

UM-SJTU JOINT INSTITUTE
PHYSICS LABORATORY
DATA SHEET (EXERCISE 4)

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Date: 2019/6/28

NOTICE. Please remember to show the data sheet to your instructor before leaving the laboratory. The data sheet will not be accepted if the data are recorded with a pencil or modified with a correction fluid/tape. If a mistake is made in recording a datum item, cancel the wrong value by drawing a fine line through it, record the correct value legibly, and ask your instructor to confirm the correction. Please remember to take a record of the precision of the instruments used. You are required to hand in the original data with your lab report, so please keep the data sheet properly.

Frequency of the sound wave $f = 39.118 \text{ kHz} \pm 0.001 \text{ kHz}$
Temperature $T = 21 \text{ }^{\circ}\text{C} \pm 1 \text{ }^{\circ}\text{C}$

L_i [mm] ± 0.001 [mm]	L_i [mm] ± 0.001 [mm]
1 77.298	7 103.776
2 81.796	8 108.520
3 85.926	9 112.746
4 90.302	10 116.840
5 94.704	11 121.820
6 99.612	12 126.123

Table 1. Data table for the resonance method.

L_i [mm] ± 0.001 [mm]	L_i [mm] ± 0.001 [mm]
1 128.780	7 182.630
2 137.823	8 190.430
3 146.896	9 199.310
4 155.902	10 208.061
5 164.966	11 217.849
6 173.876	12 226.731

Table 2. Data table for the phase comparison method.

Instructor's signature: Y.Y.

0.4

	t_i [μ s] \pm \rightarrow [μ s]	L_i [mm] \pm 0.001 [mm]
1	97.62	135.639
2	102.6	142.315
3	107.2	148.820
4	112.4	156.360
5	117.6	164.415
6	123.6	171.325
7	130.0	181.680
8	134.4	189.300
9	139.2	196.500
10	145.2	205.270
11	151.6	214.320
12	158.4	224.250

Table 3. Data table for the time difference method (liquid).

Instructor's signature: Y.Y.