

Frequency Mixers

LEVEL 13 (+13dBm LO, up to +9dBm RF)

Model
ZEM-4300MH

T-74-09-01



computer-automated performance data
typical production unit / for data of other models consult factory

mixer conversion loss and isolation

RF MHz	LO MHz	Conversion Loss (dB)			FREQ. (MHz)	Isolation L-R (dB)			Isolation L-I (dB)		
		LO +10 dBm	LO +13 dBm	LO +16 dBm		LO +10 dBm	LO +13 dBm	LO +16 dBm	LO +10 dBm	LO +13 dBm	LO +16 dBm
300.000	500.000	7.57	7.02	6.67	300.000	43.35	42.09	40.49	11.43	9.54	8.77
500.000	700.000	8.37	6.66	6.00	500.000	37.14	33.47	33.25	8.74	9.04	10.15
575.860	775.862	7.38	6.30	5.60	575.860	37.70	35.56	35.06	8.18	9.47	11.38
600.000	800.000	7.34	6.62	5.88	600.000	37.59	35.00	34.05	8.22	9.79	11.86
989.660	789.655	7.80	6.61	5.89	989.660	38.03	36.09	34.58	14.54	17.49	19.75
1000.000	800.000	7.61	6.53	5.99	1000.000	38.18	36.06	34.71	14.52	17.37	19.48
1403.450	1203.448	6.77	6.30	6.02	1403.450	31.74	32.65	33.06	15.13	14.72	14.13
1679.310	1479.310	6.07	5.89	5.60	1679.310	36.70	39.70	41.55	17.17	19.11	20.80
2000.000	1800.000	6.80	6.16	5.89	2000.000	33.37	34.09	34.46	21.40	23.50	24.76
2093.100	1893.103	7.06	6.43	5.91	2093.100	33.03	33.26	33.41	22.06	23.82	24.49
2231.030	2031.035	7.11	6.54	6.15	2231.030	32.10	32.41	32.35	23.59	25.64	25.83
2368.970	2168.966	6.71	6.30	6.03	2368.970	31.01	31.34	31.40	24.92	28.66	29.56
2506.900	2306.897	6.64	6.24	5.91	2506.900	29.33	29.89	30.01	22.30	27.33	32.64
2920.690	2720.690	6.63	6.23	5.91	2920.690	27.36	27.73	28.35	15.11	17.77	20.51
3000.000	2800.000	6.54	6.20	5.89	3000.000	25.60	26.08	26.50	13.82	16.39	18.66
3334.480	3134.483	6.54	6.22	6.15	3334.480	26.40	27.73	29.51	15.10	15.67	14.59
3610.340	3410.345	7.35	6.38	6.20	3610.340	29.54	30.12	32.02	16.80	13.56	10.92
4000.000	3800.000	6.98	6.47	6.37	4000.000	30.72	33.12	34.86	11.63	10.27	9.25
4162.070	3962.069	6.89	6.54	6.24	4162.070	31.76	35.73	39.24	10.73	10.47	10.18
4300.000	4100.000	7.00	6.83	6.66	4300.000	34.27	39.65	43.08	11.43	11.87	11.95

mixer VSWR

φ detection

FREQ. (MHz)	VSWR RF port			VSWR LO port			FREQ. (MHz)	VSWR IF port			FREQ. (MHz)	max DC output mV	DC offset mV
	LO +10 dBm	LO +13 dBm	LO +16 dBm	LO +10 dBm	LO +13 dBm	LO +16 dBm		LO +10 dBm	LO +13 dBm	LO +16 dBm			
300.000	2.29	2.21	2.06	7.63	5.54	4.24	5.000	1.13	1.33	1.49	300.000	-310.80	6.58
500.000	3.42	3.20	2.94	12.26	5.20	3.78	12.500	1.12	1.32	1.48	500.000	-387.70	2.49
600.000	3.47	3.19	2.90	11.93	5.14	4.27	20.000	1.12	1.32	1.48	575.860	-434.10	2.32
733.330	2.74	2.55	2.34	7.80	6.32	6.63	50.000	1.11	1.30	1.45	600.000	-457.50	2.75
1000.000	1.78	1.64	1.56	3.81	4.48	5.99	95.450	1.06	1.23	1.37	989.660	-287.88	-0.77
1166.670	2.81	2.66	2.48	2.35	3.06	4.03	100.000	1.05	1.22	1.36	1000.000	-313.30	-5.56
1455.560	5.89	5.34	4.91	1.78	2.48	3.34	185.910	1.07	1.09	1.21	1403.450	-165.40	-10.71
1744.440	4.73	4.31	3.90	3.30	4.59	7.44	200.000	1.10	1.06	1.18	1679.310	-48.66	-12.26
2000.000	2.81	2.63	2.55	2.44	2.77	3.62	276.360	1.22	1.09	1.13	2000.000	2.35	-10.07
2100.000	2.62	2.48	2.40	1.84	1.88	2.33	366.820	1.42	1.31	1.32	2093.100	74.80	-5.66
2177.780	2.57	2.42	2.35	1.83	1.88	2.30	457.270	1.63	1.60	1.65	2231.030	136.41	-9.20
2200.000	2.50	2.35	2.29	1.85	1.89	2.33	487.420	1.72	1.72	1.79	2368.970	218.78	-5.88
2466.670	2.44	2.26	2.15	1.77	1.90	2.34	500.000	1.74	1.76	1.83	2506.900	288.56	-4.73
2755.560	2.51	2.30	2.17	2.25	2.41	3.01	547.730	1.84	1.94	2.05	2920.690	401.60	-3.67
3000.000	2.45	2.29	2.17	2.21	2.23	2.63	638.180	2.01	2.28	2.47	3000.000	364.70	-1.95
3188.890	2.42	2.29	2.20	3.37	3.01	3.32	728.640	2.09	2.51	2.81	3334.480	535.80	11.35
3500.000	1.89	1.82	1.78	3.82	2.73	2.36	819.090	2.02	2.45	2.78	3610.340	512.70	11.36
3911.110	2.57	2.35	2.18	2.49	1.84	1.71	909.550	1.91	2.21	2.51	4000.000	498.80	4.45
4055.560	2.51	2.27	2.09	2.17	2.41	2.84	969.850	1.87	2.04	2.21	4162.070	454.50	-12.32
4200.000	2.58	2.30	2.08	2.39	3.08	3.75	1000.000	1.94	2.03	2.13	4300.000	349.10	-18.78

300-4300 MHz

Mini-Circuits

ULTRA-REL™ MIXERS

5-YR. GUARANTEE *

mixer harmonic intermodulation

T-74-09-01

(relative to desired IF output)

RF CAL												
0	-	-	+5	26	+4	38	17	38	35	46	33	52
1	-	23	0	45	31	37	50	45	35	40	48	48
2	94	51	56	52	50	67	49	67	54	> 67	60	66
3	87	70	72	77	62	77	77	70	> 72	70	63	> 67
4	88	> 73	> 80	> 76	> 73	> 72	> 77	> 80	> 73	> 72	> 73	> 67
5	> 89	> 73	72	79	76	> 73	> 73	> 78	> 79	> 73	> 73	> 72
6	> 89	> 73	71	> 73	> 80	> 78	> 72	> 73	74	78	> 74	> 74
7	> 84	> 67	> 73	> 73	> 73	> 80	77	> 72	> 74	74	> 80	71
8	> 84	> 68	64	> 73	> 73	> 73	> 79	> 78	71	> 78	> 76	> 73
9	> 84	67	> 67	> 68	> 73	> 72	> 72	> 80	> 78	> 79	> 79	> 79
10	> 78	59	65	> 66	> 67	> 74	> 74	> 72	> 80	> 79	> 80	> 78
	0	1	2	3	4	5	6	7	8	9	10	
Harmonic LO Order												

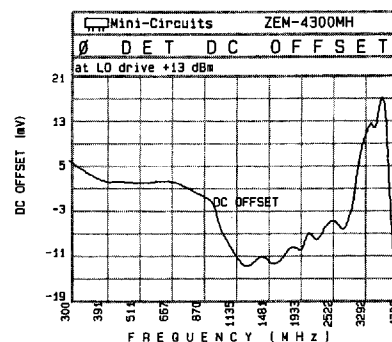
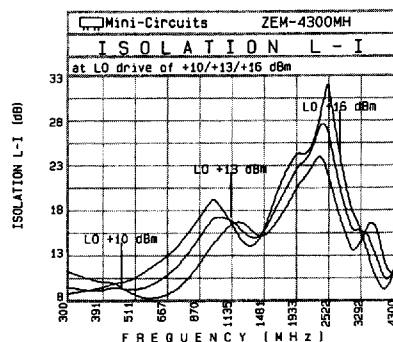
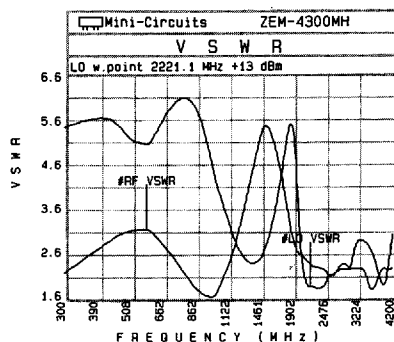
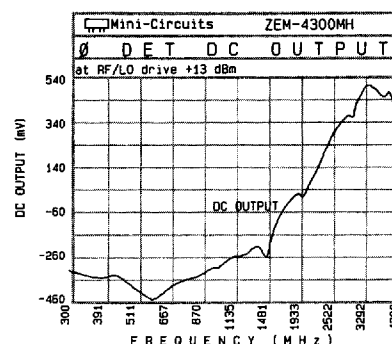
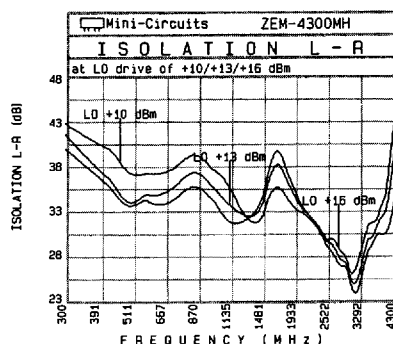
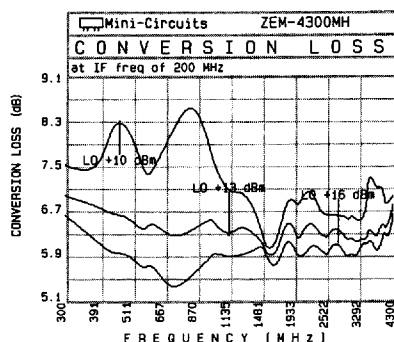
RF CAL												
0	-	-	5	37	6	48	29	48	67	58	44	70
1	-	23	0	46	31	40	51	48	38	43	53	59
2	> 96	43	47	46	42	63	42	62	48	61	55	73
3	> 90	66	63	66	44	68	64	61	69	68	51	57
4	> 90	79	78	64	81	60	63	81	65	74	64	67
5	> 89	> 82	77	84	75	72	63	85	83	75	> 83	> 83
6	> 89	> 82	82	> 83	> 89	82	76	73	79	> 91	80	81
7	> 83	77	> 83	80	> 82	> 90	87	80	83	81	87	> 83
8	> 84	> 77	77	> 83	80	> 83	> 89	88	82	87	> 87	> 83
9	> 84	75	> 77	> 77	> 84	> 84	81	> 89	> 88	> 88	87	> 90
10	> 79	> 72	> 78	> 76	77	> 82	> 83	> 82	88	> 88	87	> 89
	0	1	2	3	4	5	6	7	8	9	10	
Harmonic LO Order												

test condition: RF IN: 1980.10 MHz; -9.93 DBM
LO IN: 2180.01 MHz; +12.96 DBM
IF OUT: 199.91 MHz; -16.31 DBM

test condition: RF IN: 1980.10 MHz; -.02 DBM
LO IN: 2180.01 MHz; +12.96 DBM
IF OUT: 199.91 MHz; -6.46 DBM

typical performance curves

(production unit)



In Stock...Immediate Delivery