

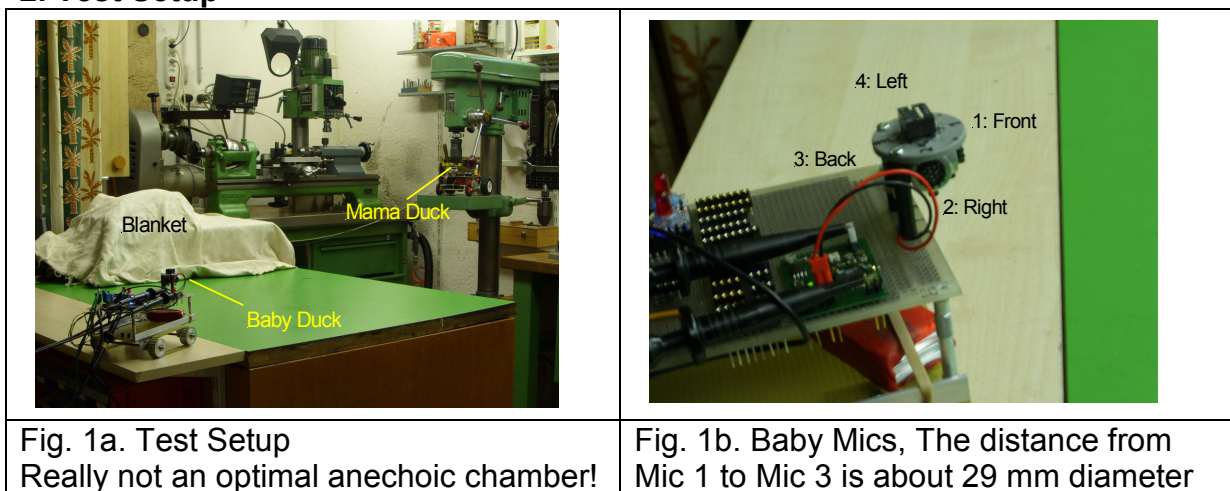
1. Introduction

This is the first, preliminary test on direction detection, sorry for the poor quality!

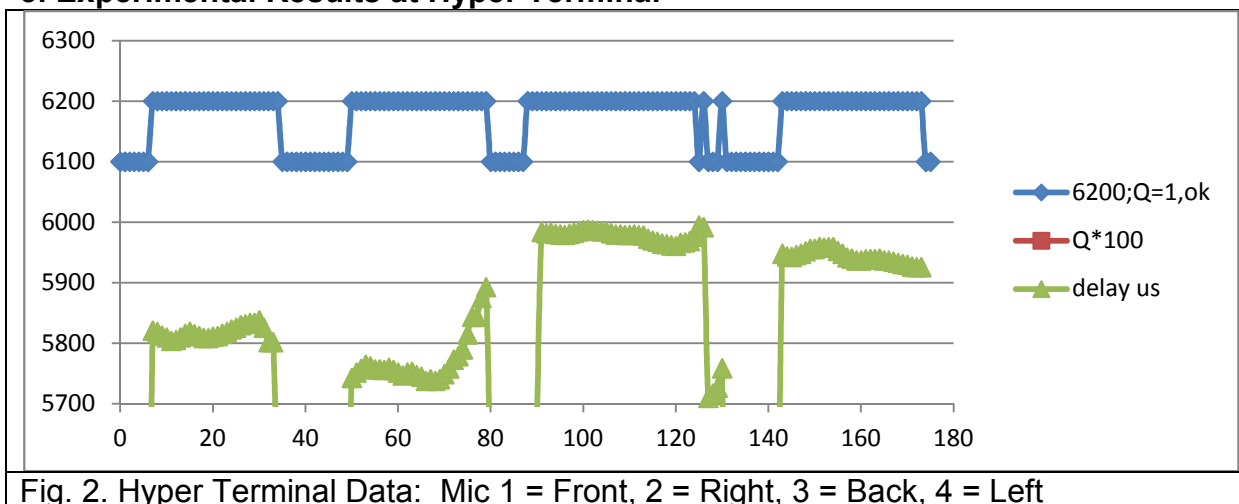
2. Material and Method

- 4-Quadrant Speaker UST (T) at 8 V supply
- 4-Quadrant Mic Kobitone (R), with stepwise switching:
 - 1 = Front, 2 = Right, 3 = Back, 4 = Left
- Distance: 1.8 meter, laboratory conditions.
- Duc028 with 1 msec FSK period 37/40 kHz all 88 msec, Quarantine 0.1msec
- BP-PLL Gain 10, PLL lock-in range 36.2 to 41.3 kHz , f1=38.0, f2=39.3 kHz

2. Test Setup



3. Experimental Results at Hyper Terminal



Comment:

As long as Papa Duck is sitting behind his PC, the delay data are stable, but for Mic-switching he had to walk close to Baby Duck!

The test setup is not symmetrical: Mic 2 and 4 do not show the same delay. The delay difference Mic 1 to Mic 3 is about 180 usec, this means 60 mm.

4. Experimental Results at Storage Scope

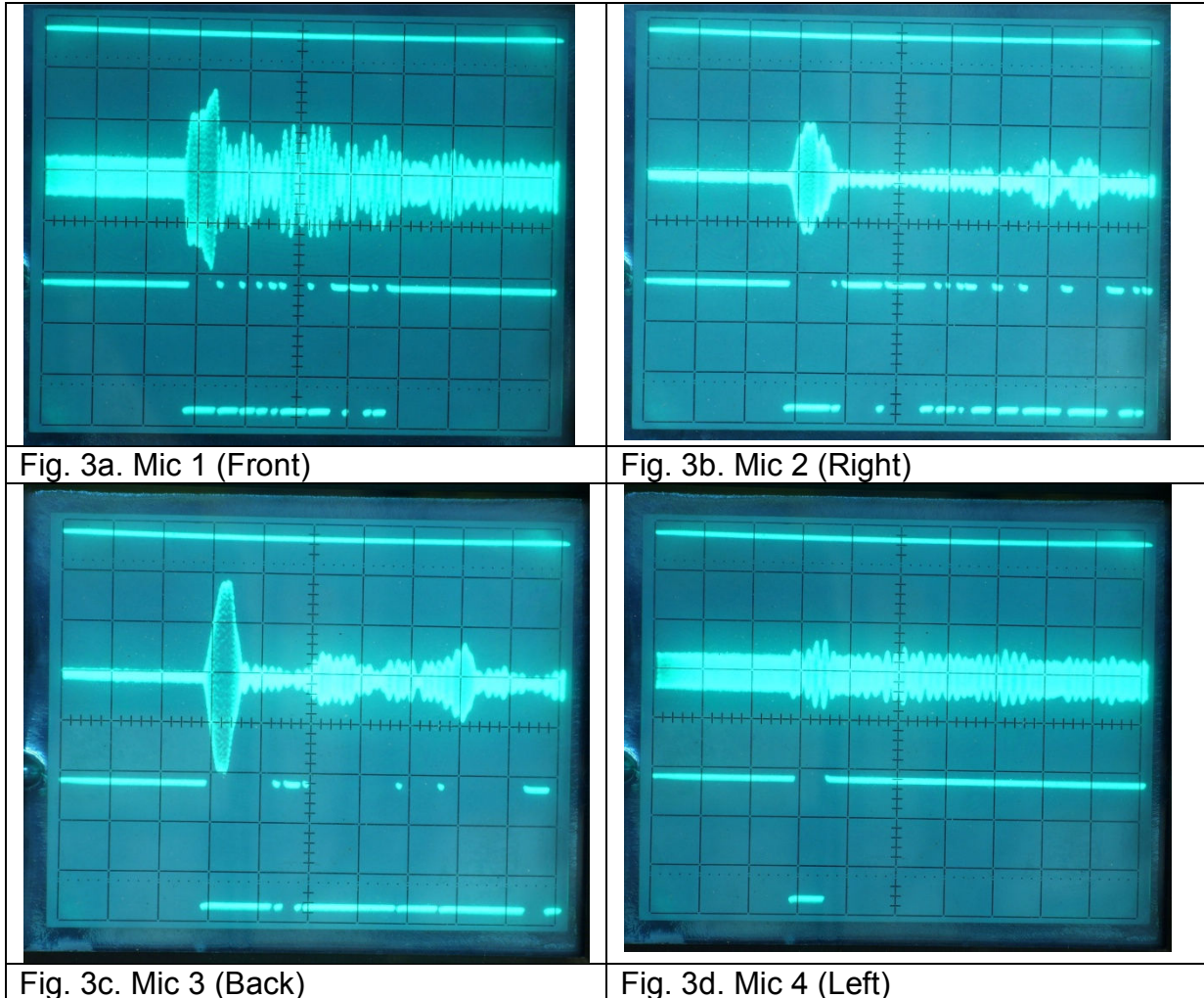
Osci Settings:

Time Base: 1 msec/Div

Top: Synch Arduino D13, 2 V/Div

Middle: BP Out, 20 mV/Div

Bottom: PLL-Out, 2 V/Div



5. Discussion

- The pilot-amplitude of Mic 1 should be maximum: Test ok
- The pilot-amplitude of Mic 3 should be minimum: Test ok
- The pilot-amplitude of Mic 2 and 4 should be somewhere in between and at the same level: Test nok

See Fig. 2: the delay to Mic 2 and 4 should be the same: Test nok

We think that these preliminary results in a small laboratory are not representative for outdoor conditions. The test chamber is not symmetrical and full of reflection objects.

However, the good news is that we see reasonable delay differences!
We need to repeat the experiment outside, but is rainy and f...g cold.

Kind regard from the old UFO Doctor who does not like to go out in the cold rain.