

Frequency Mixer

ADE-R5LH+

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=+5dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+7	+10	+13			+7	+10	+13			+7	+10	+13
10.1	40.1	7.28	6.69	6.49	10.1	40.1	15.57	19.89	24.70	10.1	40.1	0.48	0.18	0.16
70.1	100.1	7.39	6.83	6.59	70.1	100.1	16.38	19.35	22.44	70.1	100.1	0.36	0.24	0.13
130.1	160.1	7.45	6.87	6.60	130.1	160.1	16.29	19.57	20.13	130.1	160.1	0.30	0.18	0.12
190.1	220.1	7.39	6.79	6.58	190.1	220.1	16.05	19.49	18.57	190.1	220.1	0.29	0.21	0.11
250.1	280.1	7.31	6.77	6.60	250.1	280.1	16.80	16.74	19.14	250.1	280.1	0.39	0.25	0.13
310.1	340.1	7.31	6.86	6.68	310.1	340.1	15.86	16.03	18.44	310.1	340.1	0.34	0.19	0.09
350.1	380.1	7.22	6.81	6.64	350.1	380.1	15.27	17.33	20.40	350.1	380.1	0.40	0.21	0.13
410.1	440.1	7.27	6.90	6.72	410.1	440.1	14.97	16.68	18.83	410.1	440.1	0.40	0.20	0.14
450.1	480.1	7.24	6.88	6.69	450.1	480.1	13.79	16.73	19.75	450.1	480.1	0.35	0.21	0.14
510.1	540.1	7.31	6.93	6.70	510.1	540.1	12.97	15.10	19.76	510.1	540.1	0.29	0.18	0.15
550.1	580.1	7.36	6.98	6.75	550.1	580.1	14.56	16.92	20.77	550.1	580.1	0.24	0.13	0.11
610.1	640.1	7.31	6.89	6.66	610.1	640.1	17.33	20.61	21.00	610.1	640.1	0.35	0.27	0.21
650.1	680.1	7.37	6.93	6.71	650.1	680.1	16.55	22.16	21.34	650.1	680.1	0.42	0.31	0.23
710.1	740.1	7.52	7.11	6.84	710.1	740.1	13.69	16.37	22.80	710.1	740.1	0.43	0.30	0.22
750.1	780.1	7.69	7.30	7.02	750.1	780.1	13.03	14.30	17.68	750.1	780.1	0.45	0.30	0.21
810.1	840.1	7.90	7.47	7.14	810.1	840.1	13.07	14.67	17.57	810.1	840.1	0.46	0.33	0.26
850.1	880.1	7.94	7.41	7.06	850.1	880.1	13.20	15.95	19.74	850.1	880.1	0.56	0.48	0.41
910.1	940.1	7.94	7.30	6.98	910.1	940.1	14.05	18.86	21.72	910.1	940.1	0.73	0.71	0.63
950.1	980.1	7.94	7.23	6.91	950.1	980.1	14.46	20.12	20.07	950.1	980.1	0.88	0.88	0.82
1010.1	1040.1	7.99	7.23	6.85	1010.1	1040.1	14.45	18.40	18.21	1010.1	1040.1	1.11	1.11	1.01
1050.1	1080.1	8.02	7.20	6.80	1050.1	1080.1	13.89	17.15	17.34	1050.1	1080.1	1.19	1.22	1.09
1110.1	1140.1	8.08	7.11	6.67	1110.1	1140.1	12.09	15.86	15.64	1110.1	1140.1	1.25	1.38	1.24
1150.1	1180.1	8.19	7.16	6.66	1150.1	1180.1	10.84	14.50	14.35	1150.1	1180.1	1.25	1.45	1.32
1210.1	1240.1	8.32	7.31	6.66	1210.1	1240.1	9.69	12.70	13.06	1210.1	1240.1	1.19	1.37	1.34
1250.1	1280.1	8.38	7.50	6.84	1250.1	1280.1	9.04	10.94	12.04	1250.1	1280.1	1.18	1.25	1.24
1310.1	1340.1	8.27	7.53	6.94	1310.1	1340.1	7.73	8.95	10.27	1310.1	1340.1	1.31	1.27	1.20
1350.1	1380.1	8.18	7.48	6.92	1350.1	1380.1	6.90	8.15	9.76	1350.1	1380.1	1.42	1.35	1.21
1410.1	1440.1	7.93	7.25	6.80	1410.1	1440.1	6.64	8.34	10.27	1410.1	1440.1	1.69	1.54	1.31
1450.1	1480.1	7.80	7.15	6.81	1450.1	1480.1	7.18	9.07	10.78	1450.1	1480.1	1.81	1.61	1.34
1510.1	1540.1	7.69	7.20	6.98	1510.1	1540.1	8.70	10.37	11.52	1510.1	1540.1	1.83	1.54	1.26
1550.1	1580.1	7.70	7.31	7.13	1550.1	1580.1	9.52	10.96	12.01	1550.1	1580.1	1.75	1.50	1.23
1610.1	1640.1	7.96	7.68	7.53	1610.1	1640.1	10.50	11.71	12.82	1610.1	1640.1	1.51	1.24	1.01
1650.1	1680.1	8.18	7.94	7.81	1650.1	1680.1	10.62	11.77	13.13	1650.1	1680.1	1.37	1.11	0.90
1710.1	1740.1	8.58	8.37	8.24	1710.1	1740.1	11.26	12.35	14.05	1710.1	1740.1	1.06	0.83	0.67
1750.1	1780.1	8.89	8.68	8.57	1750.1	1780.1	12.16	13.18	14.85	1750.1	1780.1	0.88	0.67	0.52
1810.1	1840.1	9.34	9.13	9.02	1810.1	1840.1	13.64	14.72	16.24	1810.1	1840.1	0.62	0.50	0.38
1850.1	1880.1	9.68	9.48	9.34	1850.1	1880.1	14.90	15.84	17.53	1850.1	1880.1	0.53	0.37	0.28
1910.1	1940.1	10.18	9.95	9.80	1910.1	1940.1	17.64	18.63	19.68	1910.1	1940.1	0.35	0.24	0.20
1950.1	1980.1	10.56	10.31	10.12	1950.1	1980.1	18.55	20.39	21.51	1950.1	1980.1	0.21	0.15	0.14
2010.1	2040.1	11.08	10.87	10.68	2010.1	2040.1	24.24	23.20	22.70	2010.1	2040.1	0.10	0.05	0.07

Frequency Mixer

ADE-R5LH+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=765.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1520.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+10			+10			+10
745.0	20.1	7.47	10.0	20.1	6.77	1510.0	10.1	10.33
726.8	38.4	7.41	50.0	60.1	6.78	1470.0	50.1	10.02
708.5	56.6	7.38	90.0	100.1	6.79	1430.0	90.1	9.91
690.3	74.9	7.37	130.0	140.1	6.81	1390.0	130.1	9.75
672.0	93.1	7.32	170.0	180.1	6.90	1350.0	170.1	9.62
653.8	111.4	7.21	210.0	220.1	6.89	1310.0	210.1	9.50
635.5	129.6	7.13	250.0	260.1	6.86	1270.0	250.1	9.34
617.3	147.9	7.08	290.0	300.1	6.94	1230.0	290.1	9.22
599.0	166.1	7.05	330.0	340.1	6.96	1190.0	330.1	9.05
580.8	184.4	7.02	370.0	380.1	7.12	1150.0	370.1	8.88
562.5	202.6	6.97	410.0	420.1	7.14	1110.0	410.1	8.72
544.3	220.9	6.92	450.0	460.1	7.23	1070.0	450.1	8.56
526.0	239.1	6.91	490.0	500.1	7.19	1030.0	490.1	8.35
507.8	257.4	6.92	530.0	540.1	7.25	990.0	530.1	8.20
489.5	275.6	6.92	570.0	580.1	7.42	950.0	570.1	8.03
471.3	293.9	6.92	610.0	620.1	7.36	910.0	610.1	7.88
453.0	312.1	6.90	650.0	660.1	7.44	870.0	650.1	7.65
434.8	330.4	6.91	690.0	700.1	7.70	830.0	690.1	7.53
416.5	348.6	6.92	730.0	740.1	8.12	790.0	730.1	7.47
398.3	366.9	6.93	770.0	780.1	8.18	750.0	770.1	7.46
380.0	385.1	6.91	810.0	820.1	8.52	710.0	810.1	7.42
361.8	403.4	6.94	850.0	860.1	8.38	670.0	850.1	7.27
343.5	421.6	6.94	890.0	900.1	8.28	630.0	890.1	7.09
325.3	439.9	6.96	930.0	940.1	8.14	590.0	930.1	6.95
307.0	458.1	6.97	970.0	980.1	7.94	550.0	970.1	6.82
288.8	476.4	6.96	1010.0	1020.1	7.91	510.0	1010.1	6.74
270.5	494.6	6.94	1050.0	1060.1	7.83	470.0	1050.1	6.66
252.3	512.9	6.93	1090.0	1100.1	7.88	430.0	1090.1	6.60
234.0	531.1	6.91	1130.0	1140.1	7.84	390.0	1130.1	6.61
215.8	549.4	6.94	1170.0	1180.1	7.93	350.0	1170.1	6.64
197.5	567.6	6.96	1210.0	1220.1	8.09	310.0	1210.1	6.75
179.3	585.9	6.93	1250.0	1260.1	8.18	270.0	1250.1	6.92
161.0	604.1	6.92	1290.0	1300.1	8.34	230.0	1290.1	7.11
142.8	622.4	6.92	1330.0	1340.1	8.34	190.0	1330.1	7.19
124.5	640.6	6.95	1370.0	1380.1	8.22	150.0	1370.1	7.32
106.3	658.9	7.00	1390.0	1400.1	8.48	130.0	1390.1	7.27
88.0	677.1	7.01	1430.0	1440.1	8.32	90.0	1430.1	7.27
69.8	695.4	7.04	1450.0	1460.1	8.33	70.0	1450.1	7.26
33.3	731.9	7.15	1490.0	1500.1	8.46	30.0	1490.1	7.19
15.0	750.1	7.24	1510.0	1520.1	8.46	10.0	1510.1	7.28



Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+7	+10	+13	+7	+10	+13			+7	+10	+13
10.1	59.49	68.93	68.03	75.90	72.82	70.81	10.1	40.1	48.91	48.88	48.92
70.1	68.73	69.13	70.61	59.36	56.53	54.79	70.1	100.1	32.91	32.90	32.83
130.1	62.36	65.42	67.76	55.14	52.06	50.48	130.1	160.1	28.09	28.00	27.84
190.1	61.51	64.80	67.80	52.70	50.22	48.98	190.1	220.1	25.23	25.37	25.37
250.1	59.53	63.17	66.56	51.97	50.64	47.64	250.1	280.1	23.41	23.54	23.66
310.1	56.11	60.36	64.44	55.54	50.72	46.60	310.1	340.1	22.20	22.33	22.52
350.1	56.59	60.80	66.19	57.37	50.63	46.23	350.1	380.1	21.68	21.76	21.91
410.1	55.81	60.63	67.34	55.22	50.25	45.16	410.1	440.1	20.90	21.21	21.42
450.1	56.02	62.07	70.62	53.04	50.33	45.50	450.1	480.1	20.65	21.06	21.18
510.1	54.54	58.97	64.58	49.63	49.43	45.51	510.1	540.1	19.80	19.98	20.19
550.1	51.85	54.44	58.35	46.03	49.75	47.02	550.1	580.1	18.96	19.20	19.44
610.1	50.31	53.57	58.69	42.63	47.38	47.56	610.1	640.1	18.36	18.98	19.54
650.1	51.20	55.53	62.50	42.27	45.72	45.56	650.1	680.1	18.29	19.17	19.85
710.1	55.88	69.22	67.95	43.58	44.40	43.67	710.1	740.1	17.88	18.68	19.37
750.1	57.06	74.48	65.15	45.17	46.39	44.24	750.1	780.1	17.51	17.95	18.32
810.1	60.09	70.35	70.18	46.25	56.47	48.95	810.1	840.1	16.25	16.47	16.56
850.1	61.96	69.05	68.43	45.06	58.34	52.40	850.1	880.1	15.35	15.42	15.45
910.1	58.36	62.41	66.01	42.28	46.92	48.36	910.1	940.1	14.15	14.22	14.18
950.1	53.66	55.99	58.02	40.43	43.36	44.82	950.1	980.1	13.77	13.79	13.84
1010.1	48.48	50.14	52.15	37.42	40.00	41.27	1010.1	1040.1	13.33	13.41	13.48
1050.1	46.41	47.67	49.16	35.95	38.54	39.75	1050.1	1080.1	13.20	13.39	13.49
1110.1	44.25	45.14	46.32	34.06	36.76	38.00	1110.1	1140.1	13.24	13.53	13.71
1150.1	43.35	44.23	45.08	33.30	36.10	37.46	1150.1	1180.1	13.36	13.62	13.83
1210.1	42.04	42.85	43.48	33.12	35.89	37.81	1210.1	1240.1	13.60	13.72	13.88
1250.1	41.31	42.38	43.14	33.31	36.34	38.84	1250.1	1280.1	13.86	13.90	13.85
1310.1	40.14	41.40	42.26	32.87	36.07	38.43	1310.1	1340.1	14.22	14.15	13.94
1350.1	38.94	40.25	41.04	31.78	34.12	35.38	1350.1	1380.1	14.45	14.27	13.97
1410.1	37.19	38.23	38.61	29.56	30.47	30.66	1410.1	1440.1	14.23	13.86	13.42
1450.1	35.82	36.47	36.87	28.23	28.53	28.81	1450.1	1480.1	13.82	13.32	12.87
1510.1	33.92	34.45	34.88	26.35	26.65	26.99	1510.1	1540.1	12.80	12.24	11.79
1550.1	32.73	33.25	33.64	25.75	26.11	26.37	1550.1	1580.1	11.95	11.42	11.03
1610.1	31.57	32.15	32.38	25.12	25.52	25.53	1610.1	1640.1	10.67	10.20	9.86
1650.1	30.79	31.29	31.45	24.98	25.27	25.14	1650.1	1680.1	9.82	9.42	9.11
1710.1	30.06	30.47	30.46	25.01	25.12	24.77	1710.1	1740.1	8.72	8.33	8.08
1750.1	29.51	29.72	29.65	24.90	24.77	24.29	1750.1	1780.1	8.00	7.65	7.39
1810.1	28.93	28.69	28.47	24.95	24.32	23.67	1810.1	1840.1	7.06	6.77	6.55
1850.1	28.33	28.00	27.60	24.69	23.99	23.22	1850.1	1880.1	6.59	6.29	6.09
1910.1	27.80	27.22	26.67	24.67	23.67	22.78	1910.1	1940.1	5.93	5.68	5.49
1950.1	27.36	26.62	25.98	24.58	23.45	22.54	1950.1	1980.1	5.56	5.31	5.15
2010.1	26.72	25.79	25.08	24.36	23.01	22.07	2010.1	2040.1	4.97	4.74	4.60

Frequency Mixer

ADE-R5LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1520.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+7	+10	+13		+7	+10	+13		+7	+10	+13
10.1	40.1	1.88	1.92	1.80	10.1	1.19	1.23	1.66	10.1	2.25	1.95	1.79
70.1	100.1	1.39	1.30	1.23	70.1	1.08	1.55	2.17	50.1	2.29	1.97	1.81
130.1	160.1	1.52	1.42	1.34	130.1	1.16	1.49	2.08	90.1	2.29	1.97	1.81
190.1	220.1	1.61	1.48	1.41	190.1	1.16	1.50	2.07	130.1	2.25	1.94	1.78
250.1	280.1	1.56	1.44	1.39	250.1	1.23	1.55	2.13	170.1	2.26	1.94	1.78
310.1	340.1	1.54	1.45	1.41	310.1	1.26	1.55	2.12	210.1	2.24	1.92	1.77
350.1	380.1	1.63	1.56	1.53	350.1	1.26	1.58	2.17	250.1	2.18	1.87	1.72
410.1	440.1	1.49	1.43	1.40	410.1	1.27	1.59	2.17	290.1	2.17	1.86	1.71
450.1	480.1	1.63	1.57	1.54	450.1	1.28	1.62	2.22	330.1	2.15	1.84	1.70
510.1	540.1	1.59	1.54	1.50	510.1	1.29	1.65	2.25	370.1	2.11	1.81	1.67
550.1	580.1	1.69	1.65	1.62	550.1	1.27	1.67	2.27	410.1	2.06	1.77	1.63
610.1	640.1	1.59	1.54	1.51	610.1	1.29	1.72	2.33	450.1	2.02	1.74	1.60
650.1	680.1	1.60	1.56	1.55	650.1	1.29	1.72	2.33	490.1	1.98	1.71	1.58
710.1	740.1	1.64	1.61	1.59	710.1	1.32	1.78	2.42	530.1	1.92	1.67	1.55
750.1	780.1	1.61	1.59	1.58	750.1	1.32	1.79	2.41	570.1	1.88	1.64	1.53
810.1	840.1	1.70	1.68	1.67	810.1	1.37	1.87	2.51	610.1	1.83	1.60	1.49
850.1	880.1	1.60	1.57	1.54	850.1	1.36	1.86	2.49	650.1	1.80	1.59	1.49
910.1	940.1	1.72	1.68	1.66	910.1	1.40	1.93	2.58	690.1	1.74	1.54	1.46
950.1	980.1	1.60	1.55	1.53	950.1	1.38	1.90	2.54	730.1	1.71	1.51	1.43
1010.1	1040.1	1.55	1.50	1.47	1010.1	1.43	2.00	2.67	770.1	1.68	1.49	1.41
1050.1	1080.1	1.58	1.51	1.48	1050.1	1.42	1.97	2.62	810.1	1.63	1.46	1.40
1110.1	1140.1	1.42	1.35	1.33	1110.1	1.50	2.09	2.77	850.1	1.60	1.44	1.38
1150.1	1180.1	1.45	1.37	1.34	1150.1	1.49	2.06	2.70	890.1	1.54	1.39	1.34
1210.1	1240.1	1.32	1.24	1.21	1210.1	1.59	2.19	2.86	930.1	1.51	1.37	1.33
1250.1	1280.1	1.27	1.21	1.19	1250.1	1.58	2.15	2.78	970.1	1.48	1.34	1.31
1310.1	1340.1	1.19	1.12	1.09	1310.1	1.67	2.26	2.92	1010.1	1.43	1.31	1.29
1350.1	1380.1	1.04	1.07	1.14	1350.1	1.63	2.20	2.82	1050.1	1.40	1.28	1.26
1410.1	1440.1	1.04	1.11	1.19	1410.1	1.70	2.28	2.93	1090.1	1.36	1.25	1.24
1450.1	1480.1	1.22	1.30	1.36	1450.1	1.65	2.20	2.81	1130.1	1.32	1.23	1.24
1510.1	1540.1	1.35	1.43	1.48	1510.1	1.69	2.27	2.92	1170.1	1.28	1.19	1.21
1550.1	1580.1	1.48	1.54	1.58	1550.1	1.64	2.19	2.82	1210.1	1.23	1.17	1.21
1610.1	1640.1	1.60	1.65	1.69	1610.1	1.69	2.27	2.92	1250.1	1.21	1.14	1.19
1650.1	1680.1	1.63	1.66	1.69	1650.1	1.66	2.22	2.84	1290.1	1.16	1.13	1.20
1710.1	1740.1	1.75	1.78	1.81	1710.1	1.75	2.32	2.95	1330.1	1.12	1.11	1.20
1750.1	1780.1	1.68	1.71	1.73	1750.1	1.74	2.28	2.88	1370.1	1.08	1.10	1.21
1810.1	1840.1	1.81	1.83	1.85	1810.1	1.85	2.37	2.97	1390.1	1.05	1.12	1.23
1850.1	1880.1	1.73	1.75	1.77	1850.1	1.84	2.34	2.90	1430.1	1.03	1.13	1.24
1910.1	1940.1	1.79	1.79	1.79	1910.1	1.95	2.43	2.99	1450.1	1.02	1.13	1.24
1950.1	1980.1	1.79	1.79	1.79	1950.1	1.95	2.40	2.94	1490.1	1.05	1.18	1.28
2010.1	2040.1	1.77	1.76	1.75	2010.1	2.07	2.48	3.00	1510.1	1.05	1.17	1.28

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	19	21	12	27	20	30	37	43	44	49
1	-	11	+0	28	14	33	39	36	46	37	50	52
2	81	67	60	61	57	61	> 73	> 73	61	64	68	> 73
3	> 90	65	58	61	57	64	56	71	> 73	> 73	> 73	> 73
4	> 90	> 73	> 73	> 73	> 73	> 73	> 73	> 73	> 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	> 90	> 73	> 73	> 73	> 73	> 73	> 73	> 73	> 73	> 73	> 73	> 73
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 755.00 MHz; -10.00 dBm.
 LO IN: 785.00 MHz; +10.00 dBm
 IF OUT: 30.00 MHz; -17.48 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	28	30	22	38	31	42	53	55	54	63
1	-	11	+0	30	14	33	37	39	57	42	55	55
2	62	61	50	59	50	77	56	61	53	56	62	77
3	> 90	46	39	47	41	46	38	64	59	57	64	61
4	> 90	75	74	68	60	62	63	62	68	78	78	72
5	> 90	72	71	70	57	59	56	71	56	65	75	68
6	> 90	> 83	> 83	> 83	> 83	82	80	74	73	77	> 83	> 83
7	> 90	83	> 83	> 83	> 83	> 83	72	77	70	72	69	> 83
8	> 90	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83
9	> 90	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83
10	> 90	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83	> 83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 755.00 MHz; .00 dBm.
 LO IN: 785.00 MHz; +10.00 dBm
 IF OUT: 30.00 MHz; -7.44 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.