Field Product Evaluation

Product Evaluated: K40 Electronics RL360i Remote Radar Detector
Evaluation Dates: 7-8 July 2014
Evaluation Location: US 80 in Fort Worth, TX
Evaluation Forwarded: Rachel Clark, National Sales Director for K40 Electronics
Evaluation Conditions: 96°-102° F, clear, humidity 72% reported by the National Weather Service

Out Of The Box-The radar detector was provided by K40 Electronics of Elgin, Illinois. SML spent 4-5 July in following the Block Wiring Diagram, 4479-1 7/13, provided in the retail packaging and the Owner's Manual, 447/83-2 2/13 of K40 in wiring the product. The product is remote controlled and composed of a GPS package, a speaker, two radar receivers, two in-dash mounted LEDs telling the driver which radar antenna is receiving the signal, a Host unit, and a handheld remote control powered via a provided battery. The remote K40 RL360i is covered by the following United States Patents: 7,298,248 B2, 5,001,777, RE39,038, RE40,653, RE41,905 and other patents pending. It is strongly advised to have any remote model professionally installed. It is a remote detector with radar antennas mounted behind the grill in the front and a rear antenna attached to the rear of the vehicle. The use of a remote detector is advised as one of every five dash mounted detectors are stolen each year. Only Virginia, Washington, D.C. and U.S. Military reservations ban the use of radar detectors in cars. The Federal Communications Commission issued the following Public Notice DA 96-2040 saying “The use of radar detectors by members of the public does not constitute in itself a violation of FCC Rules”. No laser module came with the unit as SML resides in Texas which passed radar and laser interference legislation to the Texas Transportation Code, Sec. 547.616 and does not permit the attachment of the laser countermeasure to the K40. The law was effective 29 March 2011. The use of any radar detector was banned in trucks nationally (18 wheelers) by the United States Department of Transportation effective February of 1995, C.F.R. 47, parts 392, 392.71. The K40 is an audible driven and GPS unit product with features on the included remote.
Installation-As stated previously, we spent 4-5 July in our laboratory wiring the remote RL360i. It is composed of a remote, two individual, external radar antennas, individual LEDs (light emitting diodes) indicating whether the front or rear antenna was hit by radar, a GPS module, and a speaker announcing the particular band encountered. The speaker also serves to notify of the feature selected. More on the selected features later. All required individual wiring. We wanted to be thorough testing it in our laboratory with X, K, and Ka band radar guns. It responded correctly. We also wanted to ensure the wiring was correct, which it was. We tested it in the test vehicle to make sure we had not disconnected any connection. We had to modify our test vehicle with platforms attached to the front and rear license plates. We had to remove a K band radar display attached to the vehicle prior to the remote’s installation. We used levels to make sure the front and rear antennas were properly mounted according the Owner’s Manual of the radar detector. We mounted the GPS module on the dashboard with a clear view of the sky overhead. We insured the speaker was in clear view. The RL360i is remote driven with its features prominently displayed. A note here. The radar beam is 212 feet wide at 1,000 feet. A laser beam is only 36 inches wide at 1,000 feet. We set a cone at 1,000 feet to give use a reference of this distance. Officers seldom target vehicles at the distance of 1,000 feet they the must legally develop a Valid Visual Tracking History of a potential target vehicle exceeding the speed limit. They normally use shorter distances. They verify their Valid Visual Tracking History with a radar or laser gun reading only after developing a Valid Visual Tracking History. There is considerable case law on this subject nationally and specific to each state. SML has testified in over fifty speed ticket cases in many states. SML only testified for the prosecution. We tested the installation of the unit with radar guns at the test facility prior to the actual test. It worked correctly.

Features: We tested features of the RL360 I on our test track of U.S. Hwy 80 in Fort Worth, TX with the cooperation of police officials. Remember this is a GPS driven product with visual LED alerts and speaker driven for audible settings.
For many years dating back to the introduction of radar detectors in 1972, false alerts have become a problem. **False Alerts** are produced by many sources ranging from automatic door openers, burglar alarms, truck braking systems, drones, and other sources. **False Alerts** are identified as X and K band. Police use K band radar at 24,150 GHz. **RADAR** stands for **RAdio Detection And Ranging** and was invented by Scotsman Robert Watson Watt in 1935 for military use. **RADAR** range is negatively affected by terrain, elevation, humidity, competing signal, and signals in metropolitan environments. Police radar guns use a continuous wave radar at a very low output. Many attempts have been made to diminish **False Alerts** and the RL 360i I has a solution. With the remote you enter the **Quiet** mode. Quiet Ride will not report any radar encounter including **False Alerts** at the preset speed or below. You have the choice of setting the speed of your vehicle from 5-75 MPH in 5 MPH increments. The speed limit on our test track was 50 MPH and the Quiet Ride was set at 40 MPH. When the test vehicle exceeded Quiet Ride set at 40 MPH say to 41 or 42 MPH it reported a radar encounter as Ka band. We were constantly transmitting Ka, 34.7 GHz, for the duration of testing. We then set the Quiet Ride at 35 MPH and it fully reported our Ka transmissions above the preset of the Quiet Ride at 36 MPH and 37 MPH. We then set the Quiet Ride at 20 MPH and it only reported radar above this preset at 21 MPH. The GPS module was telling the system the vehicle’s speed. We tested the Quiet Ride on all three bands with police radar guns of X band (10.525 GHz), K band (24,150 GHz), and Ka band (34.7 GHz). **False Alerts** are the #1 complaint of detector owners. The Federal Communications Commission controls these bands used by police nationally.

The next feature we wanted to test was **Speed Monitor**. It is controlled by the handheld remote and identified by the letters SM. It can be set in 5 MPH increments from 40-100 MPH. If the preset speed is exceeded, the RL 360i I will emit a continuous “Bing Bong” until the speed is reduced and below the preset speed. The GPS module is monitoring the speed of the vehicle. This is a great feature if you have a teenage driver and don’t want them to speed. You might want to take the remote away from the teenage driver. There is no radar reception above the preset speed of the **Speed Monitor**.

We also wanted to test the **Mark To Alert** feature of the RL360i I. It is identified on the remote by the letters MA. It lets you know when you are approaching a school zone, highway construction zone, red light camera, or other highway safety zone. When you press the MA on the remote a voice will notify you that the GPS has “Marked To Alert” your location. As you are driving the detector will tell you when you are 1,500 feet from the marked location (**Approaching marked location**) and the alert lights will flash twice. When you
are at the marked location, the speaker will emit a single “Bing” and the alert lights will flash once. We had the test driver mark our transmit location and then mark the turn around point which was 9/10ths of a mile from the transmit location. It worked every time and we thanked the GPS gods as it correctly identified the marked locations.

The remote also contains a DIM setting which adjusts the LEDs brightness, a Hwy/City setting (always use the Hwy setting), a MUTE button, and arrows to increase or decrease the sound. Other features are explained in the Owner's Manual.

Radar Range: As we told you, police radar range is negatively affected by elevation, humidity, temperature, obstructions that absorb radar emissions, terrain, and competing signals in the metropolitan environment. Police radar is a radio transmission. Think of your favorite radio station whether it be AM (attenuated modulation) or FM (frequency modulation). The AM station is transmitting at 1,000 cycles per second, the FM at 1,000,000 cycles and the police radar gun at 1,000,000,000 cycles all at the speed of light which is 186,282.4 mi/sec. The RL360 I was tested on a four-lane highway with a dramatic hill at 4,752 feet. Police target vehicles at approximately 1,000 feet or less. The performance of the RL 360 I radar was seven times the capture range of the police radar guns on all radar bands, X, K, and Ka band used by police.

Summary: Due to the performance of the K40 RL360i remote radar detector the company is entitled to use SML Registered Trademark, Reg. No. 2,928,737 as issued by the United States Patent and Trademark Office. It works as advertised!

Attested To;

Carl Fors, B.S., M.S., President
Speed Measurement Laboratories, Inc.