2014 ARRL 10 GHz and Up Contest Results

Rain can be a good thing — when it brings rain scatter!

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Microwavers look forward to August and September each year, and on August 16 – 17 and September 20 – 21, they took to the "ultra highs." Most head to the mountains, shorelines, and plains in the usually pleasant weather to find good horizons that let their signals traverse long distances.

Top 10 Scores

10 GHz Only	Score	10GHz and Up	Score
WBØLJC	52,586	AA6IW	52,520
WØZQ	43,928	K9PW	36,642
N6RMJ	42,850	N9JIM	32,512
KØCQ	42,051	AF1T	31,626
N6VI	41,332	W1MKY	26,543
NØKP	35,231	W3RWN	26,461
N6NU	33,198	W6QIW	21,899
W9FZ	31,276	W6BY	21,827
KD6W	30,132	W1GHZ	18,523
K6NKC	29,737	N1JEZ	14,644

Top 10 QSOs Completed

10 GHz Only	QSOs	10 GHz and Up	QSOs
WBØLJC	225	AA6IW	214
KØCQ	187	K9PW	169
WØZQ	180	N9JIM	125
N6VI	178	AF1T	116
N6RMJ	169	W1MKY	106
N9RIN	151	W3RWN	99
NØKP	150	W1GHZ	88
K6WCI	147	W6QIW	88
N6TEB	147	W6BY	88
WA6CDR	136	W1JHR	71

Once two stations are beyond line of sight, microwave signals are generally pretty weak. The scattering mechanisms (primarily dust and water droplets) only scatter a weak signal in the direction of the other operator. The further the distance, the weaker the signals get.

As signals get weaker, most operators use CW to eke out a contact. It takes longer than it would on SSB, but many times a voice contact is not possible. Several operators around the country report using digital modes like JT4 to extend their range. Glen, KCØIYT, worked many JT4F contacts with Donn, WA2VOI, across 300 to 400 km between Minneapolis and Central Iowa. On the longer distances, Glen could see the signal on the waterfall display but could not hear the tones. Nevertheless, decoding software was able to recover the required exchange information for a successful contact.

Janice, KA9VVQ, operating in southwest Wisconsin, aims away from the corn across soybean fields in the direction of Chicago, about 200 km away. [Bruce Richardson, W9FZ, photo]

Every now and then, there are unexpected, short-lived propagation anomalies that make signals much louder. In a storm, there are droplets thousands of feet up in the air just beginning their downward plunge. Some of the droplets are of the proper size to scatter 10 GHz signals very well. If these droplets are thousands of feet up, they are figuratively on a beautiful tower. From there, the horizon is much farther than from even a mountaintop. We say that two stations trying to work are "illuminating" (with their signals) a "common volume." If there are only dust particles or less in that common volume, there will be either no signals, or exceedingly weak signals heard. If a thunderstorm moves into that common volume, however, the water droplets are a great scatterer of 10 GHz signals.

In September, Upper Midwest operators watched radar as a line of weather developed in southwest Minnesota. Its track was right toward Buck Hill (south of Minneapolis), which was full of operators. Three groups of roving operators in Iowa and Southwest Wisconsin had been working each other and the group on the hill. The telltale rasp of rain scatter was heard and the operators started swinging their dishes to find the best reflecting parts of the storm. Signals soon jumped up to needle-pinning strength. The storms soon drove the operators off of the hill, but they continued to use the rain to work each other for the next few hours. At the peak of the storm, Glen, KCØIYT, worked Bill, KØAWU, 524 km to his north via rain scatter off this mature storm.

2014 Contest Highlights

Both East and West Coast operators made multiple 600+ km contacts. Charles, W6QWN, had the longest 10 GHz QSO this year at 725 km. On 24 GHz, Jim, N9JIM; Lars, AA6IW; and Steven, W6QIW, all spanned 197 km. On 47 GHz, W1EX reached out across 102 km. On 78 GHz, W1FKF, N1JEZ, and WA1MBA lengthened their contacts to 126 km. This year, W6OAL, VE3OIL, and VE3SMA made contacts at "light" frequencies above 300 GHz — their range was 1 kilometer.

Looking Ahead

If you find microwave operation intriguing, reach out! Groups all around the country sponsor microwave activity. Many have loaner rigs and can help you get started. Consider subscribing to the "microwave reflector" at **lists.eclectechs.com/cgi-bin/mailman/listinfo/microwave** and start planning to be on the air August 15 – 16 and September 19 – 20!

Full Results Online

Complete your 10 GHz QSO by checking out the full contest report at **www.arrl.org/contests** — look for the *2014 10 GHz and Up* listing.