

**CERTIFICATE OF
 CALIBRATION**



Certificate No. ACT-1272

CERTIFICATION NUMBER	CP134-00262-840	IDENTIFICATION	EL-047A
FOR	Sample Manufacturing 3121 Medalist Drive Oshkosh, WI 54902	SERIAL NUMBER	262
TEST INSTRUMENT	Analyzer Distortion	PURCHASE ORDER #	
MAKE	Keysight	PROCEDURES FOLLOWED	EL-047A rev. 1
MODEL	334A	STANDARDS USED	
CUSTOMER LOCATION	Location1 Location2	INSTRUMENT	SERIAL NUMBER
CONDITION RECEIVED	In Tolerance	FVS-275E	16783134
CONDITION RETURNED	In Tolerance	FVS-A17	6500607
CALIBRATED BY	Brian L Gliszinski	TRACE NUMBER	NEXT CAL
REVIEWED/ISSUED	D.P. 07/29/2025	C0134-20963-690	07/31/2025
CALIBRATION LOCATION	FVM	C0124-28340-524	07/31/2025
ENVIRONMENT	69.0°F, 31.0%RH, 28.92inHg		
CALIBRATION DATE	05/14/2025		
RECALIBRATION DUE	05/14/2026		



CALIBRATION RESULTS

* DENOTES "OUT OF TOLERANCE"

FEATURE	NOMINAL	LOWER LIMIT	UPPER LIMIT	AS FOUND	AS LEFT	UNCERTAINTY
Second Harmonic						
Setting / Applied	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
10Hz / 20Hz	0.5	0.0	1.0	0.5	0.5	6.0E-2
20Hz / 40Hz	0.0	-0.6	0.6	0.0	0.0	6.0E-2
20KHz / 40KHz	-0.5	-1.0	0.0	-0.5	-0.5	6.0E-2
100KHz / 200KHz	-1.0	-2.0	0.0	-1.0	-1.0	6.0E-2
300KHz / 600KHz	-1.5	-3.0	0.0	-1.5	-1.5	6.0E-2
500KHz / 1MHz	-1.5	-3.0	0.0	-1.5	-1.5	6.0E-2
Automatic Nulling						
25 Hz	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	
500 Hz	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	
5 KHz	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	
50 KHz	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	
250 KHz	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	
500 KHz	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	
Frequency Dial						
Dial - Range	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
10 - X1	10.00	9.50	10.50	10.00	10.00	6.0E-3
20 - X1	20.00	19.00	21.00	20.00	20.00	6.0E-3
50 - X1	50.00	47.50	52.50	50.00	50.00	6.0E-3
5 - X10	50.00	47.50	52.50	50.00	50.00	6.0E-3
20 - X10	200.0	190.0	210.0	200.0	200.0	6.0E-2
60 - X10	600.0	570.0	630.0	600.0	600.0	6.0E-2
5 - X100	500.0	475.0	525.0	500.0	500.0	6.0E-2

Fox Valley Metrology

3114 Medalist Drive

Oshkosh, WI 54902

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FEATURE	NOMINAL	LOWER LIMIT	UPPER LIMIT	AS FOUND	AS LEFT	UNCERTAINTY
	(KHz)	(KHz)	(KHz)	(KHz)	(KHz)	(KHz)
20 - X100	2.000	1.900	2.100	2.000	2.000	6.0E-4
60 - X100	6.000	5.700	6.300	6.000	6.000	6.0E-4
5 - X1K	5.000	4.750	5.250	5.000	5.000	6.0E-4
20 - X1K	20.00	19.00	21.00	20.00	20.00	6.0E-3
60 - X1K	60.00	57.00	63.00	60.00	60.00	6.0E-3
5 - X10K	50.00	47.50	52.50	50.00	50.00	6.0E-3
20 - X10K	200.0	190.0	210.0	200.0	200.0	6.0E-2
60 - X10K	600.0	540.0	660.0	600.0	600.0	6.0E-2
Input Impedance	(Mohms)	(Mohms)	(Mohms)	(Mohms)	(Mohms)	(Mohms)
Voltmeter Mode	1.000	0.950	1.050	1.000	1.000	6.0E-4
Distortion Mode	1.000	0.950	1.050	1.000	1.000	6.0E-4
Voltmeter Calibration						
Range - Frequency	(VAC)	(VAC)	(VAC)	(VAC)	(VAC)	(VAC)
300V - 400Hz	290.0	284.0	296.0	290.0	290.0	6.0E-2
100V - 400Hz	96.00	94.00	98.00	96.00	96.00	6.0E-3
30V - 400 Hz	29.00	28.40	29.60	29.00	29.00	6.0E-3
10V - 400Hz	9.60	9.40	9.80	9.60	9.60	6.0E-3
3V - 400Hz	2.900	2.840	2.960	2.900	2.900	6.0E-4
1V - 400Hz	0.9400	0.9200	0.9600	0.9400	0.9400	6.0E-5
1V - 400Hz	0.9000	0.8800	0.9200	0.9000	0.9000	6.0E-5
1V - 400Hz	0.8000	0.7800	0.8200	0.8000	0.8000	6.0E-5
1V - 400Hz	0.7000	0.6800	0.7200	0.7000	0.7000	6.0E-5
1V - 400Hz	0.6000	0.5800	0.6200	0.6000	0.6000	6.0E-5
1V - 400Hz	0.5000	0.4800	0.5200	0.5000	0.5000	6.0E-5
1V - 400Hz	0.4000	0.3800	0.4200	0.4000	0.4000	6.0E-5
1V - 400Hz	0.3000	0.2800	0.3200	0.3000	0.3000	6.0E-5
1V - 400Hz	0.2000	0.1800	0.2200	0.2000	0.2000	6.0E-5
1V - 400Hz	0.1000	0.0800	0.1200	0.1000	0.1000	6.0E-5
1V - 10Hz	0.9400	0.9200	0.9600	0.9400	0.9400	6.0E-5
1V - 1KHz	0.9400	0.9200	0.9600	0.9400	0.9400	6.0E-5
1V - 100KHz	0.9400	0.9200	0.9600	0.9400	0.9400	6.0E-5
1V - 1MHz	0.9400	0.9200	0.9600	0.9400	0.9400	6.0E-5
1V - 2MHz	0.9400	0.8900	0.9900	0.9400	0.9400	6.0E-5
1V - 3MHz	0.9400	0.8900	0.9900	0.9400	0.9400	6.0E-5
0.3V - 400Hz	0.3000	0.2940	0.3060	0.3000	0.3000	6.0E-5
	(mVAC)	(mVAC)	(mVAC)	(mVAC)	(mVAC)	(mVAC)
0.1V - 400Hz	100.0	95.0	105.0	100.1	100.1	6.0E-2
0.03V - 400Hz	30.00	29.40	30.60	30.01	30.01	6.0E-3
0.01V - 400Hz	10.00	9.80	10.20	10.02	10.02	6.0E-3
0.003V - 400Hz	3.000	2.940	3.060	3.001	3.001	6.0E-4
0.001V - 400Hz	1.000	0.980	1.020	1.001	1.001	6.0E-4
0.0003V - 400Hz	0.3000	0.2940	0.3060	0.3001	0.3001	6.0E-5
Minimum Input Level						
0.3V@20Hz	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	

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FEATURE	NOMINAL	LOWER LIMIT	UPPER LIMIT	AS FOUND	AS LEFT	UNCERTAINTY
Residual Noise						
<0.025 mV	Pass/Fail	Pass/Fail	Pass/Fail	Pass	Pass	

COMMENTS

Example certificate, actual results and uncertainties will be reported at the time of calibration.
 Nominal and limits may vary based on actual make/model.

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- This certificate shall not be altered in any form or reproduced, except in full, without prior written approval from originating lab. These results relate only to the item(s) calibrated. Form Revision 10: 06/04/2024
 - Total expanded measurement uncertainties expressed are based on a confidence level of 95%; coverage factor of (k=2). The statement of compliance in this certificate was issued without taking the uncertainty of measurement into consideration. The customer shall assess the results and uncertainty when determining if the results meet their needs. (This is considered "shared responsibility.") Uncertainties expressed in nominal units.
 - The calibrations within the certificate/report are traceable through NIST or another National Metrology Institute to the International System of Units (SI). Calibration was completed in accordance with ISO/IEC 17025:2017, ANSI/NCSL Z540-1-1994 and ANSI/NCSL Z540.3-2006. Other standards listed upon request.