



# ARRL 10 GHz and Up Contest 2015 Results

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*Most microwavers operate exposed to the elements.*



*Kevin, AD7OI, operates from Haydon Peak AZ (DM35bb). Elevation 8382'. He made six contacts from here, most around 400km away. He was run off the hill by thunderstorms, cutting short his first day on the August weekend. (Photo Tammy Jacobson)*

On the weekend of August 15th and 16th, and again on the weekend of September 19th and 20th, microwavers took to the “ultra highs” for the ARRL 10 GHz and Above Contest. Since few operators are able to operate from home, most head to the mountains, shorelines, and plains to find good horizons, which lets their microwave signals traverse longer distances.

Setting up portable outdoors exposes operators and equipment to the elements. The experience can vary from pleasant to miserable. While sunny, warm days are preferable, rain can be good or bad depending on where it is. (See last year’s article discussing rain scatter.)

Wind is also a common feature in open fields and at high altitudes. It can chill an operator, tip over equipment, and make for steady background noise during a QSO. Every microwave operator therefore has to develop ways to reduce operator fatigue and have their gear withstand the wind. In many pictures, you will see tie-down straps or ballast attachments increasing stability. Many operators have experienced the horror of their equipment being blown over. We tip them back up, determine to what extent they are still working, and press onward!

## 2015 Contest Highlights

Activity was up in 2015! The number of submitted logs, as well as total scores, was up. Both East and West Coast operators made multiple 600+ km contacts. Barry, VE4MA, worked 1861 km on 10 GHz via moonbounce EME. Gary, AD6FP, had the longest terrestrial 10 GHz QSO this year at 669 km. On 24 GHz, Gary, AD6FP, Lars, AA6IW, and Steven, W6QIW, all worked 345 km. That’s over 100 km further than last year. On 47 GHz, AD6FP and W6QIW also connected at 345 km. No activity was reported on 78 GHz. This year, Russell, VE3OIL, and Steve, VE3SMA, made contacts at “light” frequencies above 300 GHz—increasing their range to 4 km.



*Robin, WA6CDR, shares a painful moment. Winds tipped over his dish. He has used it for years in many windy situations. It has a 15-pound counterweight for stability. But this year’s winds were enough to tip it over. The rig suffered some damage, but he was able to bend things back to shape and make several very long distance contacts. (Photo WA6CDR)*

## 10 GHz Only Category

In the 10 GHz Only category, Gary, WBØLJC, for the fifth year in a row led all 83 operators in this class with a score of 66,093. Joel, KD6W, came in second place and Jerry, KØCQ, came in third. Most of the remaining top 10 were split between 6-land and Ø-land.

## Top 10 Scores

10 GHz Only	Score	10 GHz and Up	Score
WBØLJC	66,093	AA6IW	54,402
KD6W	64,864	K6GZA	50,779
KØCQ	60,140	N9JIM	50,511
NØKP	59,650	K9PW	47,207
N6RMJ	59,288	W6QIW	43,331
KCØP	55,472	W6BY	36,602
NØAKC	51,193	AF1T	29,608
KØKFC	44,559	W1MKY	28,401
WA2VOI	40,800	N1JEZ	27,867
N5BF	40,792	AD6FP	24,981

## Top 10 QSOs Completed

10 GHz Only	QSOs	10 GHz and Up	QSOs
N6RMJ	281	K9PW	243
WBØLJC	268	AA6IW	218
KD6W	254	N9JIM	199
KØCQ	248	K6GZA	188
NØKP	242	W6QIW	175
KCØP	232	AF1T	150
NØAKC	206	W6BY	149
KE6HPZ	198	W1MKY	148
N5BF	191	W1JHR	138
WA2VOI	172	WA2BTR	124



David, K2DH, operates from west of Rochester, NY at FN02xu. His setup runs 10 watts to his 10 GHz dish and 2 watts to his 24 GHz dish. (Photo K2DH)

## Regional Highlights

The coastline of the Gulf of Mexico was lit up with microwaves! The increasing level of activity in this region found at least six operators on the air from south Florida through the panhandle to Louisiana. They noted evaporative duct enhancement, making signals quite loud even over long distances.

### Best DX by Band

Category	Call	10 GHz Best DX (km)
10G	VE4MA	1861
10G	W5LUA	1861
10G	AD6FP	669
UP	K6GZA	659
UP	N9JIM	645
10G	W6BY	645
10G	W1EX	642
UP	AF1T	635
10G	W1MKY	635
10G	WA3RGQ	635
10G	WA3PTV	633

Category	Call	24 GHz Best DX (km)
UP	AA6IW	345
UP	W6QIW	345
UP	AD6FP	345
UP	W6DXJ	344
UP	K9PW	277
UP	K6GZA	275
UP	N9JIM	270
UP	W6BY	270
UP	W6YEP	270
UP	K6MI	270

Category	Call	47 GHz Best DX (km)
UP	W6QIW	345
UP	AD6FP	345
UP	W1EX	118
UP	N1JEZ	69
UP	KA1OJ	41
UP	WA1MBA	41
UP	W5LUA	1
UP	N5QGH	1



Gary, WBØLJC, starts the September weekend along a road on the Buffalo Ridge of southwestern Minnesota. Gary won the 10 GHz only category for the fifth year in a row. Gary has refined his skills in finding new operating locations and getting on the air quickly to work increasingly distant stations. (Photo W9FZ)

## 10 GHz and Up Category

Lars, AA6IW, for the third year in a row, took top honors in this category with 48,802 points. Ron, K6GZA, came in second and Jim, N9JIM, was third. All of the 37 participants in this category were active on 24 GHz. Eight operators entered with contacts on 47 GHz. No activity was reported on 75 GHz, and two operators made contact with "light".

Bob Gormley, WA5YWC, travelled from the Dallas-Ft Worth Metroplex to the Gulf Coast (far south Louisiana) to operate for the September weekend. He has a nice write-up on the ARRL 10 GHz Contest Soapbox page ([www.arrl.org/contests/soapbox](http://www.arrl.org/contests/soapbox)) about his travels. Similarly, Tony, WA8RJF, traveled all the way from northern Ohio to the Gulf Coast to play microwaves. Bob, WA5YWC, worked Tony, WA8RJF, several times each day as Tony traveled eastward along the Florida Panhandle. The final contacts were over 200 km. Bob found success each morning working 459 km QSOs. Saturday it was with Ben, K4QF, and Sunday it was with Terry, AA2LY,—both in Florida. Signals were 59 over this long haul. Bob attempted contact with Sandra, K4SME, who was 781 km away in southwest Florida at the time. However, signals were heard in only one direction.



David, K2DH, on left, along with Jarred, KF2MR, operates from John Boyd Thacher State Park at FN22xp. They are aimed at Dave, K1WHS, hundreds of kilometers away. (Photo K2DH)

The Southwest is probably the most active area in the nation, using most-callsigns-worked as an indicator. While most of the activity is in California, key mountains in Nevada and Arizona are also active. For the contest, groups were on mountains, such as Frazier, Diablo, Soledad, Potosi, Hayden, and Guadalupe. Other rover groups moved about flat areas, such as the San Joachin Valley, pushing distances further and further. The mountainous terrain views are striking—see Kevin’s (AD7OI), photos to get an idea.



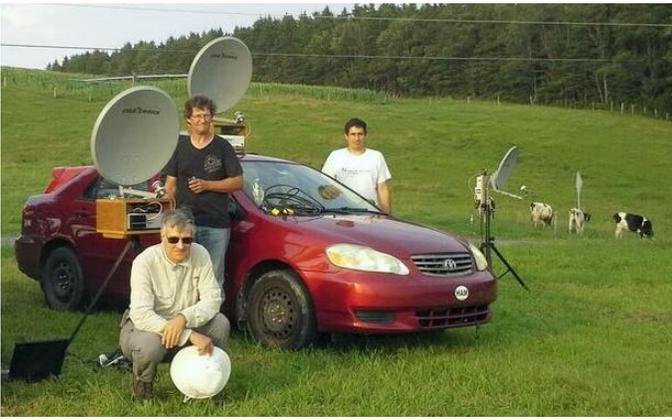
Bob, WA5YWC, operated the September weekend from locations along the Gulf of Mexico. Here he is at Grand Isle, LA (EL49xf), working stations in the Florida panhandle and on the west coast of Florida. His longest contact was 459km. (Photo WA5YWC)

The Northeast was as active as ever. Both weekends found activity on many of the common mountains such as Kearsarge, Washington, Mansfield, Greylock, and Equinox. Dave, K2DH, Mike, N1JEZ, and Tommy, W1AUV, have nice write-ups in the ARRL Soapbox. They each reported that in order to complete contacts in some directions, they needed to bounce their signals off of metal towers or other reflecting surfaces. The signal may be weak—but it can be worked! In the Northeast, activity on 24 GHz, 47 GHz, and even 78 GHz is healthy and growing.



Kevin, AD7OI, operates on Sunday of the August weekend from Guadalupe Mountain, AZ (DM23xq), elevation 2555'. Kevin made six contacts—several with Frazier Peak, CA 468km away. Temperatures reached 114 degrees making operating difficult. (Photo Tammy Jacobson)

The Great Lakes were also active. August was Lake Erie’s turn and September found Lake Michigan hopping. Lake Ontario had activity on both weekends. Let me tell you more about Lake Michigan activity.



*Francois, VE2AAY, Jimmy, VE2JWH, Pierre, VE2GT, and Rene, VE2UG (not pictured), operated from several locations in Quebec. Most completed VUCC on 10 GHz from the pictured location. (Photo VE2UG)*

For many years now, Bob Senk, K2YAZ, hosts operators from Michigan, Indiana, and Illinois at his place near Glen Arbor, Michigan. This is on the Michigan side of Lake Michigan near the north end of the lake. The visiting operators set up on the beautiful dunes and beaches north and south of his place. Years ago, these clear but shorter distances were perfect for initial steps on 10 GHz. As the years have gone by, they've also been good for first steps on 24 GHz and 47 GHz. Lloyd, NE8I, Bob, WA8VPD, Mark, WB8TGY, Don, WW8M, Alex, NN9X, and Neil, W9NU, are stalwart operators who have participated frequently. Most years there is also activity on the west shore of Lake Michigan in Wisconsin and Illinois. Mike, AA9IL, Zack, W9SZ, Pete, K9PW, and Jim, W9SNR, are on the air regularly. All have 24 GHz and some are working on 47 GHz.

This year, winds were howling on Saturday and conditions were good. Normally winds break up the stratification of air—particularly stratification by temperature. But when wind churns surface waters, humidity just above the water is increased and the “evaporative duct” can survive just fine for 10 to 100 feet above the water. On Sunday, winds settled down yielding a beautiful day. Radio conditions were even better! 10 GHz signals were good with open waveguide over 175 km paths. Peaking up signals was difficult because signals were strong in so many directions. Many personal distance records were set on 24 GHz that day.



*On Saturday of the September weekend, Mark, WB8TGY, listens hard for signals across Lake Michigan over the howling winds. (Photo K3SIW)*

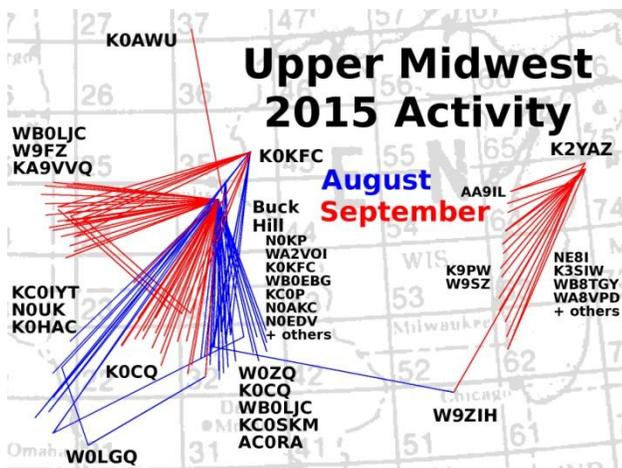
The Upper Midwest had plenty of 10 GHz RF flying around Iowa, Minnesota, and even Nebraska, on both weekends. Each year, the anchor point for most of the activity is a ski hill on the south side of the Twin Cities called “Buck Hill”. The owner allows hams to drive to the top and operate all weekend. The hilltop offers spectacular views in some directions.

The other end of the contacts is often a group of rovers (as few as one) finding choice locations out in the plains of Iowa or southwest Minnesota. The biggest problem is corn. Corn is too tall to shoot over from the side of the road. Soybeans, on the other hand, are cooperative. With crop rotations, some previously excellent locations become unusable and require finding new sites in the area.

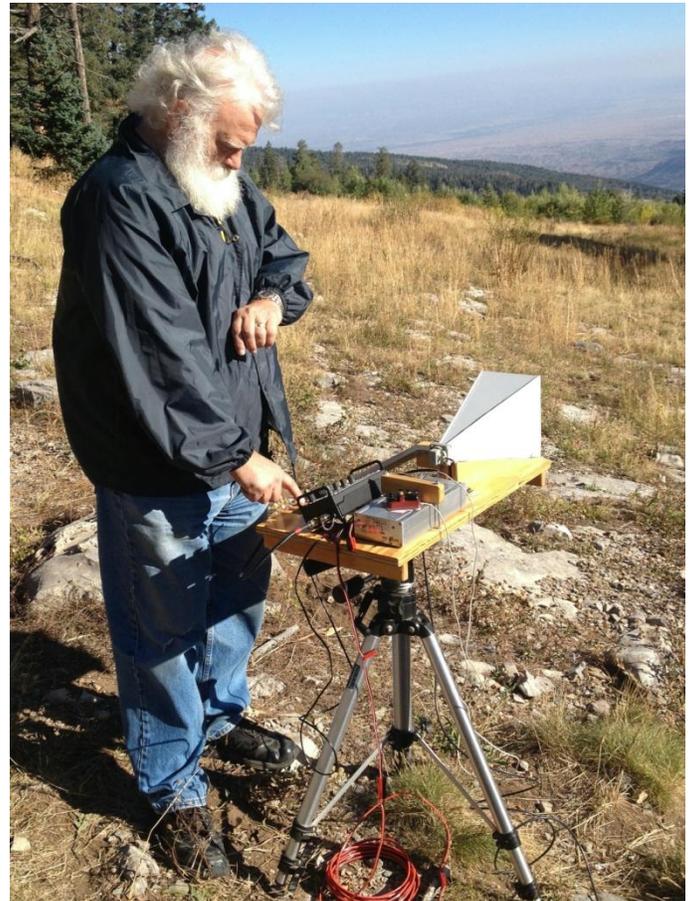
The highlight contacts of the year in this region were between the Buck Hill operators and Glen, KCØIYT, Holly, KØHAC, and Chris, NØUK, on the August weekend. The three operators traveled all the way to northeast Nebraska with the idea of making a few long distance digital mode contacts with the Buck Hill operators. The expected distances would exceed 400 km. Weather forecast maps, including Hepburn, didn't reveal any obvious enhancement potential. Saturday morning, the rovers got set up and ready. On Buck Hill, technical

issues were delaying the ability to try digital modes. So the operators beamed back and forth in the original digital mode—CW. Signals were surprisingly strong! “Switch to sideband!” came the call. Contacts ensued between the two groups initially at 350 km and lengthened to 508 km over the two days.

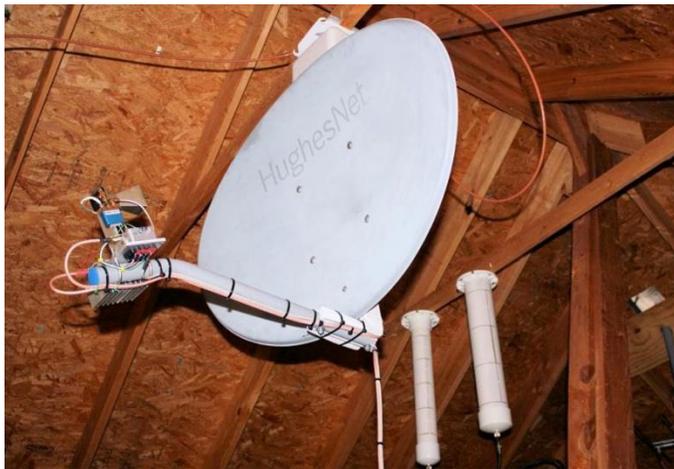
How can this be? The signals should be quite weak at this distance. After the weekend was over, they searched NOAA weather data looking for reasons. It was quickly obvious that a minor cold front had recently passed through northeast Nebraska. The movement was perpendicular to the path to Buck Hill, and the front was parallel to the path but now eastward of the path. So the enhancement was tropo ducting along the back side of a front. Great! Nicely timed weather!



August weekend had the most activity with 14 operators active in north Texas on that weekend.



Duffey, KK6MC, and Bill, W7QQ, demonstrate the challenge of 10 GHz from Sandia Crest, NM. Duffey and Bill attempted contact with two stations on Pikes Peak over 400 km to their north over a mountainous path. They beamed on schedule and listened on schedule, but nothing was heard in either direction. There is little to no activity on the microwaves in New Mexico, but Duffey and Bill are trying to change that. (Photo W7QQ)



Tom, K5TRA, of Austin, TX, is able to avoid the elements with his home station. He has a dish mounted in the attic that has azimuth and elevation control. He has worked hundreds of kilometers from the comfort of home.

## Analysis

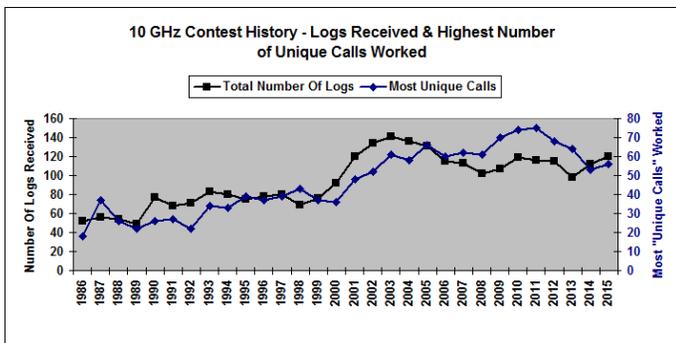
For those of you who like to analyze participation and distances over time, it is interesting to look for causes, such as weather or organizational efforts by clubs. These charts were initiated by Jon, W0ZQ, and I thank him for them.

## Participation by Call Area

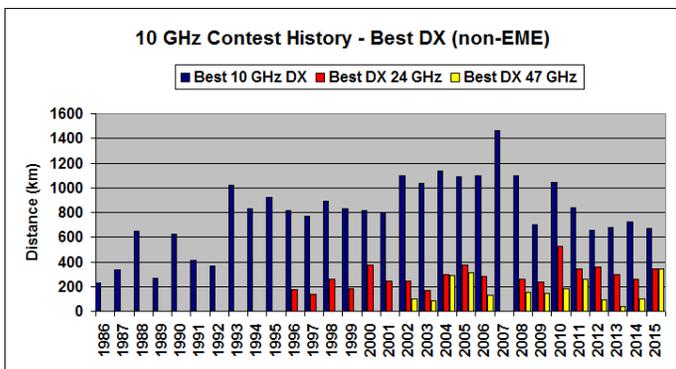
Call Area	Entries	Area	Entries
6	28	9	5
0	22	8	5
1	21	4	4
5	12	2	3
3	10	7	1
VE	9	DX	0

Texas remains active with hotbeds of activity in the Dallas-Ft Worth Metroplex via the North Texas Microwave Society (NTMS) and the Austin-San Antonio area via the Roadrunners Microwave Group (RMG). The

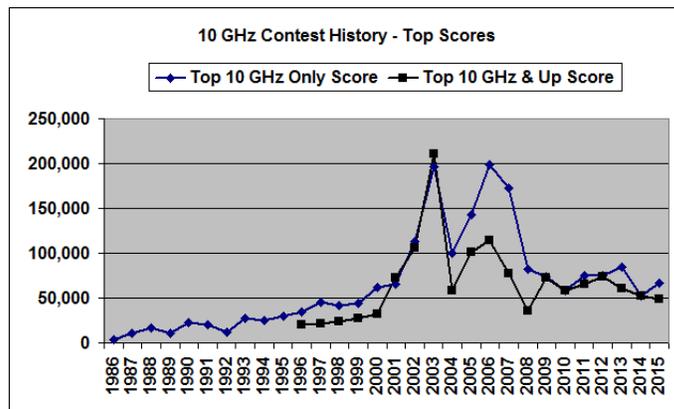
Just about all metrics were up this year! Thank you to all the microwavers who got on the air, had fun, and sent in a log. “Logs received” ticked up nicely to 120. The most unique callsigns worked was up slightly to 56. We need to continue our recruiting efforts to get new and more callsigns on the air.



Top scores were up in both the 10 GHz Only category and the 10 GHz and Above category. The total QSOs represented in all the submitted logs is up to 8660. That’s about 2000 more contacts than last year.



Looking at the Best DX graph over time can show the effect of an unusual propagation event or the variability of activity levels on the 24 GHz and above bands. This year, distances achieved on 24 GHz and 47 GHz are much longer than in previous years. Station capability is improving. Obviously, the more activity, the more we can explore the limits of what is possible.



### Looking Ahead

If you’ve never transmitted on the microwaves and find this intriguing, reach out! There are loose groups of activity around the country. Many microwave operators and clubs have loaner rigs to use. Consider subscribing to the “microwave reflector” at [lists.electechs.com/cgi-bin/mailman/listinfo/microwave](http://lists.electechs.com/cgi-bin/mailman/listinfo/microwave) for email chatter.

Start making plans to be on-the-air August 20-21, 2016 and September 17-19, 2016. Be sure to check out an expanded web-only report at [www.arrl.org/contests](http://www.arrl.org/contests)—look for the 2015 10 GHz and Up listing.



The author, Bruce, W9FZ, operates from southwest Minnesota. Many of the ridges are windy and have windmills. Here he makes contact with the Twin Cities about 240km away. (Photo KA9VVQ)