

The 2009 ARRL 10 GHz And Up Contest Results

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Version 2 – adds KØAWU's contributions to the various tables, 31 Mar 2010

“Victory belongs to the most persevering” – Napoleon Bonaparte

In microwave contesting the contest winners are not always those with the highest power, the most microwave bands, or the largest dish antennas. Year-in and year-out, those microwave operators who place near the top are those who blend their knowledge and experience with a big dose of perseverance. Perseverance is an important element in microwave contesting because in microwave contesting hours can go by without a single contact and contest success, driven by perseverance, is often measured in the tens of contacts rather than in the hundreds or thousands



of contacts that is more common for our HF contesting brethren. After an unsuccessful contest weekend it is perseverance that gets us out there again to try it again, sometimes traveling to remote locations with portable dish antennas. It is perseverance that empowers us to try that long shot or an unknown propagation path that has never worked before, only to be surprised this time to find a nice S5 signal from a fellow microwave contester, pause and then marvel at the amazing world of microwaves.

On the left this years 10 GHz category winner Bruce Richardson, W9FZ. On the right the 10 GHz And Up category winner Gary Danelius, WBØLJC. (Photo courtesy W9FZ)

Contest Basics

The 10 GHz And Up Contest is held on the third full weekends of August and September. It first started in 1986 and activity was restricted to the 10 GHz band. The “And Up” change allowing contacts above 10 GHz was added in 1996. Scoring is cumulative and distance-based with one point awarded for each kilometer spanned. An additional 100 points is awarded for each unique call sign that is worked. The contest exchange is your physical location using a six-character Maidenhead coordinate system (grid squares), for example EN34it.

2009 Contest Highlights

Generally speaking propagation this year was pretty average across most areas. Despite average conditions, with perseverance, some nice long distance contacts were made at frequencies where the wavelength is measured in centimeters. One area of North America that did experience a period of improved conditions was a portion of the Northeast late in the day on Sunday, September 20th.

The majority of activity takes place on the lowest band that is allowed in this contest, the 10 GHz band. This year all 107 logs claimed at least one contact on this band. Those who operate on 10 GHz do so using a blend of commercial and homemade equipment, all with varying levels of sophistication. At one end of the sophistication scale there are simple wide-band FM Gunn diode systems that generate about 5 to 20 mW of output power. First-time microwave contesters using these simple systems often employ small horn antennas providing about 15 to 22 dB of gain. At the other end of the sophistication scale we have narrow-band SSB/CW stations running phased-locked local oscillators, 20 plus watts of output power, and three to six-foot dish antennas generating gain in excess of 40 dB. Most microwave contesters fall somewhere between these two levels, using narrow-band equipment capable of SSB and CW, 1 to 8 watts of output power, and 19-inch dish antenna systems often modified from satellite TV service. One thing for certain is that all of these systems, from high to low sophistication, can produce some amazing long haul DX contacts and hours of fun.

This year's best DX on the 10 GHz band goes to Mickie, W1MKY, Dale, AF1T, and Russell, K2TXB. All three stations were co-located on Martha's Vineyard, grid square FN41ql. These three completed a 704 km contact with Mark, K1MAP and Connie, NG4C, both co-located in Virginia Beach, VA, grid square FM26aq. This contact was made near the end of the day on Sunday, September 20th. Mark, K1MAP, reported that tropo conditions continued to improve over this path even as the contest period ended Sunday night. On the following Tuesday morning, a few days after the contest had ended, he made a 10 GHz contact with Dave, K1WHS (FN43mj) from Cedar Island, NC, grid square FM14ux, over a distance of 1042 km!

Best DX by Band		
Category	Call	10 GHz Best DX (km)
10G	W1MKY	704
10G	K1MAP	704
10G	N6CA	669
10G	WA3PTV	660
10G	W3HMS	649
10G	W1AIM	625
10G	KI6TWT	619
10G	K6MGM	619
10G	K1TR	615
10G	K1RZ	608
Category	Call	24 GHz Best DX (km)
UP	VE3FN	234
UP	N1JEZ	234
UP	WB6CWN	217
UP	AA6IW	217

UP	W6QIW	217
UP	VE3SMA	210
UP	VE3ZV	206
UP	KA1OJ	205
UP	W6BY	201
UP	N6TEB	182
Category	Call	47 GHz Best DX (km)
UP	K6GZA	143
UP	N1JEZ	36
UP	KA1OJ	36
UP	WA1MBA	36
UP	W1FKF	36
UP	KB8VAO	1
UP	NE8I	1
Category	Call	75 GHz Best DX (km)
UP	WA1MBA	41
UP	KA1OJ	36
UP	W1FKF	14

The West Coast had its share of long haul DX, too. Ron, K6GZA, made the contest's second longest 10 GHz contact at 703 km with Robin, WA6CDR. Ron was operating from a location on Mt Saint Helena, about 60 miles north of San Francisco at about 3,900 feet elevation, while Robin was set up on the desert floor south of Las Vegas, Nevada. Although both stations had a good horizon, the path required shooting over some 13,000-foot mountains. Ron used a 4-foot dish and 15 watts while Robin was using a 6-foot dish and about 8 watts. Ron reported that signals were 5-by-3 on SSB. The same path was there when they tried it again on the day after the contest.



Although the Upper Midwest does not typically work the truly long haul DX, it does have its fair share of activity and fun. Wally, WØPHD teamed up with Bill, KØAWU to activate the Red River Valley region of ND and MN with 10 GHz rover activity. While working Barry, VE4MA and Dennis, NTØV, the rover team had the opportunity to observe the effects of wind turbine scatter.

Chris, NØUK, this year's 2nd place 10 GHz category winner enjoying some of the nicer weather in the Upper Midwest. (Photo courtesy NØUK)

On the 24 GHz band, Mike, N1JEZ located on Mount Mansfield, grid FN34om, and Ray, VE3FN, located on Mont Tremblant in grid FN26rf reported the band's best DX of the contest at 234 km. Ray reported that signals were good enough for SSB. Ray's 24 GHz station consisted

of a DB6NT transverter with a phase-locked local oscillator, 1-watt amplifier, and an 18-inch dish. As continued evidence of their persistence, these two had tried a similar path on the previous weekend but failed to make the contact, perhaps due to a slightly longer path (256 km) and higher humidity. On 24 GHz water vapor, which we sense as humidity, is a primary cause of path loss.

The longest 47 GHz contact, 143 km, is claimed by Ron, K6GZA. Ron made this contact from his Mt Saint Helena location with Bob, KF6KVG. Ron's setup on this band included precise frequency control, several milliwatts of output power, and a 4-foot dish system designed to slide the 10, 24, and 47 GHz feed horn and transverters in and out all while maintaining the same dish heading. Ron states that aiming on the higher bands like 47 GHz is made easier by first working a station on 10 GHz, locking down the dish bearing, then reconfiguring the dish for the next higher band by changing out the transverter and feed horn, all without moving the dish.

Tom, WA1MBA, reported the contest's best 78 GHz DX contact at 41 km. This contact was made from the top of Mount Wachusett in central Massachusetts, a favorite high spot in that region. Tom stated that all of the 78 GHz stations in New England are using the DB6NT doubling mixer and most are using a phase-locked local oscillator for frequency accuracy and stability. In addition, most stations are using a 1-foot dish antenna that provides about 1/2 degree of beam width at 78 GHz. Such a tight beam width does provide aiming challenges. On bright sunny days the group has used mirrors to help with aiming and more recently tried using a laser. However, aligning on a lower band such as 47 GHz first is often good enough to allow them to align on 78 GHz. Tom reported that his station features a low noise amplifier (LNA) and a power output amplifier that provides for a receiver noise figure of about 7 dB and an output power of about 10 mW. With this station he is often able to make this 41 km path using SSB.

There were no claimed contacts above 78 GHz this year, including no claimed Light contacts. Contacts in this part of our spectrum, including Light, continue to be an open frontier for those who accept the challenges and who persevere.

2009 Contest Results

The 2009 contest generated 107 logs, a slight increase compared to last year's contest that generated 103 logs. Of these 107 logs, 6-land led the way with 35 followed by 1-land with 16 and Ø-land with 15. These three call areas accounted for almost two-thirds of all contest logs received. Despite the presence of weak signal VHF clubs in most parts of the country, some major geographical areas continue to be poorly represented. Perhaps it's time to start getting your local VHF weak signal club active in microwave contesting -- it's an outstanding club-building opportunity.

Call Area	Entries
6	35
1	16
Ø	16
8	11
VE	8
4	7
3	6
2	3
9	2
7	2
5	2

10 GHz Only Category

In the 10 GHz Only contest category, out of 76 logs Bruce, W9FZ, lead the way with a total of 76,172 points. Bruce moved up three spots from last year's contest to finish in first place this year on the strength of a category leading number of QSOs, 387. Bruce made 387 contacts with 26 different stations. Bruce operated with the Northern Lights Radio Society club who concentrated their resources by operating predominantly from one fixed site and with one rover pack. Finishing right behind Bruce were his fellow rover pack members Jon, WØZQ, Chris, NØUK, and Holly, KØHAC. WØZQ and NØUK actually tied for 2nd place with 75,246 points while Holly, KØHAC, finished in fourth place with 74,810 points.

Top Ten – 10 GHz Only		
Call	Score	Call Area
W9FZ	76,172	Ø
NØUK	75,246	Ø
WØZQ	75,246	Ø
KØHAC	74,810	Ø
NØKP	55,160	Ø
KK6MK	54,238	6
WA2VOI	53,556	Ø
WØJT	42,112	Ø
AF1T	40,428	1
KE6HPZ	37,695	6
W1MKY	36,661	1
NØEDV	33,628	Ø
N6CA	33,516	6
KI6TWT	32,210	6
N9JIM	28,244	6

The highest number of unique calls worked in the 10 GHz Only category once again goes to Glenn, KE6HPZ. Glenn was able to work 59 unique operators, an increase of three from last year's 56. Sharing this title is Richard, WB6JDH who also worked 59 different operators. And, as previously discussed, best DX is also a shared title between W1MKY, AF1T, and K1MAP all having worked 704 km and submitted their logs.



Rich, NØHJZ, making a 270 km contact with 2 watts and a 17 dB horn antenna. (Photo courtesy NØHJZ)

Those who submitted logs for the 10 GHz Only category were: AA2LY, AB4YK, AD7OI, AF1T, AF6NA, KØAWU, KØCQ, KØHAC, KØVXM, K1GX, K1MAP, K1RZ, K1TR, K2KIB, K2YAZ, K6BNN, K6HLH, K6JEY, K6MGM, K6WCI, K8MD, KA1LMR, KA1ZD, KA2OON, KB7NIE, KB8U, KC6UQH, KE6HPZ, KI5WL, KI6HHU, KI6TWT, KJ6HZ, KK6MK, KN6VR, KQ6EF, NØEDV, NØHJZ, NØHZO, NØKP, NØUK, N1GJ, N2CEI, N6CA, N6JV, N6LL, N6OLD, N7EME, N9JIM, N9RIN, NTØV, VE2JWH, VE3KH, VE3OIL, VE3RKS, WØJT, WØPHD, WØZQ, W1AIM, W1AUV, W1MKY, W2SJ, W3HMS, W4DEX, W4WSR, W6SR, W9FZ, W9SZ, WA2FGK, WA2VOI, WA3PTV, WA3TTS, WA5YWC, WA6QYR, WA8RJF, WB6DNX, WB6JDH, and WB8TGY.

10 GHz And Up Category

In the “And Up” category with 31 logs, last year’s 10 GHz Only category winner Gary, WBØLJC, claimed first place with a score of 75,522 points. Gary’s win came on the strength of 387 contacts with 26 different operators. Capturing the top spot for the most number of unique contacts was Lars, AA6IW, with 70 -- a new all-time record surpassing the record of 66 set in 2005. This is a noteworthy accomplishment as the slow but steady upward trend in the number of unique calls worked is a strong sign of the growth and interest in our microwave spectrum. Of the 31 competitors in this category, 30 logs reported contacts on 24 GHz, 7 on 47 GHz, 3 on 78 GHz, with no claimed contacts on Light. The best 24 GHz DX was reported by N1JEZ and VE3FN at 234 km, the best 47 GHz DX was reported by K6GZA at 143 km, and the best 78 GHz DX was reported by WA1MBA at 41 km. Congratulations to all on this fine work!

Top Ten – 10 GHz And Up Category		
Call	Score	Area
WBØLJC	75,522	Ø
AA6IW	56,472	6
WB6CWN	51,934	6
W6BY	42,258	6
K6GZA	36,290	6
W6QIW	34,224	6
WØGHZ	33,450	Ø
N6RMJ	32,588	6
W1GHZ	27,355	1
N6TEB	26,666	6
N1JEZ	21,338	1
KA1OJ	19,413	1
W1FKF	16,469	1
W6OYJ	14,247	6
W1JHR	14,037	1

Those who submitted logs for the 10 GHz & Up category are: AA6IW, AF6IF, K1DS, K4RSV, K6GZA, KA1OJ, KB8VAO, KI4NPV, N1JEZ, N6RMJ, N6TEB, NE8I, VE3FN, VE3NPB, VE3SMA, VE3ZV, WØGHZ, W1FKF, W1GHZ, W1JHR, W3SZ, W5LUA, W6BY, W6OYJ, W6QIW, W8ISS, W9SNR, WA1MBA, WA8VPD, WBØLJC, and WB6CWN.

Unique Calls and Total QSOs by Category

Unique					
Category	Call	Calls	Category	Call	QSOs
10G	WB6JDH	59	10G	W9FZ	387
10G	KE6HPZ	59	10G	WØZQ	383
10G	K6WCI	57	10G	NØUK	380
10G	N6CA	56	10G	KØHAC	378
10G	KI6TWT	56	10G	NØKP	302
10G	AF1T	54	10G	WA2VOI	294
10G	W1MKY	53	10G	KK6MK	230
10G	KK6MK	48	10G	WØJT	221
10G	N9RIN	48	10G	KE6HPZ	185
10G	WA6QYR	48	10G	NØEDV	168
10G	KC6UQH	46	10G	KI6TWT	160
10G	W1AIM	43	10G	WB6JDH	154
10G	N6LL	43	10G	AF1T	144
10G	N7EME	43	10G	W1MKY	136
10G	KJ6HZ	41	10G	K6WCI	135
10G	W6SR	39	10G	N9JIM	131
10G	N9JIM	37	10G	KØCQ	130
10G	W1AUV	37	10G	N6CA	126
10G	N6JV	35	10G	N6JV	125
10G	K1GX	34	10G	N9RIN	118
10G	WA2FGK	34	10G	W6SR	114
10G	KQ6EF	31	10G	W1AUV	104
10G	KN6VR	31	10G	WA6QYR	104
10G	W9FZ	27	10G	N6LL	103
10G	K6MGM	27	10G	W1AIM	100
10G	WB6DNX	26	10G	KJ6HZ	99
10G	NØKP	25	10G	KC6UQH	76
10G	WA2VOI	25	10G	K2YAZ	68
10G	K1TR	25	10G	K1GX	66
10G	K1RZ	25	10G	N7EME	61
10G	K6HLH	25	10G	K1MAP	58
10G	AD7OI	25	10G	WA2FGK	51
10G	NØUK	24	10G	K6JEY	50
10G	KØHAC	24	10G	WA8RJF	47
10G	WØZQ	24	10G	NØHJZ	47
10G	K1MAP	23	10G	WB8TGY	46
10G	KI6HHU	22	10G	KØAWU	46
10G	WØJT	21	10G	K1TR	45
10G	K6JEY	21	10G	KN6VR	44
10G	KA1LMR	21	10G	KQ6EF	43
10G	NØEDV	19	10G	NØHZO	42
10G	KA1ZD	18	10G	KA1LMR	41
10G	NØHJZ	17	10G	W9SZ	40
10G	K2KIB	17	10G	K1RZ	37
10G	K2YAZ	16	10G	K6MGM	35
10G	KØCQ	16	10G	W3HMS	33
10G	W3HMS	15	10G	K6HLH	33
10G	KA2OON	15	10G	AD7OI	33
10G	WA3TTS	15	10G	WA3PTV	32
10G	WA5YWC	15	10G	WB6DNX	32
10G	KØAWU	15	10G	KA1ZD	32
10G	NØHZO	15	10G	KB8U	28
10G	WB8TGY	14	10G	N2CEI	25
10G	W9SZ	14	10G	KI6HHU	24
10G	WA3PTV	14	10G	WA3TTS	23
10G	KB8U	13	10G	KI5WL	21
10G	AA2LY	13	10G	VE2JWH	19
10G	N1GJ	12	10G	NTØV	19
10G	WA8RJF	12	10G	WØPHD	19
10G	AF6NA	12	10G	K2KIB	18
10G	VE2JWH	11	10G	N1GJ	18
10G	W2SJ	10	10G	WA5YWC	16
10G	K8MD	8	10G	AA2LY	16

10G	N2CEI	7
10G	K6BNN	7
10G	W4DEX	6
10G	N6OLD	6
10G	KI5WL	6
10G	KB7NIE	6
10G	KØVXM	5
10G	VE3KH	5
10G	W4WSR	5
10G	AB4YK	4
10G	NTØV	3
10G	VE3RKS	3
10G	WØPHD	3
10G	VE3OIL	2

10G	KA2OON	16
10G	KØVXM	15
10G	VE3KH	15
10G	W4DEX	14
10G	AF6NA	13
10G	W4WSR	12
10G	KB7NIE	12
10G	K8MD	10
10G	W2SJ	10
10G	K6BNN	7
10G	AB4YK	6
10G	N6OLD	6
10G	VE3RKS	5
10G	VE3OIL	2

Unique

Category	Call	Calls
UP	AA6IW	70
UP	W6BY	67
UP	N6TEB	63
UP	N6RMJ	61
UP	W6QIW	56
UP	K6GZA	52
UP	WB6CWN	51
UP	W1GHZ	45
UP	KA1OJ	41
UP	W1FKF	39
UP	N1JEZ	38
UP	W6OYJ	37
UP	WBØLJC	26
UP	KB8VAO	26
UP	WØGHZ	25
UP	W1JHR	25
UP	VE3ZV	24
UP	WA8VPD	23
UP	W3SZ	21
UP	WA1MBA	19
UP	NE8I	17
UP	W8ISS	17
UP	W9SNR	16
UP	VE3NPB	16
UP	VE3SMA	15
UP	VE3FN	12
UP	W5LUA	10
UP	KI4NPV	6
UP	K4RSV	5
UP	K1DS	4
UP	AF6IF	1

Category	Call	QSOs
UP	WBØLJC	387
UP	AA6IW	259
UP	WB6CWN	230
UP	WØGHZ	214
UP	W6BY	205
UP	N6RMJ	169
UP	W6QIW	155
UP	N6TEB	151
UP	K6GZA	144
UP	W1GHZ	123
UP	KA1OJ	105
UP	VE3ZV	100
UP	W1FKF	96
UP	N1JEZ	91
UP	VE3SMA	82
UP	VE3NPB	75
UP	W1JHR	71
UP	KB8VAO	59
UP	W9SNR	57
UP	W6OYJ	57
UP	NE8I	48
UP	WA8VPD	43
UP	W8ISS	29
UP	W3SZ	26
UP	WA1MBA	24
UP	VE3FN	18
UP	KI4NPV	15
UP	K4RSV	15
UP	W5LUA	14
UP	K1DS	4
UP	AF6IF	2

Analysis

The following graphs provide additional analysis for the 2009 10 GHz And Up contest. This contest first started in 1986 and activity was restricted to the 10 GHz band. The “And Up” change allowing contesting on the bands above 10 GHz was added in 1996.

Figure One shows a histogram of the “Best 10 GHz DX” in km for all 107 logs. The most common “Best DX” distance was 350 to 400 km with 17 stations logging their best DX in this range. The average “Best 10 GHz” DX was 402 km and the median distance was 407 km.

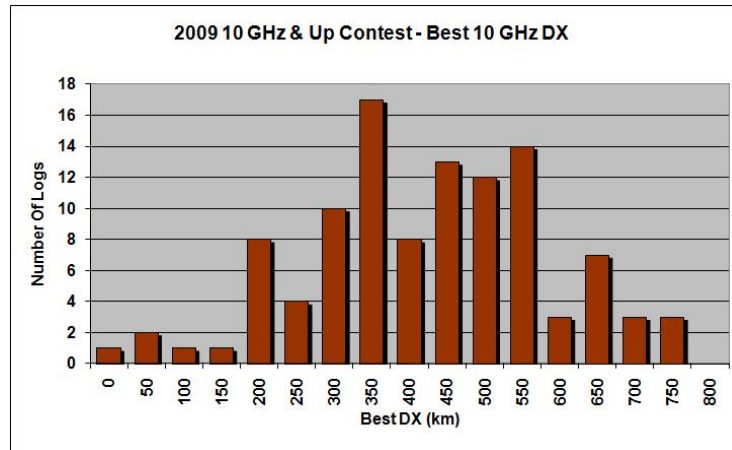


Figure Two compares the history of logs received (Y axis) with the highest number of unique calls worked since the start of the contest in 1986 (X axis). The record number of logs received occurred in 2003 with 141 logs. Since 2001 there has been a slight but steady decline in the number of logs received, ending this year with a slight uptick to 107 logs. However, over this same time interval, the highest number of unique calls worked has been on an overall upward trend with this year’s 70 unique calls setting a new record. While activity has been improving, the percentage of operators who actually submit their logs may be decreasing. Perhaps finding an easier way to report contest results would improve this situation.

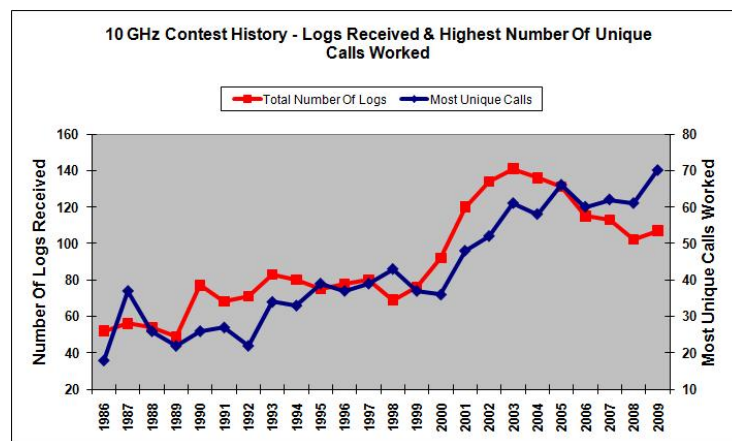


Figure Three shows the Best DX by band for the history of this contest. 1996 was the first year that the “And Up” category was added allowing for contacts on 24 GHz and above. This graph excludes known EME contacts, representing only terrestrial contacts.

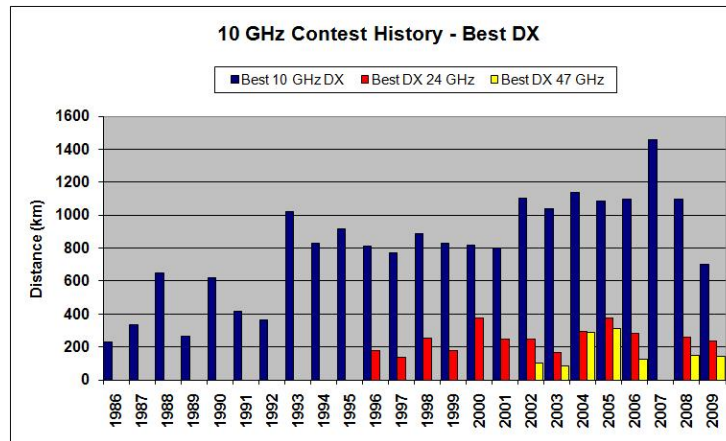


Figure Four plots the history for the top scores from 1986 to 2009. Again, the “And Up” category did not start until 1996. Overall scores have been slowly rising and in 2002 XE2/W6YLZ, KØRZ, and AD6FP all cracked the 100k barrier for the first time. Since 2002 scores have continued to stay above pre-2002 levels but have shown much more volatility. That is most likely a sign of the impact of local weather during the contest weekends and/or organization efforts at the local level.

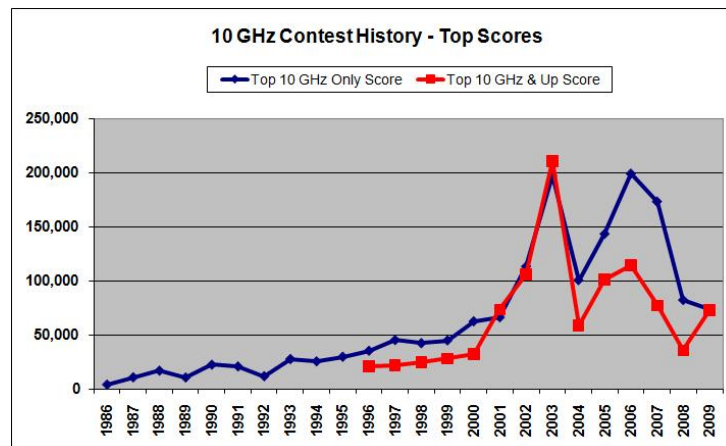
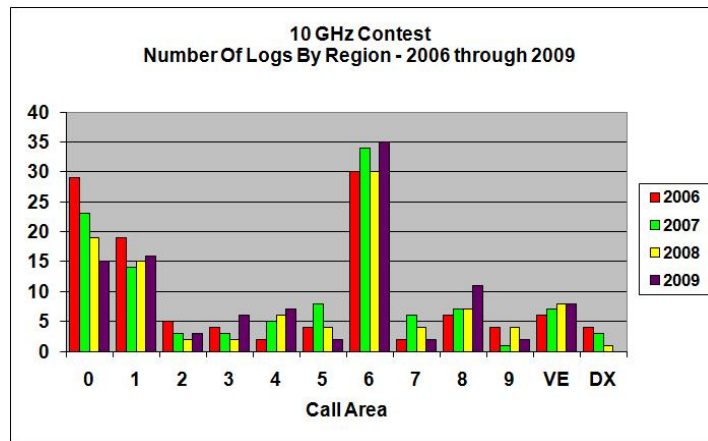


Figure Five shows recent trends in the number of logs submitted, based on call area, from 2006 through 2009. Since its high water mark in 2006 Ø-land has seen a significant drop in logs from 29 in 2006 to 15 in 2009. Historically, a significant number of logs have come from the Upper Midwest and Rocky Mountain Front Range area. Areas of the country that have continued to see a steady rise in activity include 4-land, 6-land, 8-land, and Canada. Significantly populated parts of our county do seem to be under-represented, including 2-land and 9-land.



Looking Ahead – The 25th Running

Weak signal VHF clubs are a key to microwave contesting. If you don't have one in your area, start one. If you do have one in your area, now is a good time to discuss your club's plans for next year's 10 GHz And Up contest. Maybe the plan includes some 10 or 24 GHz transverter building and testing activities, or perhaps the planning includes discussion on how to coordinate activity. Make sure to catch the fun and adventure that is the ARRL's 10 GHz And Up contest on August 21-22 and September 18-19, 2010 and after operating, please submit your log.