87	1.63	1.49	660.0	1.17	1.76	2.54	570.1	1.72	1.64	1.58
670.0	700.0	1.84	1.54	1.41	700.0	1.16	1.79	2.59	610.1	1.78	1.70	1.63
710.0	740.0	1.90	1.54	1.39	740.0	1.17	1.78	2.57	650.1	1.85	1.78	1.71
750.0	780.0	1.89	1.50	1.32	780.0	1.19	1.79	2.57	690.1	1.91	1.85	1.78
790.0	820.0	1.85	1.50	1.30	820.0	1.22	1.81	2.60	730.1	2.03	1.97	1.91
830.0	860.0	1.89	1.57	1.34	860.0	1.26	1.83	2.59	770.1	2.13	2.08	2.02
870.0	900.0	1.78	1.50	1.29	900.0	1.29	1.86	2.63	810.1	2.26	2.24	2.18
910.0	940.0	1.69	1.46	1.28	940.0	1.29	1.83	2.59	850.1	2.39	2.39	2.35
950.0	980.0	1.58	1.39	1.25	980.0	1.31	1.83	2.59	890.1	2.52	2.54	2.52
990.0	1020.0	1.47	1.35	1.25	1020.0	1.36	1.85	2.59	930.1	2.66	2.73	2.73
1030.0	1060.0	1.35	1.26	1.24	1060.0	1.36	1.83	2.56	970.1	2.77	2.87	2.89
1070.0	1100.0	1.19	1.18	1.27	1100.0	1.34	1.78	2.52	1010.1	2.91	3.03	3.09
1110.0	1140.0	1.10	1.18	1.31	1140.0	1.38	1.79	2.51	1050.1	2.99	3.13	3.20
1150.0	1180.0	1.05	1.19	1.34	1180.0	1.44	1.81	2.51	1090.1	3.05	3.20	3.29
1190.0	1220.0	1.08	1.24	1.38	1220.0	1.47	1.79	2.48	1130.1	3.13	3.28	3.38
1230.0	1260.0	1.16	1.24	1.36	1260.0	1.53	1.83	2.50	1170.1	3.12	3.26	3.36
1270.0	1300.0	1.19	1.27	1.38	1300.0	1.65	1.86	2.48	1210.1	3.17	3.29	3.38
1310.0	1340.0	1.18	1.26	1.38	1340.0	1.74	1.90	2.51	1250.1	3.16	3.25	3.34
1350.0	1380.0	1.21	1.30	1.42	1380.0	1.85	1.96	2.52	1290.1	3.17	3.23	3.29
1410.0	1440.0	1.26	1.38	1.50	1440.0	2.04	2.04	2.56	1330.1	3.17	3.20	3.24
1450.0	1480.0	1.30	1.43	1.55	1480.0	2.15	2.10	2.57	1370.1	3.15	3.15	3.16
1510.0	1540.0	1.39	1.53	1.65	1540.0	2.34	2.18	2.60	1410.1	3.14	3.10	3.09
1550.0	1580.0	1.45	1.59	1.71	1580.0	2.46	2.24	2.60	1450.1	3.09	3.03	3.00
1610.0	1640.0	1.52	1.68	1.78	1640.0	2.65	2.31	2.62	1490.1	3.04	2.95	2.92
1650.0	1680.0	1.59	1.74	1.84	1680.0	2.79	2.36	2.61	1530.1	2.98	2.88	2.83
1710.0	1740.0	1.68	1.84	1.93	1740.0	2.96	2.42	2.63	1570.1	2.92	2.82	2.77

Harmonics Tables

RF HARMONICS ORDER	(-dBm)		(-dBc)										
	0	-	-	7	15	21	24	20	38	31	36	43	41
	1	-	12	+0	34	21	23	42	30	51	42	39	48
	2	90	52	49	43	46	55	46	49	47	68	51	46
	3	>90	67	66	56	54	61	62	58	55	65	66	>70
	4	>90	>70	>70	>70	>70	66	>70	>70	69	>70	>70	>70
	5	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	6	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	7	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	8	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	9	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	10	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	RF CAL		0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 945 MHz; -14.00 dBm.
LO IN: 975 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.49 dBm

RF HARMONICS ORDER	(-dBm)		(-dBc)										
	0	-	-	18	24	31	31	34	50	51	44	52	52
	1	-	11	+0	32	22	26	36	33	49	48	54	54
	2	70	45	40	40	38	53	45	46	50	68	57	58
	3	>90	49	48	38	39	48	53	42	51	66	69	63
	4	>90	56	65	59	77	49	57	59	52	57	57	69
	5	>90	63	64	74	72	58	52	68	60	57	54	64
	6	>90	>79	67	72	76	75	66	59	64	71	59	74
	7	>90	>79	>79	76	72	>79	74	75	69	73	70	70
	8	>90	>79	>79	>79	74	>79	>79	>79	75	68	>79	>79
	9	>90	>79	>79	>79	>79	>79	>79	>79	>79	78	>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: 945 MHz; -4.00 dBm.
LO IN: 975 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.55 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.