

Monitoring update 06/06/17

Car Test



Refridgerator



Test Basics

- Afternoon of May 25, 2017
- Raining throughout the test
- Vehicles: lead car (Dodge Caravan) hosting the fridge, chase car (Jeep)

Environment	Distance	#Cars in between	Refrigerator	Transfer Rate (MB/s)
Office	1 meter	0	N	1.1
City (light jam)	3 car-length	3	N	0.6
Highway	1-2 car-length	0	N	1.0 ~ 2.0
Highway	2-4 car-length	0	N	1.0 ~ 1.3
Highway	5~7 stripe	0	N	0.6 ~ 1.4
City (jam)	4 car-length	4	Y	0.4 ~ 0.5
City (jam)	5 car-length	5	Y	0.07 (unstable)
City (very jam)	5+ car-length	5+	Y	No transfer
Highway	4 car-length	0	Y	1.0 ~ 1.3
Highway	4 car-length	1	Y	0.5 ~ 0.8
Highway	5 car-length	0 --> 1 --> 2+	Y	1.0 --> 0.8 --> 0.5

- City: jammed Boston
- Highway: I93

Lessons Learned / Summary

- Two most important factors are distance and whether there are cars in between
- No significant impact from being put in this particular test fridge
- It should work assuming the effect of the truck container is similar to this fridge
- If not, we consider putting the antenna outside (need further testing)
- This strategy looks overall very promising

Sensing

- Just got a quote
- \$550 for accelerometer
- \$545 for temp sensor
 - We need our own thermo couple (From Omega - ~\$50)
- \$800 for each gateway (Max 4KHz per gateway)
- Total: 5.6k\$
- Lead time: 2-3 weeks