Comment from Chris Posch

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I work for Teledyne FLIR and am likely the largest proponent of thermal imaging cameras for AEB-P with extensive experience in this field. I recently was interviewed by a prominent analyst. A direct quote from him was: "I'm dumbfounded that there is not more use of thermal cameras in the OEM ADAS sensor suite".

Problem: Thousands of Pedestrians and millions of deer are hit by cars each year. Current systems employ radar and/or visible cameras only. These systems fail in challenging real-world conditions, like night, headlight or sun glare, weather, etc. AAA, IIHS, and Consumer Reports all document the problem. We need to solve this problem and not pretend to address it.

Facts:
OEMs are 'squeezing the rock' on the performance of visible cameras (RGB). The physics of thermal cameras vrs visible cameras are such that a visible camera will never be able to address challenging lighting conditions like a thermal camera. Period. But until regulation presents more difficult testing (and results for failing) the OEM industry will not employ thermal cameras in mass for every car. Testing standards need to be published that are more real world and at least include nighttime. Nighttime doesn’t mean you get to push streetlights in the testing protocol. It means Zero Lux. The vehicle can have headlights, but consideration of oncoming vehicles blinding the ADAS camera need to happen. Thankfully IIHS and AAA are making people aware of this significant problem with systems that today falsely have car buyers think they have an effective system.

OEMs are very reluctant to include thermal cameras for AEB-P because it would add around $300 to each vehicle (pricing will come down as volume goes up). "why would i add a dollar to my car if i dont need to" is a quote I have received from OEMs. I have visited most ADAS groups in the OEM world and Tier 1 world and can say that finally we are getting traction. But its too slow! And that is directly a result of regulation moving way too slow on an obvious easy to solve problem. I am talking to three OMEs that are so close to including thermal camera on their ADAS sensor system, but they just need you to push them over the hump – this is directly a result of your published regulation and test procedures.

Tesla is not helping for they only use visible cameras. This makes non-technical people think that AV and ADAS is effective without thermal (or radar). This is absolutely not the case. Tesla will never be true self driving at night without thermal cameras. If someone says they can then i will tell them they are risking the life of every pedestrian. It is simply physics. Thermal sees people better. I have a thermal + RGB + Radar test vehicle that does AEB in all weather conditions. It has been at IIHS and ACM to prove its effectiveness. I am having another vehicle built in Europe and three OEMs are bringing up their own test vehicles with our system. Please propose a testing demonstration event and i can be there.

You MUST make regulation harder to pass AEB-P and AEB-A testing so that it forces OEMs to find a technical solution that saves lives. Just look at Zoox, Cruise, and several other AV

Companies and you realize that thermal imaging is needed if a company plans to drive in all conditions, like night. Currently several OEMs dont think they need to add thermal cameras until later near 2030 simply because your testing regulations are too easy. It will take 8 years to change things!? How many people and animals and billions of dollars will be lost till thermal cameras start saving lives?

Reference:
https://docs.house.gov/billsthisweek/20220307/BILLS-117RCP35-JES-DIVISION-L.pdf
•AV testing.-The agreement encourages the NHTSA to continue to support research and test facilities that replicate a wide variety of challenging weather conditions, like rain, fog, and low sun angles. The NHTSA is encouraged to partner with an existing non-profit automotive vehicle test and research facility to facilitate the development and deployment of AV technology that can operate in all weather conditions, including development of methodologies to measure the performance of AV technology.

Where is the mention of nighttime here?! That accounts for 75% of the problem.

Thermal cameras will absolutely save pedestrian and animal lives if used on an OEM vehicles for AEB. You must make testing standards more realistic and address challenging lighting conditions so that OEMs are forced to solve the real problem and save lives. I can only provide the technical solution, you need to provide the ‘why’.