









FIELD TEST RESULTS OF PESM

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The working effect of the system during the day is shown in the Table I:

Table I. Field Tests in Daytime

Location	Time	Average Temperature	Temperature Error	Figure I (HUD On)	Figure II (HUD Off)
Road	10:08	29.2	+2.7%		
Riverside	14:19	26.5	-1.8%		
Mountain	15:54	26.0	+0%		
Park	17:32	26.1	+3.4%		

During the daytime, the displayed parameters are relatively limpid. After turning off the parameter display, the clarity of direct vision through the PBS is good, and the scene ahead can be seen.

Notice that the road conditions can actually clearly see the information displayed by the HUD, but the HUD effect captured by the recording equipment is weak, so the author adjusted the brightness and contrast of the picture so that readers can see the HUD information.

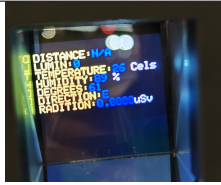
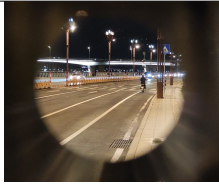
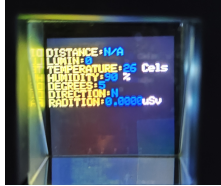

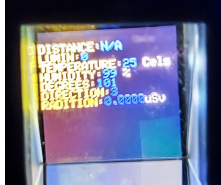

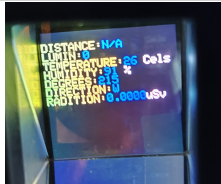

It should be noticed that the maximum measuring range of the LR module is 2 meters, and the PESM will display N/A when the target is out of range. If the target distance is shorter than 2 meters, the ranging result can be

displayed. To improve the inadequate detectable distance, the PESM 2.0 will be equipped with an industrial laser ranging module which can measure up to 60 meters outdoors.

Also, the possible explanation for the luminance value in most figures of the outdoor test shows 0 lx may be that data interfere between two ambient light sensors. However, this problem didn't occur again in the lab environment, and I will try to figure out the authentic reason.

Next, the working effect of the system during the night is shown in the Table II:

Table II. Field Tests at Night

Location	Time	Average Temperature	Temperature Error	Figure I (HUD On)	Figure II (HUD Off)
Road	20:41	25.4	+2.4%		
Riverside	21:51	25.9	+0.4%		
Mountain	19:23	24.1	+3.7%		
Park	20:17	26.2	-0.8%		

As shown in Table II, the HUD has sufficient brightness and can display environmental parameters normally. The pure observation scene after turning off the HUD also has good clarity.