Frequency Mixer HJK-ED9535/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=44MHz (dB) @LO (dBm)		
		+14	+17	+20
54.1	10.1	13.07	10.97	11.99
61.1	17.1	9.38	8.39	9.47
68.1	24.1	8.24	7.67	8.42
75.1	31.1	7.80	7.36	7.90
82.1	38.1	7.47	7.12	7.49
89.1	45.1	6.62	6.36	6.55
96.1	52.1	7.31	6.95	7.19
103.1	59.1	7.33	6.95	7.09
110.1	66.1	7.18	6.87	6.87
117.1	73.1	7.01	6.77	6.75
124.1	80.1	6.96	6.77	6.78
131.1	87.1	6.94	6.78	6.86
138.1	94.1	6.91	6.76	6.84
145.1	101.1	6.93	6.78	6.80
151.1	107.1	7.05	6.87	6.86
158.1	114.1	7.21	7.02	7.01
164.1	120.1	7.31	7.11	7.11
171.1	127.1	7.46	7.25	7.24
177.1	133.1	7.66	7.42	7.40
184.1	140.1	7.91	7.64	7.64
190.1	146.1	8.04	7.76	7.77
197.1	153.1	8.17	7.85	7.90
203.1	159.1	8.34	7.97	8.08
210.1	166.1	8.55	8.13	8.28
216.1	172.1	8.65	8.22	8.38
223.1	179.1	8.71	8.25	8.44
229.1	185.1	8.80	8.30	8.52
236.1	192.1	8.99	8.46	8.69
242.1	198.1	9.11	8.56	8.80
249.1	205.1	9.22	8.63	8.90
255.1	211.1	9.36	8.77	9.06
262.1	218.1	9.65	9.02	9.29
268.1	224.1	9.88	9.22	9.53
275.1	231.1	10.10	9.37	9.71
281.1	237.1	10.32	9.54	9.89
288.1	244.1	10.60	9.78	10.17
294.1	250.1	10.85	9.97	10.36
301.1	257.1	11.02	10.09	10.52
307.1	263.1	11.19	10.17	10.60
314.1	270.1	11.36	10.28	10.71

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+14	+17	+20
54.1	10.1	10.82	14.54	17.81
61.1	17.1	20.21	24.02	23.16
68.1	24.1	25.75	28.13	26.50
75.1	31.1	26.02	28.01	26.06
82.1	38.1	27.15	28.39	26.74
89.1	45.1	24.59	26.89	27.47
96.1	52.1	28.10	30.03	34.61
103.1	59.1	29.95	30.42	32.32
110.1	66.1	31.59	29.80	31.58
117.1	73.1	28.73	29.62	31.24
124.1	80.1	28.83	31.49	28.52
131.1	87.1	30.21	33.21	28.08
138.1	94.1	30.27	33.49	28.65
145.1	101.1	29.60	33.47	28.74
151.1	107.1	29.50	33.28	30.87
158.1	114.1	30.68	35.50	32.50
164.1	120.1	30.89	36.02	34.29
171.1	127.1	30.29	35.23	37.45
177.1	133.1	30.55	35.16	37.62
184.1	140.1	31.88	40.19	36.35
190.1	146.1	32.00	39.84	34.64
197.1	153.1	30.53	36.76	33.44
203.1	159.1	29.77	35.94	33.33
210.1	166.1	30.70	38.29	31.61
216.1	172.1	31.45	38.83	30.66
223.1	179.1	29.87	34.23	30.02
229.1	185.1	28.06	32.74	29.70
236.1	192.1	27.95	32.27	28.94
242.1	198.1	28.33	33.37	28.47
249.1	205.1	27.51	32.68	28.39
255.1	211.1	26.63	30.70	28.38
262.1	218.1	26.44	31.18	28.13
268.1	224.1	27.16	33.00	27.73
275.1	231.1	27.08	32.60	27.75
281.1	237.1	25.82	30.04	27.30
288.1	244.1	25.19	28.63	26.64
294.1	250.1	25.44	28.59	26.32
301.1	257.1	25.74	28.52	26.07
307.1	263.1	24.98	27.66	25.73
314.1	270.1	24.32	26.85	25.37

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=0dBm (dB) @LO (dBm)		
		+14	+17	+20
54.1	10.1	-2.75	-0.86	0.70
61.1	17.1	-0.25	-0.11	0.52
68.1	24.1	-0.08	-0.02	0.33
75.1	31.1	-0.02	-0.03	0.24
82.1	38.1	-0.02	0.00	0.14
89.1	45.1	0.00	0.02	0.10
96.1	52.1	-0.04	-0.01	0.12
103.1	59.1	-0.01	0.02	0.08
110.1	66.1	-0.01	0.03	0.03
117.1	73.1	0.01	0.02	0.02
124.1	80.1	0.00	0.01	-0.01
131.1	87.1	0.00	-0.01	-0.08
138.1	94.1	-0.01	0.00	-0.05
145.1	101.1	0.02	0.01	-0.03
151.1	107.1	0.00	-0.01	-0.02
158.1	114.1	0.00	0.01	0.02
164.1	120.1	0.01	0.01	0.01
171.1	127.1	-0.01	0.00	0.00
177.1	133.1	0.01	0.00	0.02
184.1	140.1	0.00	0.00	0.02
190.1	146.1	0.01	-0.01	0.02
197.1	153.1	0.02	-0.01	0.02
203.1	159.1	0.00	0.00	0.03
210.1	166.1	0.01	0.01	0.04
216.1	172.1	-0.01	0.00	0.01
223.1	179.1	0.00	0.01	0.02
229.1	185.1	0.00	0.00	0.02
236.1	192.1	0.00	-0.01	0.03
242.1	198.1	0.01	0.00	0.02
249.1	205.1	0.01	0.00	0.03
255.1	211.1	0.01	-0.02	0.02
262.1	218.1	0.00	-0.01	0.01
268.1	224.1	0.00	-0.01	0.02
275.1	231.1	0.01	0.00	0.03
281.1	237.1	0.03	0.00	0.02
288.1	244.1	0.01	0.00	0.03
294.1	250.1	0.03	0.01	0.03
301.1	257.1	0.02	0.00	0.03
307.1	263.1	0.02	0.01	0.03
314.1	270.1	0.03	0.00	0.03

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=154MHz (dB) @LO (dBm) +17
140.0	14.0	9.99
134.0	20.0	8.53
127.9	26.1	7.88
121.9	32.1	7.61
115.8	38.2	7.28
109.8	44.2	7.26
103.7	50.3	7.11
97.7	56.3	7.00
91.6	62.4	6.91
85.6	68.4	6.87
79.5	74.5	6.82
73.5	80.5	6.65
67.4	86.6	6.78
61.4	92.6	6.73
55.3	98.7	6.88
49.3	104.7	6.89
43.3	110.7	6.96
37.2	116.8	6.95
31.2	122.8	7.01
25.1	128.9	7.00
19.1	134.9	6.91
10.0	144.0	7.17
16.6	170.6	7.03
36.4	190.4	6.99
49.5	203.5	7.02
69.3	223.3	7.03
82.5	236.5	7.16
102.3	256.3	7.31
115.5	269.5	7.49
135.2	289.2	7.55
148.4	302.4	7.55
168.2	322.2	7.75
181.4	335.4	7.91
201.1	355.1	8.33
214.3	368.3	8.56
234.1	388.1	8.87
247.3	401.3	9.12
267.0	421.0	9.70
280.2	434.2	10.15
300.0	454.0	10.74

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=108MHz (dB) @LO (dBm) +17
10.1	118.1	7.02
20.1	128.1	6.81
30.1	138.1	6.69
40.1	148.1	6.67
50.1	158.1	6.71
60.1	168.1	6.70
70.1	178.1	6.68
80.1	188.1	6.75
90.1	198.1	6.76
100.1	208.1	6.69
110.1	218.1	6.78
120.1	228.1	6.93
130.1	238.1	6.97
140.1	248.1	7.01
150.1	258.1	7.12
160.1	268.1	7.33
170.1	278.1	7.33
180.1	288.1	7.36
190.1	298.1	7.38
200.1	308.1	7.42
210.1	318.1	7.47
215.1	323.1	7.55
225.1	333.1	7.70
230.1	338.1	7.79
240.1	348.1	8.02
245.1	353.1	8.15
255.1	363.1	8.32
260.1	368.1	8.43
270.1	378.1	8.64
275.1	383.1	8.73
285.1	393.1	8.93
290.1	398.1	9.01
300.1	408.1	9.32
305.1	413.1	9.47
315.1	423.1	9.80
320.1	428.1	9.97
330.1	438.1	10.30
335.1	443.1	10.43
345.1	453.1	10.75
350.1	458.1	10.88

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=190MHz (dB) @LO (dBm) +17
174.0	16.0	10.32
170.0	20.0	9.40
166.0	24.0	8.83
162.0	28.0	8.49
158.0	32.0	8.26
154.0	36.0	8.12
150.0	40.0	7.96
146.0	44.0	7.98
142.0	48.0	7.82
138.0	52.0	7.84
134.0	56.0	7.75
130.0	60.0	7.71
126.0	64.0	7.64
122.0	68.0	7.53
118.0	72.0	7.50
114.0	76.0	7.34
110.0	80.0	7.33
106.0	84.0	7.29
102.0	88.0	7.33
98.0	92.0	7.32
94.0	96.0	6.81
90.0	100.0	7.37
86.0	104.0	7.43
82.0	108.0	7.50
78.0	112.0	7.57
74.0	116.0	7.58
70.0	120.0	7.59
66.0	124.0	7.58
62.0	128.0	7.64
58.0	132.0	7.76
54.0	136.0	7.61
50.0	140.0	7.76
46.0	144.0	7.79
40.0	150.0	7.73
36.0	154.0	7.76
30.0	160.0	7.76
26.0	164.0	7.73
20.0	170.0	7.88
16.0	174.0	7.84
10.0	180.0	8.08

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+14	+17	+20	+14	+17	+20
10.1	71.08	72.19	80.01	80.97	75.96	76.88
17.1	65.37	65.97	66.05	67.45	65.07	67.59
24.1	61.49	62.23	61.52	63.85	62.29	64.45
31.1	58.86	58.51	58.08	63.26	61.69	63.93
38.1	56.48	56.71	56.26	64.05	61.57	64.24
45.1	54.60	54.70	54.55	62.75	60.34	63.35
52.1	53.06	53.26	53.35	59.29	58.12	59.82
59.1	50.86	50.99	51.07	55.64	55.58	56.14
66.1	49.62	49.66	49.85	51.55	51.99	52.21
73.1	48.20	48.16	48.68	49.16	49.82	50.03
80.1	46.72	46.69	47.20	46.10	46.83	46.61
87.1	45.69	45.98	46.75	44.91	45.67	45.73
94.1	45.54	45.88	46.78	43.10	43.73	44.05
101.1	45.18	45.55	46.49	42.09	42.77	43.08
107.1	44.83	45.20	46.28	41.08	41.65	42.03
114.1	44.81	45.16	46.25	40.37	40.99	41.47
120.1	45.22	45.49	46.58	39.83	40.29	40.72
127.1	45.85	46.08	47.06	39.56	40.12	40.48
133.1	45.79	46.04	46.94	39.38	39.91	40.11
140.1	46.01	46.30	47.24	39.02	39.45	39.66
146.1	46.96	47.34	48.22	38.85	39.38	39.36
153.1	47.59	47.83	48.61	38.48	38.91	38.96
159.1	47.81	47.80	48.53	38.46	38.84	38.88
166.1	48.07	47.67	48.42	38.40	38.74	38.77
172.1	48.49	47.99	48.76	38.48	38.92	38.93
179.1	49.24	48.50	49.24	38.40	38.75	38.68
185.1	49.24	48.49	49.22	38.36	38.70	38.63
192.1	49.31	48.46	49.40	38.14	38.52	38.57
198.1	49.61	48.80	49.66	38.19	38.53	38.51
205.1	50.23	49.44	50.44	38.27	38.52	38.58
211.1	50.56	50.01	51.04	38.24	38.64	38.72
218.1	50.98	50.53	51.68	38.35	38.72	38.81
224.1	51.24	50.70	51.93	38.30	38.69	38.78
231.1	51.56	50.88	52.15	38.39	38.73	38.85
237.1	51.77	50.85	52.15	38.35	38.76	38.86
244.1	51.53	50.30	51.81	38.45	38.95	39.11
250.1	51.64	49.99	51.47	38.42	38.93	39.07
257.1	52.13	50.08	51.82	38.50	39.02	39.19
263.1	52.47	49.96	51.82	38.50	38.95	39.18
270.1	52.31	49.40	51.21	38.51	38.94	39.20

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+14	+17	+20
54.1	10.1	64.84	69.58	45.96
61.1	17.1	52.40	47.55	49.09
68.1	24.1	52.48	45.90	38.16
75.1	31.1	61.09	58.29	42.21
82.1	38.1	47.56	44.20	52.24
89.1	45.1	44.27	41.06	45.06
96.1	52.1	59.95	60.61	45.93
103.1	59.1	69.83	60.70	44.22
110.1	66.1	53.46	55.61	69.86
117.1	73.1	51.42	53.60	51.60
124.1	80.1	54.90	59.23	51.53
131.1	87.1	68.77	62.35	58.73
138.1	94.1	66.32	58.12	57.14
145.1	101.1	69.93	63.00	54.15
151.1	107.1	73.97	58.26	64.69
158.1	114.1	72.29	56.37	65.48
164.1	120.1	64.88	53.79	59.22
171.1	127.1	74.37	55.01	61.71
177.1	133.1	69.53	55.14	71.87
184.1	140.1	71.12	57.52	62.39
190.1	146.1	76.45	54.12	61.00
197.1	153.1	65.20	50.64	50.68
203.1	159.1	66.23	50.79	50.47
210.1	166.1	59.57	52.22	52.51
216.1	172.1	54.36	56.42	57.35
223.1	179.1	51.26	59.33	65.54
229.1	185.1	51.67	55.77	58.83
236.1	192.1	53.02	52.04	54.16
242.1	198.1	53.88	51.09	52.43
249.1	205.1	53.83	50.15	52.31
255.1	211.1	53.12	52.06	55.82
262.1	218.1	52.65	52.85	58.79
268.1	224.1	55.06	49.80	52.96
275.1	231.1	54.93	47.74	50.44
281.1	237.1	53.41	47.98	50.54
288.1	244.1	50.74	48.98	51.51
294.1	250.1	48.18	52.26	54.10
301.1	257.1	46.42	59.47	60.25
307.1	263.1	45.76	60.37	59.52
314.1	270.1	45.62	58.62	57.31

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+14	+17	+20
54.1	10.1	2.41	1.94	2.15
61.1	17.1	1.69	1.44	1.68
68.1	24.1	1.46	1.33	1.50
75.1	31.1	1.40	1.31	1.43
82.1	38.1	1.42	1.35	1.44
89.1	45.1	1.47	1.40	1.48
101.1	57.1	1.57	1.51	1.56
103.1	59.1	1.58	1.52	1.57
110.1	66.1	1.63	1.59	1.60
117.1	73.1	1.70	1.66	1.64
124.1	80.1	1.78	1.73	1.69
131.1	87.1	1.86	1.80	1.73
138.1	94.1	1.95	1.87	1.79
145.1	101.1	2.06	1.97	1.89
151.1	107.1	2.16	2.07	1.98
158.1	114.1	2.29	2.17	2.10
164.1	120.1	2.39	2.27	2.19
171.1	127.1	2.54	2.40	2.34
177.1	133.1	2.65	2.50	2.46
184.1	140.1	2.79	2.62	2.61
190.1	146.1	2.92	2.75	2.77
197.1	153.1	3.10	2.90	2.98
203.1	159.1	3.26	3.04	3.18
210.1	166.1	3.47	3.22	3.42
216.1	172.1	3.65	3.39	3.62
223.1	179.1	3.87	3.56	3.86
229.1	185.1	4.07	3.73	4.06
236.1	192.1	4.29	3.93	4.30
242.1	198.1	4.46	4.08	4.48
249.1	205.1	4.67	4.24	4.69
255.1	211.1	4.86	4.41	4.89
262.1	218.1	5.10	4.61	5.12
268.1	224.1	5.30	4.78	5.33
275.1	231.1	5.59	5.00	5.61
281.1	237.1	5.85	5.20	5.85
288.1	244.1	6.17	5.47	6.17
294.1	250.1	6.51	5.75	6.49
301.1	257.1	6.86	6.03	6.81
307.1	263.1	7.22	6.30	7.11
314.1	270.1	7.56	6.58	7.41

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+14	+17	+20
10.1	10.31	10.37	10.50
17.1	2.98	2.97	3.00
24.1	3.29	3.30	3.33
31.1	3.81	3.82	3.86
38.1	5.33	5.34	5.41
45.1	7.56	7.60	7.73
57.1	15.39	15.13	14.74
59.1	11.31	11.24	11.03
66.1	5.70	5.65	5.58
73.1	3.37	3.35	3.29
80.1	2.18	2.17	2.11
87.1	1.50	1.49	1.44
94.1	1.30	1.30	1.29
101.1	1.61	1.62	1.64
107.1	2.06	2.07	2.11
114.1	2.75	2.78	2.81
120.1	3.49	3.53	3.56
127.1	4.30	4.34	4.34
133.1	4.93	4.98	4.96
140.1	5.93	5.97	5.91
146.1	6.94	7.00	6.89
153.1	8.51	8.55	8.39
159.1	9.74	9.85	9.58
166.1	9.90	9.96	9.74
172.1	9.74	9.79	9.58
179.1	10.19	10.25	10.02
185.1	11.09	11.17	10.89
192.1	12.01	12.09	11.77
198.1	12.44	12.52	12.18
205.1	12.26	12.35	11.93
211.1	12.01	12.01	11.69
218.1	12.01	12.01	11.69
224.1	12.52	12.61	12.18
231.1	13.29	13.29	12.89
237.1	13.39	13.39	12.99
244.1	12.71	12.80	12.44
250.1	12.26	12.35	12.01
257.1	12.18	12.18	11.85
263.1	12.35	12.35	12.01
270.1	12.44	12.44	12.18

IF (OUT) (MHz)	IF VSWR @LO=190MHz (:1) @LO (dBm)		
	+14	+17	+20
10.0	1.27	1.13	1.33
14.0	1.28	1.14	1.34
18.0	1.27	1.12	1.33
22.0	1.26	1.11	1.32
26.0	1.24	1.10	1.29
30.0	1.25	1.11	1.30
34.0	1.27	1.13	1.32
38.0	1.28	1.14	1.33
42.0	1.29	1.14	1.34
46.0	1.27	1.12	1.33
50.0	1.26	1.11	1.31
54.0	1.25	1.11	1.30
58.0	1.27	1.13	1.33
62.0	1.30	1.16	1.35
66.0	1.31	1.17	1.37
70.0	1.32	1.17	1.37
74.0	1.31	1.16	1.37
78.0	1.29	1.14	1.35
82.0	1.30	1.15	1.36
86.0	1.32	1.17	1.38
90.0	1.35	1.20	1.41
94.0	1.36	1.21	1.43
98.0	1.35	1.20	1.42
102.0	1.33	1.18	1.40
106.0	1.32	1.16	1.39
110.0	1.32	1.17	1.39
114.0	1.34	1.19	1.41
120.0	1.36	1.20	1.43
124.0	1.36	1.20	1.43
130.0	1.33	1.17	1.40
134.0	1.31	1.16	1.38
140.0	1.33	1.18	1.40
144.0	1.35	1.20	1.42
150.0	1.36	1.20	1.43
154.0	1.34	1.18	1.42
160.0	1.32	1.17	1.40
164.0	1.32	1.17	1.40
170.0	1.35	1.20	1.43
174.0	1.36	1.20	1.44
180.0	1.33	1.16	1.41

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	18	23	30	25	45	25	30	25	31	24
1	-	41	+0	44	10	51	19	42	37	41	31	44
2	65	41	54	38	54	46	53	45	54	47	58	50
3	>90	53	45	53	45	54	38	55	41	56	51	59
4	>90	37	41	19	50	10	44	+0	41	+0	40	14
5	>90	30	25	48	25	29	23	18	+7	18	23	29
6	>90	28	38	27	38	14	40	+0	41	+0	44	10
7	>90	66	49	58	49	59	51	55	41	54	38	54
8	>90	61	62	56	62	50	58	46	53	45	54	46
9	>90	48	34	54	31	43	31	41	36	41	19	50
10	>90	40	46	30	33	24	30	25	30	25	49	25
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 154 MHz; 0.00 dBm.**
LO IN: 110 MHz; +17.00 dBm
IF OUT: 44 MHz; -7.3 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	28	32	42	36	50	33	40	33	41	32
1	-	41	+0	44	10	51	19	43	31	42	32	44
2	45	31	54	29	55	34	52	37	53	39	57	41
3	67	53	37	52	34	55	29	54	31	51	39	52
4	>90	31	43	18	51	10	44	+0	41	+0	41	13
5	>90	40	33	50	36	42	32	28	3	28	32	42
6	>90	28	39	24	39	13	41	+0	41	+0	44	10
7	>90	70	38	55	42	52	38	50	30	53	29	55
8	>90	47	61	44	59	42	58	40	53	37	52	34
9	>90	53	35	59	33	45	33	44	33	44	21	61
10	>90	61	53	40	44	33	41	33	41	34	49	37
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 154 MHz; 10.00 dBm.**
LO IN: 110 MHz; +17.00 dBm
IF OUT: 44 MHz; 2.69 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.