

HELIKITE PLUS RAJANT MANET WI-FI RANGE EXTENSION TRIAL

7th JULY 2010 Damerham to Knoll Hill



The object of this concept demonstration trial was to test the feasibility of using a small Backpack Helikite to rapidly set up an airborne Mobile Ad Hoc Radio Network to operate internet protocol video cameras from six miles away.

The MANET radios were Rajant ME3 Breadcrumbs weighing about 1Kg including batteries.

At about 12.30 pm we set up a PTZ internet camera next to our Portacabin office in Damerham.

Then the Rajant ME3 Breadcrumb was quickly attached with Velcro, to the webbing mounting points at the back of the 5 cubic metre Desert Star Helikite. The Rajant ME3 outputs 2.4 GHz at 600mW.



Then the Helikite was sent up to 500ft and we went off in the car to Knoll Hill 6 miles away, where we set up the other breadcrumb. We got a 6 decibel signal with the Knoll Hill receiver 4ft off the ground. Excellent quality talk on the Wi-Fi phones, but only intermittent video as the signal had to pass through the nearby wheat crop.

Then we put the antenna tripod onto the car roof so the antenna was 8ft high and we got 12 decibel reception which was good for steady video. The sunlight reflecting off the screen hindered operating the computer and also taking good photos of the screen. (Hence the technician with his head in the boot.) Commands inputted into the computer on Knoll Hill were transmitted from the Rajant ME3 unit on Knoll Hill. These commands were picked up by the Rajant ME3 Breadcrumb on the Helikite six miles away. From the Helikite, the commands were relayed automatically to the ME3 Breadcrumb attached to the pan/tilt/zoom internet camera back at base.



Using the computer on Knoll Hill we panned the camera around to a colleague standing by our workshop door with its sign. We then asked her to move around to test the smoothness of the 5 frames/minute video. It was good with smooth movement. We then zoomed in to our sign. The camera was about 20 yards away from the sign. This also worked well.



We spoke to our colleague via the inexpensive Wi-Fi phone that simultaneously was operating via the Rajant ME3 Breadcrumbs.

This concept demonstration very well. All objectives were met. We got an excellent signal via the Rajant ME3. The relay worked faultlessly. The camera was controlled with no problem. We showed the feasibility of operating a remote controlled camera via the internet and then via an airborne MANET relay flown to 500ft on a small Backpack Helikite.