Frequency Mixer HJK-ED13641/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+18	+20	+22
49.0	19.0	6.93	6.89	6.82
58.0	28.0	7.01	6.97	6.93
76.0	46.0	7.23	7.18	7.17
94.0	64.0	7.32	7.28	7.20
112.0	82.0	7.32	7.27	7.21
139.0	109.0	7.24	7.17	7.08
157.0	127.0	7.40	7.33	7.22
175.0	145.0	7.54	7.47	7.37
193.0	163.0	7.77	7.71	7.60
211.0	181.0	7.96	7.90	7.79
229.0	199.0	8.04	7.95	7.84
247.0	217.0	7.87	7.81	7.68
265.0	235.0	8.18	8.09	7.97
283.0	253.0	8.52	8.44	8.34
301.0	271.0	8.91	8.84	8.71
328.0	298.0	9.13	9.03	8.90
346.0	316.0	9.46	9.36	9.25
364.0	334.0	9.77	9.66	9.55
382.0	352.0	10.42	10.29	10.21
400.0	370.0	10.89	10.79	10.65
414.0	384.0	11.23	11.14	11.00
424.0	394.0	11.71	11.61	11.45
434.0	404.0	11.68	11.35	10.99
444.0	414.0	11.12	10.96	10.77
454.0	424.0	11.22	11.09	10.93
469.0	439.0	11.41	11.31	11.19
479.0	449.0	11.61	11.47	11.36
489.0	459.0	11.72	11.66	11.51
499.0	469.0	11.86	11.76	11.61
509.0	479.0	12.00	11.88	11.70
519.0	489.0	12.07	11.95	11.78
529.0	499.0	12.20	12.09	11.91
539.0	509.0	12.34	12.20	12.07
549.0	519.0	12.50	12.41	12.23
559.0	529.0	12.77	12.65	12.49
574.0	544.0	13.16	13.04	12.87
584.0	554.0	13.40	13.30	13.15
594.0	564.0	13.60	13.51	13.36
604.0	574.0	13.87	13.74	13.60
609.0	579.0	14.03	13.90	13.73

RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm) @LO (dBm)		
		+18	+20	+22
49.0	19.0	17.10	17.48	19.32
58.0	28.0	19.46	18.96	21.39
76.0	46.0	25.49	26.26	23.47
94.0	64.0	23.38	22.84	27.65
112.0	82.0	21.57	23.68	28.37
139.0	109.0	23.34	25.71	26.85
157.0	127.0	19.23	19.79	20.94
175.0	145.0	22.62	25.01	22.31
193.0	163.0	22.02	21.93	21.92
211.0	181.0	23.48	26.67	24.79
229.0	199.0	15.54	17.16	19.41
247.0	217.0	20.78	20.92	20.99
265.0	235.0	18.41	17.27	18.08
283.0	253.0	19.37	19.28	19.12
301.0	271.0	23.92	22.40	21.93
328.0	298.0	19.34	19.34	19.83
346.0	316.0	19.38	23.60	27.26
364.0	334.0	21.36	19.35	19.12
382.0	352.0	15.34	16.38	17.90
400.0	370.0	12.98	14.80	15.94
414.0	384.0	12.61	14.08	16.90
424.0	394.0	9.14	10.92	12.80
434.0	404.0	9.69	9.51	10.21
444.0	414.0	13.61	15.00	16.04
454.0	424.0	14.08	14.71	16.26
469.0	439.0	14.35	15.56	16.92
479.0	449.0	14.92	15.89	17.53
489.0	459.0	15.20	16.25	17.79
499.0	469.0	14.74	15.83	17.51
509.0	479.0	14.80	15.78	17.12
519.0	489.0	14.57	14.71	16.36
529.0	499.0	14.60	15.62	17.09
539.0	509.0	14.39	15.47	17.35
549.0	519.0	14.07	15.60	17.57
559.0	529.0	14.53	15.86	17.28
574.0	544.0	14.60	15.97	17.35
584.0	554.0	14.85	15.64	17.73
594.0	564.0	15.08	17.03	18.44
604.0	574.0	14.99	16.17	17.77
609.0	579.0	15.57	16.77	19.52

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+20dBm (dB) @LO (dBm)		
		+18	+20	+22
49.0	19.0	0.20	-0.02	-0.09
58.0	28.0	0.24	0.00	-0.09
76.0	46.0	0.18	-0.01	-0.12
94.0	64.0	0.11	-0.07	-0.09
112.0	82.0	0.06	-0.11	-0.14
139.0	109.0	0.08	-0.09	-0.11
157.0	127.0	0.10	-0.09	-0.11
175.0	145.0	0.09	-0.07	-0.09
193.0	163.0	0.05	-0.12	-0.14
211.0	181.0	-0.06	-0.22	-0.21
229.0	199.0	-0.02	-0.17	-0.16
247.0	217.0	0.22	0.00	-0.05
265.0	235.0	0.13	-0.06	-0.13
283.0	253.0	0.11	-0.10	-0.17
301.0	271.0	0.04	-0.17	-0.19
328.0	298.0	0.11	-0.09	-0.14
346.0	316.0	0.09	-0.09	-0.15
364.0	334.0	0.11	-0.06	-0.13
382.0	352.0	0.08	-0.06	-0.15
400.0	370.0	0.18	-0.06	-0.10
414.0	384.0	0.60	0.28	0.13
424.0	394.0	1.18	0.99	0.94
434.0	404.0	1.08	0.97	1.01
444.0	414.0	1.21	0.88	0.65
454.0	424.0	1.01	0.58	0.31
469.0	439.0	0.74	0.27	0.05
479.0	449.0	0.52	0.14	0.00
489.0	459.0	0.44	0.04	-0.04
499.0	469.0	0.41	0.09	0.02
509.0	479.0	0.35	0.08	0.05
519.0	489.0	0.33	0.07	0.02
529.0	499.0	0.31	0.06	0.03
539.0	509.0	0.30	0.09	0.01
549.0	519.0	0.32	0.07	0.03
559.0	529.0	0.26	0.05	0.01
574.0	544.0	0.21	0.03	0.01
584.0	554.0	0.22	0.03	0.00
594.0	564.0	0.22	0.01	-0.02
604.0	574.0	0.19	0.02	-0.02
609.0	579.0	0.15	-0.02	-0.03

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=220.1MHz (dB)
		@LO (dBm)
		+20
10.0	230.1	7.36
37.0	257.1	7.30
64.0	284.1	7.12
97.8	317.9	7.22
124.8	344.9	7.37
151.8	371.9	7.84
205.0	425.1	8.11
225.0	445.1	7.85
250.0	470.1	7.57
270.0	490.1	7.33
292.2	512.3	7.20
301.2	521.3	7.20
310.2	530.3	7.20
321.4	541.5	7.17
330.4	550.5	7.15
339.4	559.5	7.15
348.4	568.5	7.19
357.4	577.5	7.20
368.7	588.8	7.21
377.7	597.8	7.23
210.1	10.0	7.31
201.1	19.0	7.38
192.1	28.0	7.48
180.9	39.3	7.53
171.9	48.3	7.55
162.9	57.3	7.55
153.9	66.3	7.51
144.9	75.3	7.52
133.6	86.5	7.47
124.6	95.5	7.58
107.6	112.5	7.56
97.6	122.5	7.62
87.6	132.5	7.59
75.1	145.0	7.52
65.1	155.0	7.52
55.1	165.0	7.48
45.1	175.0	8.46
37.1	183.0	10.12
22.6	197.5	7.51
12.6	207.5	7.36

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=40.1MHz (dB)
		@LO (dBm)
		+20
10.9	51.0	6.41
16.9	57.0	6.57
22.9	63.0	6.53
28.9	69.0	6.58
34.9	75.0	6.62
43.9	84.0	6.56
49.9	90.0	6.57
55.9	96.0	6.58
61.9	102.0	6.55
67.9	108.0	6.46
73.9	114.0	6.40
79.9	120.0	6.41
85.9	126.0	6.41
91.9	132.0	6.45
97.9	138.0	6.46
106.9	147.0	6.42
112.9	153.0	6.41
118.9	159.0	6.35
124.9	165.0	6.33
130.9	171.0	6.26
169.9	210.0	6.72
189.9	230.0	6.60
209.9	250.0	6.53
229.9	270.0	6.45
249.9	290.0	6.47
279.9	320.0	6.53
299.9	340.0	6.63
319.9	360.0	6.84
339.9	380.0	7.36
379.9	420.0	7.15
399.9	440.0	6.88
419.9	460.0	6.72
439.9	480.0	6.67
459.9	500.0	6.66
479.9	520.0	6.57
509.9	550.0	6.63
529.9	570.0	6.69
549.9	590.0	6.67
569.9	610.0	6.68
579.9	620.0	6.69

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=400.1MHz (dB)
		@LO (dBm)
		+20
390.1	10.0	9.77
387.1	13.0	9.75
384.1	16.0	9.76
381.1	19.0	9.77
378.1	22.0	9.78
373.6	26.5	9.82
370.6	29.5	9.84
367.6	32.5	9.87
364.6	35.5	9.96
361.6	38.5	9.98
358.6	41.5	9.98
355.6	44.5	9.97
352.6	47.5	9.96
349.6	50.5	9.94
346.6	53.5	9.92
342.1	58.0	9.89
339.1	61.0	9.88
336.1	64.0	9.88
333.1	67.0	9.87
330.1	70.0	9.88
317.2	82.9	9.96
301.5	98.6	9.97
285.7	114.4	9.97
270.0	130.1	10.09
254.2	145.9	9.97
230.6	169.5	10.21
214.9	185.3	10.38
199.1	201.0	10.16
183.4	216.8	9.90
167.6	232.5	10.07
151.9	248.3	10.23
136.1	264.0	10.32
120.4	279.8	10.36
104.6	295.5	10.45
88.9	311.3	10.41
65.2	334.9	10.53
49.5	350.6	10.54
33.7	366.4	10.58
18.0	382.1	10.71
10.1	390.0	10.93

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+18	+20	+22	+18	+20	+22
19.0	41.76	39.92	40.00	41.90	41.22	41.18
28.0	42.06	40.11	40.28	42.46	41.76	41.75
46.0	41.41	39.52	39.61	42.39	41.61	41.65
64.0	40.91	38.97	39.14	41.87	41.08	41.13
82.0	40.48	38.50	38.60	41.51	40.65	40.71
109.0	40.83	38.75	38.86	41.73	40.83	40.88
127.0	41.38	39.27	39.43	41.85	40.85	40.92
145.0	40.07	37.92	38.05	40.88	39.87	39.93
163.0	39.98	37.84	37.97	40.25	39.21	39.28
181.0	40.16	38.03	38.19	40.29	39.24	39.29
199.0	40.07	38.10	38.32	40.24	39.17	39.17
217.0	38.92	36.97	37.08	39.56	38.45	38.40
235.0	38.81	36.94	37.13	40.16	38.97	38.90
253.0	38.17	36.39	36.59	40.31	39.06	38.96
271.0	37.67	36.10	36.34	41.10	39.74	39.63
298.0	36.57	35.22	35.42	44.93	43.28	43.31
316.0	35.71	34.50	34.71	48.05	46.12	46.16
334.0	34.20	33.10	33.28	50.87	49.21	49.24
352.0	33.14	32.09	32.22	49.24	49.80	49.94
370.0	31.65	30.65	30.75	44.30	44.90	44.93
384.0	30.65	29.67	29.74	41.44	41.73	41.80
394.0	31.09	30.12	30.48	40.43	39.75	39.74
404.0	34.24	33.02	33.44	40.17	39.22	39.07
414.0	34.29	33.03	33.46	39.31	38.59	38.49
424.0	33.86	32.60	32.95	38.67	38.17	38.12
439.0	32.80	31.62	31.87	38.08	37.81	37.86
449.0	32.21	31.03	31.24	37.57	37.39	37.46
459.0	32.04	30.83	31.00	36.83	36.65	36.73
469.0	31.51	30.33	30.48	36.20	36.03	36.11
479.0	30.51	29.39	29.52	35.62	35.43	35.50
489.0	30.45	29.28	29.39	35.13	34.96	35.02
499.0	30.01	28.88	28.98	34.90	34.73	34.81
509.0	29.44	28.34	28.43	34.85	34.69	34.77
519.0	29.54	28.42	28.51	34.65	34.49	34.58
529.0	29.45	28.34	28.43	34.34	34.19	34.29
544.0	28.57	27.50	27.59	33.96	33.79	33.87
554.0	28.58	27.53	27.61	33.87	33.69	33.76
564.0	28.28	27.24	27.33	33.95	33.76	33.82
574.0	28.02	26.99	27.08	33.96	33.77	33.84
579.0	28.14	27.12	27.22	33.87	33.69	33.75

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+18	+20	+22
49.0	19.0	36.11	35.94	35.75
58.0	28.0	34.80	35.16	35.71
76.0	46.0	33.40	32.84	32.52
94.0	64.0	35.85	35.60	35.65
112.0	82.0	33.68	33.19	33.07
139.0	109.0	36.17	35.91	36.63
157.0	127.0	35.49	35.07	35.04
175.0	145.0	37.09	36.72	36.99
193.0	163.0	38.06	37.32	37.47
211.0	181.0	37.60	37.01	36.88
229.0	199.0	38.89	38.63	38.79
247.0	217.0	38.71	37.94	38.25
265.0	235.0	39.17	38.41	38.52
283.0	253.0	38.89	38.24	38.40
301.0	271.0	38.49	38.10	38.21
328.0	298.0	36.90	36.16	36.15
346.0	316.0	36.73	36.22	36.43
364.0	334.0	35.86	35.42	35.54
382.0	352.0	36.11	36.04	36.38
400.0	370.0	36.05	36.00	36.29
415.8	385.8	35.39	35.31	35.50
429.3	399.3	28.42	28.25	28.14
442.8	412.8	30.70	30.20	29.76
456.3	426.3	30.88	30.42	30.08
469.8	439.8	31.38	31.09	30.99
490.0	460.0	31.34	30.94	30.74
503.5	473.5	30.92	30.51	30.29
517.0	487.0	30.90	30.66	30.72
530.5	500.5	30.54	30.26	30.23
544.0	514.0	29.78	29.50	29.35
557.5	527.5	29.61	29.41	29.35
571.0	541.0	29.80	29.62	29.64
584.5	554.5	29.25	28.98	28.93
598.0	568.0	28.94	28.64	28.55
611.5	581.5	28.80	28.57	28.59
631.8	601.8	28.08	27.82	27.72
645.3	615.3	27.99	27.76	27.67
658.8	628.8	28.15	27.94	28.00
672.3	642.3	27.99	27.73	27.71
679.0	649.0	27.82	27.55	27.56

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+18	+20	+22
49.0	19.0	1.99	1.98	2.02
58.0	28.0	1.90	1.92	1.94
76.0	46.0	1.90	1.91	1.91
94.0	64.0	1.88	1.91	1.92
112.0	82.0	1.99	2.02	2.02
139.0	109.0	2.09	2.09	2.09
157.0	127.0	2.14	2.14	2.14
175.0	145.0	2.24	2.23	2.22
193.0	163.0	2.42	2.40	2.39
211.0	181.0	2.60	2.60	2.58
229.0	199.0	2.85	2.83	2.81
247.0	217.0	2.77	2.73	2.69
265.0	235.0	3.03	2.98	2.94
283.0	253.0	3.33	3.27	3.22
301.0	271.0	3.73	3.66	3.60
328.0	298.0	4.36	4.29	4.25
346.0	316.0	4.80	4.74	4.69
364.0	334.0	5.20	5.14	5.09
382.0	352.0	5.89	5.80	5.76
400.0	370.0	6.60	6.53	6.47
414.0	384.0	7.39	7.25	7.23
424.0	394.0	7.04	6.95	6.90
434.0	404.0	4.02	3.87	3.75
444.0	414.0	4.01	3.91	3.83
454.0	424.0	4.26	4.17	4.08
469.0	439.0	4.63	4.53	4.45
479.0	449.0	4.98	4.87	4.79
489.0	459.0	5.41	5.29	5.22
499.0	469.0	5.84	5.72	5.64
509.0	479.0	6.29	6.17	6.08
519.0	489.0	6.55	6.43	6.36
529.0	499.0	6.85	6.72	6.67
539.0	509.0	7.18	7.07	7.03
549.0	519.0	7.37	7.27	7.22
559.0	529.0	7.57	7.48	7.45
574.0	544.0	8.25	8.14	8.12
584.0	554.0	8.66	8.54	8.55
594.0	564.0	9.28	9.14	9.18
604.0	574.0	9.71	9.57	9.62
609.0	579.0	9.86	9.73	9.75

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+18	+20	+22
19.0	3.20	3.21	3.20
28.0	3.15	3.15	3.15
46.0	3.25	3.25	3.25
64.0	3.22	3.22	3.22
82.0	3.16	3.17	3.17
109.0	3.03	3.04	3.03
127.0	3.00	3.01	3.01
145.0	2.99	2.99	2.99
163.0	2.93	2.93	2.93
181.0	2.85	2.85	2.85
199.0	2.78	2.78	2.78
217.0	2.74	2.74	2.74
235.0	2.72	2.72	2.72
253.0	2.66	2.66	2.66
271.0	2.62	2.62	2.62
298.0	2.54	2.54	2.54
316.0	2.51	2.51	2.51
334.0	2.47	2.46	2.46
352.0	2.40	2.40	2.40
370.0	2.33	2.33	2.33
386.5	2.24	2.23	2.23
401.5	2.17	2.17	2.17
416.5	2.25	2.24	2.24
431.5	2.29	2.28	2.28
446.5	2.30	2.29	2.29
469.0	2.30	2.29	2.29
484.0	2.29	2.29	2.29
499.0	2.30	2.29	2.29
514.0	2.30	2.29	2.29
529.0	2.29	2.28	2.28
544.0	2.28	2.27	2.28
559.0	2.27	2.26	2.27
574.0	2.27	2.26	2.27
589.0	2.27	2.26	2.27
604.0	2.28	2.27	2.27
626.5	2.26	2.25	2.26
641.5	2.26	2.25	2.25
656.5	2.25	2.25	2.25
671.5	2.26	2.25	2.25
679.0	2.26	2.25	2.25

IF (OUT) (MHz)	IF VSWR @LO=370MHz (:1) @LO (dBm)		
	+18	+20	+22
10.0	1.80	1.74	1.83
13.0	1.62	1.65	1.65
16.0	1.57	1.59	1.62
19.0	1.65	1.65	1.69
22.0	1.64	1.66	1.69
26.5	1.63	1.63	1.65
29.5	1.60	1.61	1.63
32.5	1.58	1.61	1.63
35.5	1.58	1.59	1.61
38.5	1.55	1.57	1.59
41.5	1.54	1.56	1.58
44.5	1.54	1.56	1.58
47.5	1.54	1.56	1.58
50.5	1.53	1.54	1.57
53.5	1.53	1.54	1.56
58.0	1.52	1.55	1.57
61.0	1.53	1.55	1.56
64.0	1.54	1.56	1.58
67.0	1.54	1.56	1.59
70.0	1.55	1.57	1.59
78.1	1.57	1.59	1.60
84.4	1.56	1.59	1.60
90.6	1.57	1.59	1.61
100.0	1.61	1.63	1.65
103.1	1.61	1.63	1.65
112.5	1.59	1.60	1.63
118.8	1.57	1.58	1.60
125.0	1.56	1.58	1.59
131.3	1.57	1.58	1.60
137.5	1.58	1.60	1.61
143.8	1.61	1.62	1.63
150.0	1.61	1.63	1.64
156.3	1.62	1.64	1.65
162.5	1.62	1.64	1.65
168.8	1.62	1.63	1.64
178.1	1.61	1.62	1.64
184.4	1.62	1.63	1.64
190.6	1.61	1.63	1.64
196.9	1.63	1.64	1.65
200.0	1.62	1.63	1.64

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	--	--	21.62	32.03	28.38	26.73	33.58	38.76	44.81	55.49	48.24	75.10
1	--	36.81	--	46.89	10.92	41.10	18.43	58.15	17.54	48.33	23.39	49.75
2	94.46	53.38	64.69	58.29	77.60	54.68	75.90	59.35	60.33	62.31	60.19	69.27
3	108.15	69.27	52.34	64.74	61.84	69.17	51.14	61.94	53.10	76.41	56.63	66.85
4	125.41	86.89	87.76	69.82	87.60	73.01	86.51	69.36	87.01	71.38	84.41	77.69
5	125.59	86.71	82.12	90.38	76.28	81.73	74.07	88.13	71.70	79.94	69.87	84.32
6	124.53	96.19	101.63	94.31	109.32	89.30	98.73	92.65	101.86	92.18	97.83	92.34
7	123.52	95.59	99.03	98.94	91.82	91.79	96.28	94.97	87.07	97.90	90.69	94.44
8	125.23	97.87	97.65	96.72	97.13	95.77	103.03	95.65	93.21	91.66	96.17	94.06
9	122.97	96.24	98.15	98.20	97.03	95.28	97.97	93.86	98.69	90.97	89.23	92.46
10	124.81	99.06	95.16	99.99	95.53	97.44	95.54	97.28	99.07	107.98	93.85	94.15
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 220.00 MHz; 0 dBm.**
LO IN: 190.01 MHz; +20.00 dBm
IF OUT: 30.00 MHz; -7.15 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	---	--	31.65	41.69	38.10	36.51	41.45	43.20	50.33	49.85	64.24	50.24
1	---	36.65	--	45.60	11.24	44.27	18.01	53.34	18.87	53.50	25.90	63.12
2	74.31	45.89	63.56	52.61	68.11	49.70	63.62	59.81	70.17	59.14	68.26	55.93
3	77.40	61.60	40.18	64.77	43.04	66.69	36.93	65.26	40.39	63.97	41.01	63.21
4	111.99	68.81	68.36	59.71	74.90	62.00	75.36	56.77	75.25	59.46	64.94	63.28
5	111.33	77.49	59.41	73.19	51.70	75.44	56.68	77.49	54.10	72.81	52.43	73.74
6	111.32	75.14	79.54	85.88	95.10	66.42	80.55	67.96	82.96	69.01	76.15	66.41
7	110.08	80.27	80.10	80.64	76.09	82.40	67.28	75.20	67.79	84.03	66.06	74.96
8	110.83	83.02	74.33	90.41	75.55	87.26	83.57	84.20	75.44	77.30	81.72	79.72
9	111.50	84.75	78.38	85.89	79.16	84.92	83.45	91.24	76.82	78.18	72.15	82.49
10	110.15	80.48	70.06	79.78	70.75	81.63	71.26	84.33	76.85	81.79	68.94	77.88
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 220.00 MHz; 10 dBm.**
LO IN: 190.01 MHz; +20.00 dBm
IF OUT: 30.00 MHz; 3.03 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 represents the Harmonics level of the RF Input Signal to the mixer