ARRL 10 Meter Contest 2015 Results

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"Gotta love 10 meter prop. It certainly keeps things interesting" - Luis, W4LT

2015 marked the 43rd edition of the ARRL 10 Meter Contest. What began as an idea by Larry, WØPAN, and Bob, K8IA, in 1973 for generating activity on the band to protect it from commercial interests has turned into a very popular worldwide event. (By the way both of these folks were on the air during the contest. How is that for long-term commitment?) Over the course of December 12th and 13th, 2015 more than 7,300 operators from every ARRL section and at least 119 DXCC countries got on the air, making an estimated 1.1 million QSOs. If evenly spread across the whole weekend this represents more than 6 QSOs being made every second!

After the contest more than 4,100 operators submitted their log to the ARRL for checking, scoring and inclusion in the contest results. That's more than half the active operators. Each one of these entrants spent an average of 6-½ hours on the air and made 207 QSOs. To put this number of competitors in context, the National Football League (NFL) in the United States has a total of 1,696 players on its 32 teams, Major League Baseball (MLB) in the US has 750 players on its 30 teams, and the English Premier League (EPL) has 500 players on its 20 football, soccer to us in the US, teams. So the 2015 ARRL 10 Meter Contest had more entrants than the total number of players on all NFL, MLB, and EPL teams combined!

The quiet member of K7ATN's team. It is nice to have your mascot participate even if he or she does not make many QSOs. (Photo credit – Etienne Scott, K7ATN)

We have learned over the last 43 years that this contest, more than any other, "Lives by the Sun and dies by the Sun". Looking back on the 2015 edition we can see is changing and so will its namesake contest. After hanging in there for a magical 2014, the decline in solar activity finally caught up with the contest in 2015. Compared to 2014, total QSOs made were down about 50% and active operators were down 25%. The size of the average log submitted was down by 45%.

Long-haul intercontinental QSOs were particularly impacted. The number of QSOs reported between North America and Europe dropped by 83% from 2014. So, as propagation decreases the ability to make QSOs, logs get smaller, they contain fewer DX QSOs, and actually the number of operators even getting on the air is impacted. (There is also anecdotal evidence in the Soapbox comments that unseasonably warm weather in the eastern part of the United States on contest weekend provided an attractive diversion for many contesters.) But, with that said the 10 Meter Contest is still an enjoyable operating event and has a lot going for it.

In fact, there are some aspects of the 10 Meter Contest that are even more enjoyable in low parts of the solar cycles. For example: With reduced propagation the number of stations pounding in over the air is reduced and QRM levels are very low. Who doesn't like low QRM? When band openings do occur they are often quite localized or as sometimes described as "spotlight". Meaning the propagation path is open to a relatively small geographic area. When you hear a station and call them, you will likely be one of a very few. You will have a much higher likelihood of them coming right back to you. Who likes spending time in pileups?

Because of localized propagation if you call CQ you will often be rewarded with surprise QSOs. In 2015 many operators commented in their Soapbox about being called by V51YJ, FW5JJ, VP8NO, 5R8SV, or D44BS "out of the blue." The reason was these stations were also not hearing as many stations as in high propagation years and they were happy and excited to call you. So, if you are on the air, calling CQ, aim your antennas at areas of likely propagation. Who knows what will happen? For sure it is a bit like a fishing expedition, but those are fun as well. Who doesn't like being called by good DX?

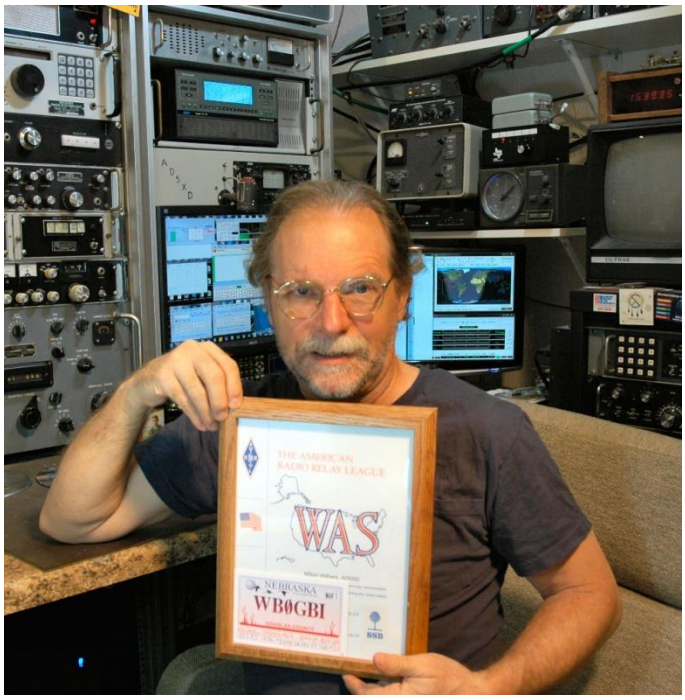
These conditions can also provide a great training ground and experience for new contesters and a relaxing environment for the long timers. For example, Joe, W7QN, at 94 years young (licensed in 1939) and operating with a BigIR vertical antenna on the roof of his

apartment, managed to make 257 QSOs. With reduced QRM levels and the band not sounding like a frantic madhouse, the 10 Meter Contest in low sunspot years is a welcome place for new and learning contesters. You can find a clear frequency to call CQ. And when you search and pounce, hear a station, and call them, they will likely come right back to you.

The ET3AA club station used the contest to expose new operators to the sport. As onsite coach Ken, K4ZW, said: "For most of them, this was their first contest. Some got the knack of it quickly and others will need some time. But they had a blast and are ready to do it again. I've said this before but I'll repeat it: I've done some cool stuff in Amateur Radio but this ranks right up there!" Who doesn't like operating in an easy and rewarding environment?

The ET3AA station in action, operated by (L-R) Robel Hayelom, Biniam Kassahun, and Efrim Dessalew.(Photo credit – Ken Claerbout, K4ZW)

Finally, these years with low sunspots can also mean that time spent looking for that last state for Worked All States (WAS) or other award will be profitable. When you find them, you will work them. For example. Milt, AD5XD, managed to nab Nebraska to complete both his 10 meter WAS as well as his 5-Band WAS. That's a pretty good QSO. John, NI5L, also managed to complete his 10 meter WAS by working Nevada and Tom, N2CU, tracked down Delaware for the same purpose. Beyond these three guys, 27 stations managed WAS during the contest itself! Of these hard working and well-located stations, 20 were in South America, six were in the United States, with the lone station outside the Americas being Bernd, VK2IA. As Bernd said in his post contest comments: "After reading all those comments it looks like we were the lucky ones this weekend here in the South." No stations in Europe, Asia, or Africa managed WAS in 2015. CR2X who is as far west in Europe as you can get, did manage to work the lower 48 states and Hawaii, missing only Alaska.



A happy AD5DX with his WAS certificate earned during the contest! (Photo credit – Dwight Brown, AD5DX)

Antennas are Important!

As in all years, the 10 Meter Contest is one for which it's easy to get on the air. Beams are small and don't need to be very high. Or you can throw a rock into a tree and haul a wire up into the air. That is how John, N6HI, gets on the air each year. Lew, K7GO, said, "On the spur of the moment," he put up a half-wave end-fed vertical on a fence post and cranked out 113 QSOs and 43 multipliers operating CW QRP. Andrew, VK4NM, took bit more serious approach with his two 5-element Yagis side by side for his multioperator entry with Ryan, NØOJ. True to the spirit of Amateur Radio and the 10 Meter Contest, one of the antennas was totally homebrew and put together after 20 hours of effort in the week before the contest.

Lew, K7GO's good looking "spur of the moment" vertical dipole. (Photo credit – Bob Sawyer, N7GO)

Andrew, VK4NM used two separate monoband beams (Photo credit – Warwick Marshallsea, VK4NW)

Even if you have an antenna you need to remember to connect it. As Cort, K4WI, found out when he noticed the "External Receive Antenna" button had been activated on his FT-2000D but there was no antenna attached to that port. That explained why he was not hearing anything. When he started listening on his transmit antenna, all was well. Rick, N6XI had a similar experience. He managed to make his first 13 QSOs with his radio operating into his dummy load! Then some environments are just plain tough on antennas. Living near salt water is one of them. Jim, KP2XX, had the mast on his 10 meter beam rust out and collapse just before the contest turning his antenna into "...something that looked like some sort of fractal antenna design or a strange attempt at shortening the elements". After 8 hours of rebuilding using scavenged parts and a few hardware store purchases, he was back on the air and made almost 1,800 QSOs. This goes to show you want can be done even with a simple and imperfect antenna. Of course, in Jim's case, a great QTH is helpful as well.

Cort, K4WI smiling again after deselecting "External Receive Antenna" (Photo credit – Cort Judd, K4WI)

Jim, KP2XX's hastily rebuilt Yagi. Look at the view his antenna has! (Photo credit – Jim Latham, KP2XX)

Top Ten – U.S. by Category

Single Operator, Mixed Mode, High Power

K1KI	1,545,774
K1WHS (K1BX, op)	1,381,330
W6YI (K6AM, op)	940,500
W6YX (N7MH, op)	924,288
N8II	860,064
N9RV	698,544
K3ZU	672,810
W3EP	666,072
N6NF	571,744
KØTT	505,960

Single Operator, Mixed Mode, Low Power

KI6RRN	512,256
N6ZFO	444,276
WAØMHJ	354,576
K2PS	281,504
N7LOX	268,830
WB8WKQ	234,740
NA8V	213,864
KTØK	198,492
N6YEU	163,000
AC5O	158,844

Single Operator, Mixed Mode, QRP

WA6FGV	104,220
KA7T	49,080
WB2AMU	45,100
KH6KG	30,360
NS7K	21,944
W7GB	14,652
N4TOL	13,764
N4ELM	12,584
N9JR	10,374
AE6JV	10,080

Single Operator, Phone Only, High Power

NR5M	282,384
K7YK	227,840
K5TR (WM5R, op)	210,944
N7AU	186,620
N4OX	179,332
KE2DX	170,856
WA8UEG	136,944
AG4W	119,320
W2RD	116,848
W1SJ	116,662

Single Operator, Phone Only, Low Power

K4FCG (K1KNQ, op)	107,008
WR5O	59,272
KI6QDH	57,620
N7FLT	56,400
N8CWU	47,180
N2HMM	46,768
WA8QYJ	45,904
K4PZC	43,690
K4DMR	38,216
WD4IXD	38,122

Single Operator, Phone Only, QRP

W6QU (W8QZA, op)	25,916
KB5KYJ	13,904
NDØC	8,118
KS4GW	7,636
WB6CZG	4,650
KA5PVB	3,944
NO4FX	3,132
KIØII	3,024
K9JK	3,000
N2WN	2,592

Single Operator, CW Only, High Power

KD4D	830,220
K1TO	807,868
K5NA	563,568
NR4M	490,912
WJ9B	460,224
AA3B	443,424
W6PH	425,856
W1QK	423,120
K4FJ	397,800
N5FO	394,304

Single Operator, CW Only, Low Power

KH7M (KH6ZM, op)	604,032
N4WW (N4KM, op)	339,184
KH6CJJ	237,600
WB4TDH	213,384
N4ZI	211,068
K9QVB	184,040
WN6K	183,580
WD4AHZ	174,636
W3BGN	172,688
W2UP	167,400

Single Operator, CW Only, QRP

W6JTI	130,640
W7YAQ	90,024
AA1CA	72,048
N5OE	62,744
N1IX	41,800
K2YAZ	33,152
N8AP	23,220
K2SM	20,976
N7IV	20,928
NQ2W	18,240

Single Operator Unlimited, Mixed Mode, High Power

N8OO	1,124,928
K3WW	914,354
W4ML (W4MYA, op)	890,460
W8MJ	811,640
NH7AA	672,660
K6SRZ	638,768
W3JX	493,892
NR3X (N4YDU, op)	473,396
N2TU	455,512
KY7M	428,120

Single Operator Unlimited, Mixed Mode, Low Power	
KD2RD	412,452
KS1J	204,078
K9OM	199,626
N7IR	190,032
W6AWW	156,550
K2DFC	155,184
NK3Y	123,926
AA4LR	119,944
N8VV	103,270
AAØAW	102,270
Single Operator Unlimited, Mixed Mode, QRP	
N5DO	187,620
WO4O	163,344
N1CC	84,088
K2GMY	70,664
N5EIL	31,388
KU4A	21,424
W7TR (KH2TJ, op)	19,404
W2OL	8,236
KC9LVT	520
Single Operator Unlimited. Phone Only, High Power	
K3EST	370,800
WB9Z	316,758
W3LL	269,352
W5PR	229,320
W7WW	146,160
KIØE	112,056
KI7M	99,824
KA1ZD	85,446
AC8G	69,936
N8PCN	55,566
Single Operator Unlimited, Phone Only, Low Power	
K2DRH	114,144
KT4ZB	73,752
KG9Z	64,408
NY6DX	58,860
KK4LGC	43,680
N2MUN	41,984
N3ALN	20,196
KC1BOH	15,232
KG7LKI	14,304
KD2CVR	13,924
Single Operator Unlimited, Phone Only, QRP	
K7ATN	17,376
WBØTEV	12,628
NA5NN (K2FF, op)	7,480
N2GBR	5,180
WB3D	1,850
W2MF	1,620
N9NBC	264
Single Operator Unlimited, CW Only, High Power	
K2SSS	672,600
N2MM	590,352
N4BP	545,424
NY3A	535,140
K6LL	532,560
K3UA	506,352
N6SS	474,832
W5MX	465,248
NW6P (DG1CMZ, op)	417,060
K8IA	414,540

Single Operator Unlimited, CW Only, Low Power	
N2KW	315,744
W7ZR	268,092
KE7X	216,108
W9XT	203,904
K8AJS	150,144
K6WSC	144,600
WB5EIN	122,880
AB1J	89,100
KØQC	87,848
K5KJ	73,372
Single Operator Unlimited, CW Only, QRP	
K1GU	137,180
KØLUZ	73,872
KU7Y	29,808
NØUR	14,356
KØPIR	6,600
NA5Q	5,320
K4YND	3,520
K8ZT	1,872
Multioperator, High Power	
KC1XX	2,139,000
N3RR	1,276,928
AA1JD	1,069,596
W1NA	890,274
K4MM	839,952
W1DX	648,736
K7RI	531,200
K7JR	473,964
W4HZ	451,350
W4TMO	397,026
Multioperator, Low Power	
W7TVC	550,074
NØNI	461,340
N4SVC	428,274
K4FT	208,320
N3ZV	144,648
WL7F	110,252
WA1F	91,200
W1FM	85,692
W7PU	78,684
NØHJZ	74,868

Top Ten – Canada by Category

Single Operator, Mixed Mode, High Power	
CJ3A (VE3AT, op)	895,648
VE3KZ	442,638
VE3TW	53,298
VE9CB	27,600
VE3JM	27,324
VA6UK	16,800
VE3HED	12,078
VE3MT	60

Single Operator, Mixed Mode, Low Power	
VC1E (VE1ZA, op)	85,120
VE3FH	58,480
VE7KW	51,136
VE4VT (VE4EAR, op)	43,836
VE3CWU	31,354
VE2QY	29,770
VE2AWR	25,520
VE6VS	21,984
VE5SF	19,176
VE3BR	17,934
Single Operator, Mixed Mode, QRP	
VA3RKM	5,356
VE5DLD	1,862
Single Operator, Phone Only, High Power	
VE2GSO	36,210
VA6MA	19,488
VA3TIC	11,280
VE1JS	3,484
VA3MTT	2,400
VE2HAY	1,428
VE2JM	1,116
Single Operator, Phone Only, Low Power	
VA7JW	45,200
VE7AS	20,140
VE2HIT	17,818
VE6FI (VE6AQ, op)	16,240
VE2PDT	14,144
VE7CKZ	6,596
VE3WPV	6,080
VA3KVI	5,576
VE3KTB	4,144
VE4DDW	4,056
Single Operator, Phone Only, QRP	
VE3CBK	812
VE3BKM	572
VE7CBZ	8
Single Operator, CW Only, High Power	
VE9AA	266,304
VE3PN	238,480
VE5UF	178,932
VE3FGU	98,260
VY2LI	65,552
VE7JKZ	32,448
VE2FU	21,168
VE3EY	19,620
VE8EV	1,960
Single Operator, CW Only, Low Power	
VE6WQ	221,616
VA3EC	91,728
VE2ZT	72,352
VA7EU	42,488
VO1QU	36,608
VA3ATT	34,768
VE3OM	34,336
VO1BQ	18,400
VE3ZY	17,440
VA7MM	16,728

Single Operator, CW Only, QRP	
VY2OX	75,140
VA3AMX	8,400
VE7ETS	2,240
VA3RJ	1,764
Single Operator Unlimited, Mixed Mode, High Power	
VE3EJ	339,692
VE4GV	160,500
VE2EBK	90,576
VE1JBC	65,800
VE3YT	38,988
VE3JDF	25,568
VA2QR	7,650
Single Operator Unlimited, Mixed Mode, Low Power	
VA3DF	270,864
VE3IAE	61,576
VE7AHT	39,220
VE3GFN	33,534
VE3XAT	27,830
VE3BW	27,744
VE9ML	20,972
VE9OA	15,824
VE2BWL	15,386
VE6AX	13,632
Single Operator Unlimited, Mixed Mode, QRP	
VE3KI	130,416
Single Operator Unlimited, Phone Only, High Power	
VE6KD	41,654
VE6CMV	21,320
Single Operator Unlimited, Phone Only, Low Power	
VA7IR	19,300
VE2GT	2,650
VE4TV	810
Single Operator Unlimited, CW Only, High Power	
VO1MP	279,864
VE1OP	228,664
VE2FK	204,340
VA3DX	183,480
VA7ST	176,400
VE7XF	159,120
VE3MM	53,600
VA2WA	44,312
VE7IO	11,648
Single Operator Unlimited, CW Only, Low Power	
VA3MJR	39,744
VE3NZ	39,440
VO1HP	32,696
VE3JAQ	13,448
VO2AC	10,140
VE5MX	6,048
VE3UTT	5,888
Multioperator, High Power	
VE3YAA	389,440
VE3AD	161,112
VE6AO	70,928
Multioperator, Low Power	
VA7BEC	358,290
VE3LS	5,040

Top Ten - Mexico by Category

Single Operator, Mixed Mode, Low Power	
XE1USG	64,260
XE1SVT	55,104
XE1ZTW	25,960
XE1SOV	2,750
XE1AHP	638
Single Operator, Phone Only, High Power	
XE1B	374,714
Single Operator, Phone Only, Low Power	
XE1CWJ	67,098
XE2O	51,960
XE1CQ	37,312
XE1J	36,512
XE1H	21,696
XE1CTJ	15,480
XE2TZP	9,728
XE2OK	9,360
XE2PDZ	4,088
XE2TH	3,960
Single Operator, Phone Only, QRP	
XE2NRG	4
Single Operator, CW Only, Low Power	
XE1MM	212,496
XE2S	161,040
XE1AY	150,480
XE1CT	24,576
XE3WMA	13,056
XE3WAO	6,588
XE2MVY	6,300
XE1TD (XE1GXG, op)	3,952
Single Operator Unlimited, Mixed Mode, High Power	
XE2B	828,704
Single Operator Unlimited, Mixed Mode, Low Power	
XE2AU	108,108
XE2JS	82,492
Single Operator Unlimited, Phone Only, High Power	
XE1/N4DMH	212,160
XE1OGG	57,708
Single Operator Unlimited, Phone Only, Low Power	
XE3N	77,964
XE1RF	47,850
XE3MAS	7,200
XE2MWY	616
Single Operator Unlimited, CW Only, High Power	
XE2CQ	229,416
Single Operator Unlimited, CW Only, Low Power	
XE2X	60,208
XE1EE	54,528
XE2FGC	34,128
XE2ST	27,520
Multioperator, Low Power	
XE1SIX	37,050
XE2N	4,620

Top Ten - DX by Category

Single Operator, Mixed Mode, High Power	
EF5Y (EA5FR, op)	1,080,654
ZT6T	445,536
CT7ACG	441,762
JA6GCE (JH5GHM, op)	261,080
G4FKA	237,010
HB9CVQ	207,576
LZ1GU	200,070
F6GOX	185,878
LY9Y	179,828
F5JY	157,820
Single Operator, Mixed Mode, Low Power	
OA4SS	659,940
EF8O	428,064
HSØZIA	403,000
VR2ZQZ	381,282
LU1ICX	343,758
PR4C (PY2TI, op)	294,150
YT8A (YU1EA, op)	221,760
RU7A	210,760
EA6SX	177,016
HH2/N5JR	158,414
Single Operator, Mixed Mode, QRP	
PY2NY	123,504
HG3M (HA3MY, op)	33,660
EB1RL	27,456
VU2UR	25,480
EW8OG	12,558
UT5EOX	11,234
JH7UJU	10,218
IZ2JPN	9,828
KP4LE	6,270
RW3AI	4,136
Single Operator, Phone Only, High Power	
HK1T	882,376
PX2B (PY2LED, op)	788,436
PP5JD	777,708
CR2X (OH2BH, op)	746,560
PJ4DX	704,304
KP2XX	341,376
CR6K (CT1CJJ, op)	320,796
CX1AV	318,562
CV7S (CX7SS, op)	275,776
LQ7E (LW3DN, op)	263,520
Single Operator, Phone Only, Low Power	
EA8AH	482,482
CA7CAQ	332,080
HK6F	196,536
HI8JSG	193,060
WP4PGY	181,560
TG9ANF	180,306
PY5FO	161,424
PU5CSF	152,818
PU2WDX	145,436
LU2FGL	133,826

Single Operator, Phone Only, QRP	
TG9ADQ	93,600
CT7AIX	26,334
I5KAP	13,566
PU1MHZ	11,900
R7NA	8,832
PY2BI	7,380
PP5XA	7,128
UY2IF	6,634
PY3FOX	6,110
VK4FAAS	5,120
Single Operator, CW Only, High Power	
PY2ZXU	1,253,760
VK2IA	1,236,000
HK1MW	584,176
EA8/IK1PMR	568,912
PJ6/G3TXF	522,100
YT5W (YU1AU, op)	469,536
A93JA (KE5JA, op)	375,580
CE3DNP	366,464
ZM2B	360,824
C4Z (5B4AIZ, op)	301,000
Single Operator, CW Only, Low Power	
NP3A	870,480
EA8CN	608,000
CQ8CQ (CU3AA, op)	505,440
LU5FF	354,960
5R8SV	337,440
XR2K	325,480
J6/K4ZGB	285,200
CR5U (CR7AJL, op)	230,776
XV9NPS	199,160
PX1M (PY1MK, op)	182,208
Single Operator, CW Only, QRP	
PY4XX	49,104
F6HBI	32,148
OK5WF	27,244
US5VX	26,688
PY2QI	20,580
RT4W	20,008
HA3HX	19,488
4X1IF	18,212
JA1YNE (JR1NKN, op)	17,280
VR2UU (KØUU, op)	16,320
Single Operator Unlimited, Mixed Mode, High Power	
NP2P (N2TTA, op)	1,426,156
EF7X	1,327,784
DL2SAX	629,100
OK7M (OK1DIG, op)	484,872
RJ4P	464,512
DK2OY	353,444
TK5MH	345,708
ZS6WN	287,180
RL4A	237,886
RU3FM	234,256

Single Operator Unlimited, Mixed Mode, Low Power	
HI3CC	450,146
S52NR	210,388
PA3EVY	190,944
UX1AA	186,796
RW4WA	170,772
IZ8EYP	168,990
RX9SR	145,544
R7MM	141,702
PE2HD	105,618
PY1GQ	99,220
Single Operator Unlimited, Mixed Mode, QRP	
OK2FD	99,938
UT3IT	14,520
LU5DX	10,164
RUØLAX	10,044
WP4DT	9,520
JK1TCV	7,440
PU5UAI	2,576
PY1CMT	336
PY4WJ	280
SP3CMX	160
Single Operator Unlimited, Phone Only, High Power	
LU1FKR	679,360
ZY2B	553,520
TM7G (F4CWN, op)	286,760
DL2ARD	275,536
IQ9UI (IT9EQO, op)	265,202
PY5IN	190,920
EA7ATX	170,852
IZ8EPX	148,824
PZ5RA	144,378
IZ8TDP	143,868
Single Operator Unlimited, Phone Only, Low Power	
LU7DH	211,044
TO9ØR	199,356
L77D	177,250
VP9/KU9C	143,276
LU4DJB	123,280
LZ2HM	104,400
ZV2K (PY2SHF, op)	68,952
PY8WW	67,040
MIØSMK	63,536
PU2UAF	50,596
Single Operator Unlimited, Phone Only, QRP	
USØMS	4,814
YY4KCV	2,300
G7KXZ	528
TA3UDK	234
PD5WL	204
EW4RF	144
Single Operator Unlimited, CW Only, High Power	
LR1E (LW6DG, op)	1,160,568
KP2Q (K3TEJ, op)	968,240
NP2X (K9VV, op)	810,840
CX9ØIARU (CX2BR, op)	759,708
ZM1A (ZL3CW, op)	704,900
TM1X (F8CMF, op)	547,552
EA4TX	518,848
DL1IAO	473,064
EA5BY	415,756
PY2MC	409,920

Single Operator Unlimited, CW Only, Low Power	
PP1CZ	458,304
KP4EJ	442,800
LZ4TX	436,500
PY1KS	299,404
PP5NY	262,080
LU4EG	199,680
PY1NX	147,960
S53X	132,308
5W1SA	131,984
IØUZF	131,760
Single Operator Unlimited, CW Only, QRP	
LT7H (LU7HZ, op)	248,864
3Z9DX (SP5MXZ, op)	162,408
JR3RWB	18,944
YO8WW	18,512
RD7K	6,336
BG7TJA	5,928
GØTPH	4,560
9A2KO	4,416
F5IRC	3,760
JH6QIL	2,584
Multioperator, High Power	
CW5W	3,519,642
PP5JR	3,206,772
PR2F	3,089,088
PJ2T	2,836,416
P4ØS	2,332,688
LU5FC	2,009,840
PT3T	1,777,912
PS2T	1,643,460
CE3CT	1,504,500
CX4AT	1,386,432
Multioperator, Low Power	
FY5KE	2,151,660
NP2N	812,036
ZY5A	266,602
T48T	262,320
IT9YVO	257,320
CW1DC	232,394
TM2M	182,776
ZV5D	162,554
VK2GGC	141,540
LU1BJW	91,980

Continental Leaders

Category	Call	Score
Africa		
Single Operator, Low Power, Mixed Mode	ZS2NF	108,990
Single Operator, High Power, Mixed Mode	ZT6T	445,536
Single Operator, Low Power, Phone Only	EA8AH	482,482
Single Operator, High Power, Phone Only	ZS4JAN	162,150
Single Operator, Low Power, CW Only	EA8CN	608,000
Single Operator, High Power, CW Only	EA8/IK1PMR	568,912
Multioperator, High Power	ET3AA	206,796
Single Operator Unlimited, Low Power, Mixed Mode	ZS6C	22,816
Single Operator Unlimited, High Power, Mixed Mode	ZS6WN	287,180
Single Operator Unlimited, Low Power, Phone Only	TO9ØR	199,356
Single Operator Unlimited, Low Power, CW Only	EA8DA	85,008
Asia		
Single Operator, QRP, Mixed Mode	VU2UR	25,480
Single Operator, Low Power, Mixed Mode	HSØZIA	403,000
Single Operator, High Power, Mixed Mode	JA6GCE (JH5GHM, op)	261,080
Single Operator, QRP, Phone Only	TA3AWS	1,656
Single Operator, Low Power, Phone Only	HSØZHC	64,548
Single Operator, High Power, Phone Only	HZ1HZ	64,990
Single Operator, QRP, CW Only	JA1YNE (JR1NKN, op)	17,280
Single Operator, Low Power, CW Only	XV9NPS	199,160
Single Operator, High Power, CW Only	A93JA (KE5JA, op)	375,580
Mutioperator, Low Power	JR2SCJ	32,400
Multioperator, High Power	TC9ØIARU	85,376
Single Operator Unlimited, QRP, Mixed Mode	RUØLAX	10,044
Single Operator Unlimited, Low Power, Mixed Mode	RX9SR	145,544
Single Operator Unlimited, High Power, Mixed Mode	RG9A	226,218
Single Operator Unlimited, QRP, Phone Only	TA3UDK	234
Single Operator Unlimited, Low Power, Phone Only	TA3OO	9,984
Single Operator Unlimited, High Power, Phone Only	BMØDX (BM2JCC, op)	59,000
Single Operator Unlimited, QRP, CW Only	JR3RWB	18,944
Single Operator Unlimited, Low Power, CW Only	JG1AVO	68,040
Single Operator Unlimited, High Power, CW Only	RT9S	222,712
Europe		
Single Operator, QRP, Mixed Mode	HG3M (HA3MY, op)	33,660
Single Operator, Low Power, Mixed Mode	YT8A (YU1EA, op)	221,760
Single Operator, High Power, Mixed Mode	EF5Y (EA5FR, op)	1,080,654
Single Operator, QRP, Phone Only	CT7AIX	26,334
Single Operator, Low Power, Phone Only	F5LIW	33,152
Single Operator, High Power, Phone Only	CR2X (OH2BH, op)	746,560
Single Operator, QRP, CW Only	F6HBI	32,148

Single Operator, Low Power, CW Only	CQ8CQ (CU3AA, op)	505,440
Single Operator, High Power, CW Only	YT5W (YU1AU, op)	469,536
Mutioperator, Low Power	IT9YVO	257,320
Multioperator, High Power	TM6M	1,347,500
Single Operator Unlimited, QRP, Mixed Mode	OK2FD	99,938
Single Operator Unlimited, Low Power, Mixed Mode	S52NR	210,388
Single Operator Unlimited, High Power, Mixed Mode	EF7X	1,327,784
Single Operator Unlimited, QRP, Phone Only	USØMS	4,814
Single Operator Unlimited, Low Power, Phone Only	LZ2HM	104,400
Single Operator Unlimited, High Power, Phone Only	TM7G (F4CWN, op)	286,760
Single Operator Unlimited, QRP, CW Only	3Z9DX (SP5MXZ, op)	162,408
Single Operator Unlimited, Low Power, CW Only	LZ4TX	436,500
Single Operator Unlimited, High Power, CW Only	TM1X (F8CMF, op)	547,552
North America		
Single Operator, QRP, Mixed Mode	WA6FGV	104,220
Single Operator, Low Power, Mixed Mode	KI6RRN	512,256
Single Operator, High Power, Mixed Mode	K1KI	1,545,774
Single Operator, QRP, Phone Only	TG9ADQ	93,600
Single Operator, Low Power, Phone Only	HI8JSG	193,060
Single Operator, High Power, Phone Only	XE1B	374,714
Single Operator, QRP, CW Only	W6JTI	130,640
Single Operator, Low Power, CW Only	NP3A	870,480
Single Operator, High Power, CW Only	KD4D	830,220
Mutioperator, Low Power	NP2N	812,036
Multioperator, High Power	KC1XX	2,139,000
Single Operator Unlimited, QRP, Mixed Mode	N5DO	187,620
Single Operator Unlimited, Low Power, Mixed Mode	HI3CC	450,146
Single Operator Unlimited, High Power, Mixed Mode	NP2P (N2TTA, op)	1,426,156
Single Operator Unlimited, QRP, Phone Only	K7ATN	17,376
Single Operator Unlimited, Low Power, Phone Only	VP9/KU9C	143,276
Single Operator Unlimited, High Power, Phone Only	K3EST	370,800
Single Operator Unlimited, QRP, CW Only	K1GU	137,180
Single Operator Unlimited, Low Power, CW Only	KP4EJ	442,800
Single Operator Unlimited, High Power, CW Only	KP2Q (K3TEJ, op)	968,240
Oceania		
Single Operator, QRP, Mixed Mode	KH6KG	30,360
Single Operator, Low Power, Mixed Mode	DU3LA	63,000
Single Operator, High Power, Mixed Mode	VK3TZ	2,756
Single Operator, QRP, Phone Only	VK4FAAS	5,120
Single Operator, Low Power, Phone Only	YB1BGI	2,408
Single Operator, High Power, Phone Only	VK4DI	60,928
Single Operator, Low Power, CW Only	KH7M (KH6ZM, op)	604,032
Single Operator, High Power, CW Only	VK2IA	1,236,000
Mutioperator, Low Power	VK2GGC	141,540
Multioperator, High Power	VK4NM	1,332,000
Single Operator Unlimited, High Power, Mixed Mode	NH7AA	672,660
Single Operator Unlimited, Low Power, Phone Only	YC8UTI	12,506
Single Operator Unlimited, High Power, Phone Only	ZL1HD	53,664
Single Operator Unlimited, Low Power, CW Only	5W1SA	131,984
Single Operator Unlimited, High Power, CW Only	ZM1A (ZL3CW, op)	704,900
South America		
Single Operator, QRP, Mixed Mode	PY2NY	123,504
Single Operator, Low Power, Mixed Mode	OA4SS	659,940
Single Operator, High Power, Mixed Mode	PY1MX	86,328
Single Operator, QRP, Phone Only	PU1MHZ	11,900
Single Operator, Low Power, Phone Only	CA7CAQ	332,080
Single Operator, High Power, Phone Only	HK1T	882,376
Single Operator, QRP, CW Only	PY4XX	49,104
Single Operator, Low Power, CW Only	LU5FF	354,960
Single Operator, High Power, CW Only	PY2ZXU	1,253,760
Mutioperator, Low Power	FY5KE	2,151,660
Multioperator, High Power	CW5W	3,519,642
Single Operator Unlimited, QRP, Mixed Mode	LU5DX	10,164
Single Operator Unlimited, Low Power, Mixed Mode	PY1GQ	99,220
Single Operator Unlimited, High Power, Mixed Mode	PY3CAL	164,502
Single Operator Unlimited, QRP, Phone Only	YY4KCV	2,300
Single Operator Unlimited, Low Power, Phone Only	LU7DH	211,044
Single Operator Unlimited,	LU1FKR	679,360

High Power, Phone Only		
Single Operator Unlimited, QRP, CW Only	LT7H (LU7HZ, op)	248,864
Single Operator Unlimited, Low Power, CW Only	PP1CZ	458,304
Single Operator Unlimited, High Power, CW Only	LR1E (LW6DG, op)	1,160,568

Affiliated Club Competition

Club competition continues to be a popular and fun aspect of this contest. Operators get a chance to be part of a team while still operating from their home QTH. For many of us it is motivating to get on the air to make some points for our club or to compete for honors against fellow club members. Many operators mention in their Soapbox something similar to: "Wanted to get on the air to make some points for our club." Just another way to have some fun on a December weekend.

Affiliated Club Competition

	Entries	Score
Unlimited		
Yankee Clipper Contest Club	67	10,915,880
Potomac Valley Radio Club	89	9,669,722
Florida Contest Club	53	6,390,820
Minnesota Wireless Assn	101	4,223,122
Society of Midwest Contesters	65	2,636,336
Medium		
Northern California Contest Club	41	4,651,666
Arizona Outlaws Contest Club	40	4,614,916
Frankford Radio Club	33	4,096,752
Contest Club Ontario	37	3,866,716
Southern California Contest Club	25	2,908,820
Mad River Radio Club	15	2,165,108
Western Washington DX Club	16	1,933,462
Carolina DX Association	15	1,932,836
Big Sky Contesters	10	1,538,336
Tennessee Contest Group	18	1,437,662
DFW Contest Group	24	1,407,320
South East Contest Club	13	1,229,426
Central Texas DX and Contest Club	12	1,203,428
Grand Mesa Contesters of Colorado	14	1,182,478
Hudson Valley Contesters and DXers	11	1,158,662
Mother Lode DX/Contest Club	15	1,141,684
Kentucky Contest Group	10	1,111,280
North Coast Contesters	6	847,064
Orca DX and Contest Club	8	839,822
Alabama Contest Group	17	776,818
Georgia Contest Group	4	660,720
Willamette Valley DX Club	12	564,424
Hampden County Radio Assn	13	543,526
Utah DX Association	5	432,978
Mississippi Valley DX/Contest Club	4	416,364
Contest Group du Quebec	8	404,458
North Texas Contest Club	4	392,188
Texas DX Society	4	384,812
Louisiana Contest Club	5	353,920
Radiosport Manitoba	5	283,744
Order of Boiled Owls of New York	8	257,942
Rochester (NY) DX Assn	7	213,276
Saskatchewan Contest Club	3	204,156
Pacific Northwest VHF Society	3	77,826
Six Meter Club of Chicago	8	41,390
Swamp Fox Contest Group	5	40,368
Local		
Central Virginia Contest Club	7	1,882,522
Redwood Empire DX Assn	10	1,646,192
599 DX Association	5	1,206,300
CTRI Contest Group	6	942,242
Northeast Maryland Amateur Radio Contest Society	5	718,466
Maritime Contest Club	8	632,768
Albuquerque DX Assn	3	564,118
Bishop ARC	3	530,154
Spokane DX Association	6	479,528
Niagara Frontier Radiosport	5	408,768
Sussex County ARC	7	334,184
Lincoln ARC	4	224,960
Murgas ARC	3	210,540
Bristol (TN) ARC	4	209,300
Winona ARC	4	208,102
Kansas City Contest Club	7	201,552
Columbia-Montour ARC	4	197,992
North Carolina DX and Contest Club	3	182,188
Mall City Contest Group	5	175,056
Delara Contest Team	5	172,394
Sunday Creek Amateur Radio Federation	4	111,472
Midland ARC	3	106,744
NorDX Club	4	93,722
Meriden ARC	6	90,680
Portage County Amateur Radio Service	5	68,100
Metro DX Club	3	58,776
West Allis RAC	3	55,596
Ventura County Amateur Radio Society	3	53,274
Granite State ARA	3	47,500
Raritan Bay Radio Amateurs	3	45,992
West Park Radiops	4	41,904
Skyview Radio Society	5	38,594
North Fulton ARL	3	36,826
Pottstown Area ARC	6	35,786
Great South Bay ARC	5	30,264
Oakland County Amateur Radio Society	3	25,574
Pueblo West Amateur Radio Club	4	24,176
Mt Vernon (OH) ARC Contesters	7	24,112
Sierra Nevada ARS	3	18,434
Athens County ARA	3	12,868
Clark County Amateur Radio Club	3	9,182
Sterling Park ARC	6	6,686
Snohomish County Hams Club	3	6,374

In 2015 a total of 1,049 operators submitted logs that were also credited towards ARRL Affiliated Club Competition. This means that 52% of the W/VE operators were part of one of the 84 different clubs that participated. Both the participation percentage and number of clubs are up nicely from 2014. Way to go club organizers!

In the Local category the Central Virginia Contest Club(CVCC) took top honors among 43 clubs. In doing so they repeated their first place finishes from 2013 and 2014. They now have won this category in four out of the last five years. Their seven entrants combined for almost 2 million points. Though well down from their more than 5 million points in 2014, it was enough for a solid victory. CVCC triumphed again with their tried and true success formula — high scoring members. A couple of clubs had more operators but CVCC's ~270,000 points per member was best of all clubs and this carried them to the top.

Entrants from the Central Virginia Contest Club

Station call sign and score in 1,000s of points

K4OSO (50)	KG4W (13)	N3UA (396)	W4HZ (451)	W4ML (890)	W4PM (67)	WA4PGM (15)

In the Medium category 36 clubs fought it out. In the end, the 41 members of the Northern California Contest Club (NCCC) eked out a narrow victory over the 40 members of second place Arizona Outlaws Contest Club (AOCC). NCCC's success formula? Participation. They had the most entrants of any Medium club. This allowed them to overcome the challenge of being on the West Coast far away from multiplier-rich Europe. In fact, their average score per member was only 10th among all Medium clubs. An honorable mention needs to go out to the AOCC who for the third year in a row finished in second place. In 2015 they were "oh so close." Their total score was less than 1% behind NCCC's. Had they gotten one more member to submit a score, or made a few more QSOs here or grabbed a few more multipliers there, they easily could have closed that gap.

Entrants from the Northern California Contest Club

Station call sign and score in 1,000s of points

AE6YB (1)	K2RD (363)	K3EST (371)	K6AAB (21)
K6GHA (103)	K6JAT (10)	K6MI (5)	K6MM (93)
K6NV (23)	K6TIG (3)	K6XN (7)	K6XV (11)
K6XX (218)	K7XC (306)	K9JM (1)	K9YC (388)
KD6WKY (19)	KE6QR (30)	KI6OY (4)	KM6I (6)
KU7Y (30)	KZ2V (35)	N2NS (54)	N6ORB (1)
N6PN (34)	N6TV (75)	N6XI (14)	NA6O (61)
NW6P (417)	W6DR (134)	W6EU (98)	W6FA (168)
W6JTI (131)	W6OAT (19)	W6YX (924)	W7RN (386)
W7TR (19)	WB6CZG (5)	WF6C (51)	WQ6X (2)
W6RWC(11)			

In the Unlimited category five clubs stepped up, organized themselves, and put together an entry. The big news in 2015 was that the 67 members of the Yankee Clipper Contest Club (YCCC) came out on top by a comfortable margin. This ended the four year winning streak of the Potomac Valley Radio Club (PVRC) who fell to second place. YCCC's usual strategy of high scoring members was finally enough to overcome the PVRC's advantage in members submitting logs. Congratulations to all the clubs and their organizers.

Entrants from the Yankee Clipper Contest Club

Station call sign and score in 1,000s of points

AA1CA (72)	AA1HK (5)	AE1T (41)	K1BV (69)
K1EBY (66)	K1GQ (247)	K1JB (59)	K1KI (1546)
K1NYK (351)	K1QO (16)	K1RM (389)	K1RO (62)
K1VK (83)	K1VSJ (6)	K1WHS (1381)	K2KQ (99)
K2YGM (6)	K5ZD (18)	KA1IOR (28)	KA1QBO (9)
KA1ZD (85)	KC1ACN (5)	KC1CWF (1)	KC1XX (2139)
KI1U (21)	KV1J (130)	N1DC (8)	N1DID (76)
N1EU (235)	N1IK (1)	N1IX (42)	N1IXF (128)
N2AN (21)	N2GZ (41)	N2KW (316)	NF1A (2)
NF1L (1)	NN1N (11)	W1AIR (9)	W1CCE (128)
W1CTN (70)	W1DYJ (48)	W1END (28)	W1EQ (26)
W1FJ (89)	W1FM (86)	W1GD (36)	W1KM (161)
W1KQ (16)	W1OHM (4)	W1QK (423)	W1TJL (340)
W1TO (54)	W1TR (20)	W1UJ (7)	W1UK (6)
W1WEF (55)	W2JU (18)	W2OSR (22)	W8TOM (36)
WA1Z (95)	WA1ZAM (29)	WE2W (2)	WX1S (333)
K1TR (37)	W1NA (890)		

Additional Analysis and Insights

In the five years I have written about the ARRL 10 Meter Contest, each year I have provided additional in-depth analysis beyond the results and people. The intent being to provide insight into contest strategy and planning, how the 10 meter band behaves, or just something to satisfy my, and maybe your, curiosity and inquisitiveness. In past years I examined the following topics, and these articles can be found along with this article on the ARRL Contest Results webpage (**www.arrl.org/contest-results-articles**).

2011

- A Skimmer View of the Contest -- looking at Europe, Asia, and South America openings
- Skimmer Spots Counts as a way to Predict Scores?
- Phone versus CW Mix -- A magic formula?
- A Bit of Contest History

2012

- A Skimmer View of the Contest -- looking at the North America to Europe Opening as well as some perspectives on skimmer spot quality and usage.
- Contest Planning Insights -- characterizing the locations and activity levels in the US by state.

2013

- A look into the North America to Europe opening
- Contest logging program usage

2014

- Breakthrough animated movies of propagation from the US to major contest areas.

- A look at late evening activity in the US and its impact on three close races
- A updated look at contest logging program usage
- New world records established in 2014
- How many stations really were on the air and how many QSOs were made?

This year I am going to update the last three from 2014 and take a new look into 10 meter propagation across the United States by comparing 2015 to 2014.

Another Investigation into 10 Meter Propagation

One thing I do in researching this write-up is to read all the Soapbox comments submitted to **3830Scores.com**. Yep. Every single one of them. This year, that meant all 44,000 words. While doing this I inevitably come across some common themes and observations. One of these was that 10 meter propagation throughout the US was different than what was expected. I don't mean the "boy conditions were bad" sort of different. Instead, there were many comments that something was different about the openings when they were there. Here are some examples:

- Mitch, K7RL, in Washington - "Had a radio black out on Saturday to MN, WI, KS and other mid-west states. Not a peep from that area."

- David, K5IX, in TX - "Lotsa New England, VE, South America and Caribbean. A bit of PNW, but no Midwest or Southeast"

- Then there was this author's observation from K7JR in Oregon - " We had great openings to the east coast for a couple hours each day with incredibly strong signals. Though skip was long and we didn't work our first IL, IN and MO on SSB until well into Sunday"

- And from contest founder, Larry, WØPAN, in AZ - "Had no Midwest QSOs. That is a first for me in a ten meter or any other contest."

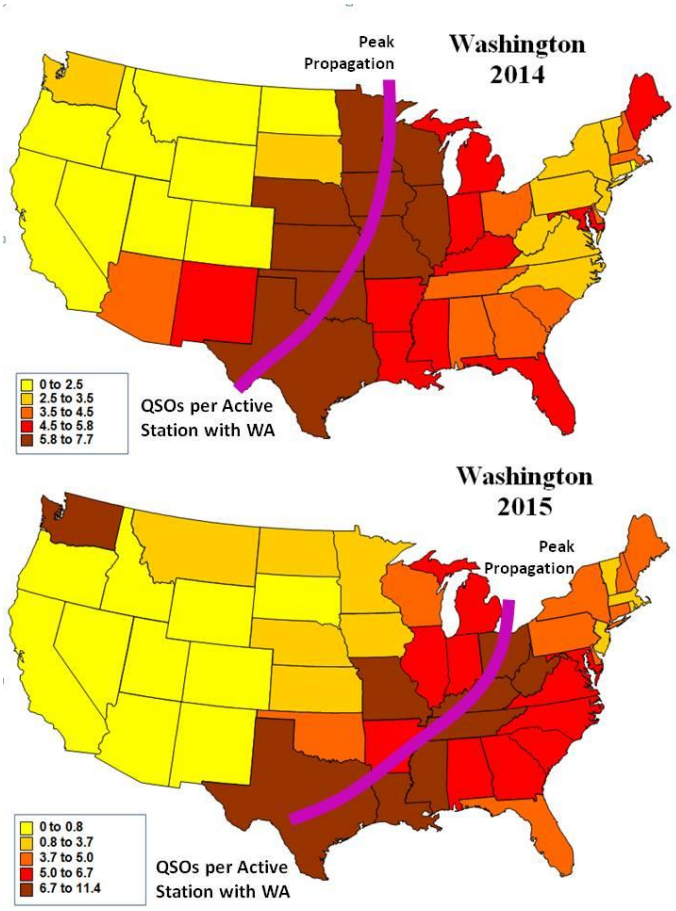
- Theodore, WA3AER, in MD - "Band ran long. The closest US contact was CO, except for a backscatter contact with NY (!)"

- Samuel, W4PK, in VA - "The band was long on both days, excellent openings all day to the west coast and even to VK and ZL but had difficulty hearing stations closer in. The close-in stations I worked were very weak and often watery sounding"

- Longtime contester Barry, W2UP in CO - "Band was fairly long all weekend and almost missed OH (2 worked on scatter) and WV (tnx N8II for your good ears)."

I decided to see if the contest logs actually showed something different in 2015, at least as compared to 2014. Did the actual operating results of everyone on the air match these observations. What I did was pick a few states, look at all the logs from those states, and see which states generated the most relative QSOs for them. Because there is such a large difference in the number of operators in states and these change from year to year I used a metric of "Number of QSOs per Active Operator". So, for example, if there were 12 Active Operators in Illinois and stations in Washington made 60 QSOs with Illinois the "Number of QSO per Active Operator" was 5. To reduce noise in the data I only looked at logs with more than 10 total QSOs in them. I calculated this metric for all 48 lower states for each of the states I investigated. Then I created a shaded map showing five different equal sized buckets of this metric. The darker the color, the larger number of "QSOs per Active Operator" from this state. Note the actual number is not that important and should not be compared across years or states. Just for a given state and year --how did the states rank? So what did this show?

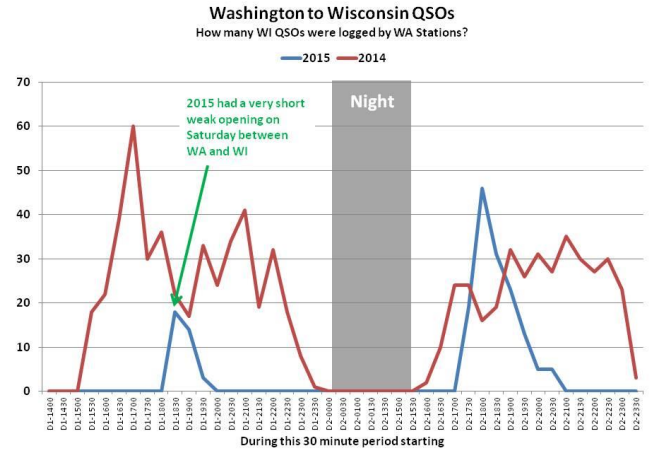
Look first at the maps from Washington. K7RL and K7JR's comments were pretty clear something was different in 2015 as compared to 2014 out in the Pacific Northwest. The 2014 map shows a nicely defined "sweet spot" band of states colored brown running north from Texas up through Minnesota where the highest "Number of QSOs per Active Operator" came from. This band is pretty much a classic propagation map showing the landing zone of the first skip or hop of 10 meter signals coming out of Washington. Since signals from Washington would be relatively stronger here than in other states, the operators in those states made relatively more QSOs with Washington. For states closer to Washington than these, the QSO metric dropped off because the 10 meter signals from Washington largely went right over their heads. Beyond this optimum band the QSO metric also dropped off as the 10 meter signals had bounced back up in the sky. However the metric picked back up in far away states like Maine and Florida where the second hop landed. This map portrays the classic expected 10 meter propagation from Washington.



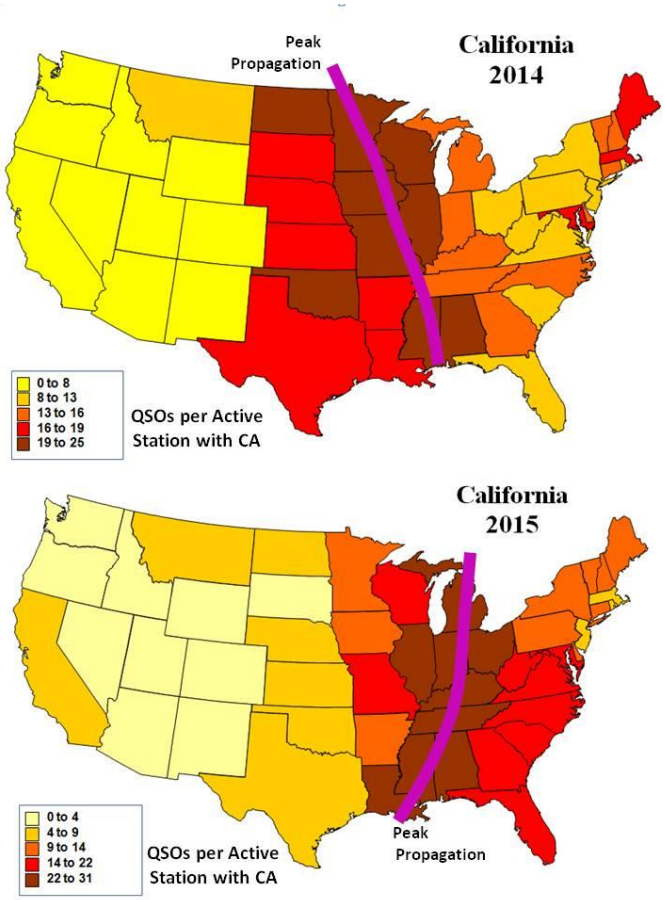
Comparing how often Washington was worked from other states in 2014 vs 2015.

Now look at 2015 -- something is clearly different. The band of brown colored states with the highest qso metric is much further away from Washington. At least on the northern end. The landing zone of the first skip or hop is in a band of states going northeast from Texas up through Ohio. This is about 450 miles further away than in 2014. So, the observations from K7RL and K7JR that the usual Midwest state activity was missing or diminished certainly can be seen. Also the observation that East Coast states seemed to be showing up in their logs more than usual can also be seen.

Drilling down for an even finer view let's look at the results across time between Washington and Wisconsin. K7RL said he had a radio blackout to Wisconsin on Saturday. This chart shows the number of QSOs stations in Washington reported having with Wisconsin in 30 minute periods during the weekend. (Periods of no QSOs were eliminated to make the chart more readable.) Yes you can see that QSOs between Washington and Wisconsin were pretty thin on Saturday this year. There were some, but not many. Even as good an operator as Mitch, K7RL, is he might have missed the short opening that was there. Conditions were better on Sunday but the Washington to Wisconsin opening was certainly shorter in 2015 than in 2014.



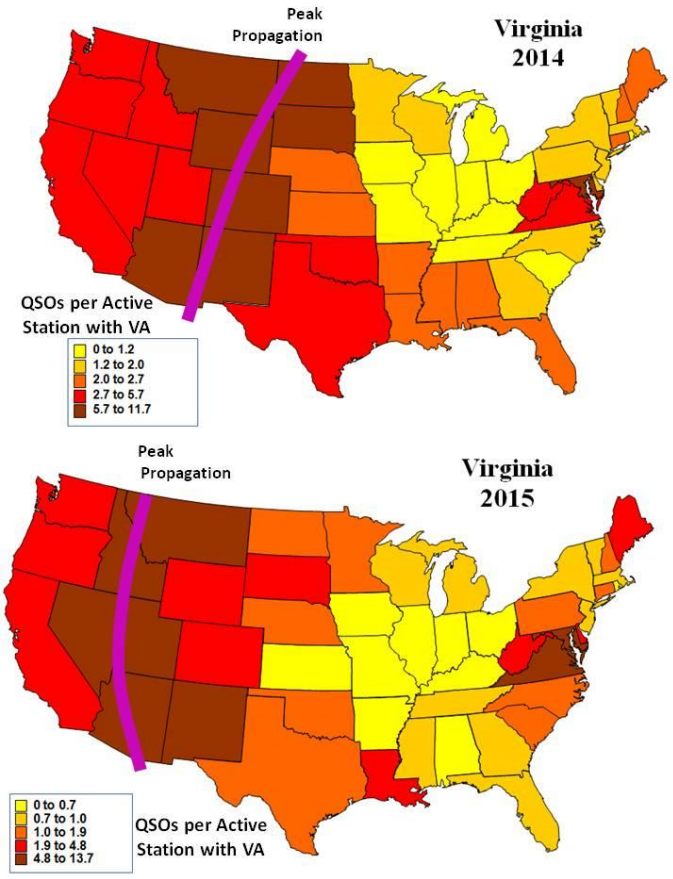
The almost-total blackout on Saturday 2015 between Washington and Wisconsin



Comparing how often California was worked from other states in 2014 vs 2015

As another example let's look at similar maps from California. They also show the same thing. The band of states with the highest QSO metric moved further away in 2015 as compared to 2014. In 2014 the states with the

highest QSO metric for California were around 1,300 miles away. In 2015 this moved out to 1,750 miles. Exactly the same as Washington.So, what about the East Coast? The final state I looked at was Virginia. The following 2014 map shows that familiar band of brown states 1,300 miles out west. And, in 2015 once again you can see it pushed further away. It is not as obvious on this map because the western states are so large. States like Wyoming, Colorado and Nebraska are almost 400 miles east to west. So, the 400-500 distance change in first hop distance is barely a state wide. But the difference is there.



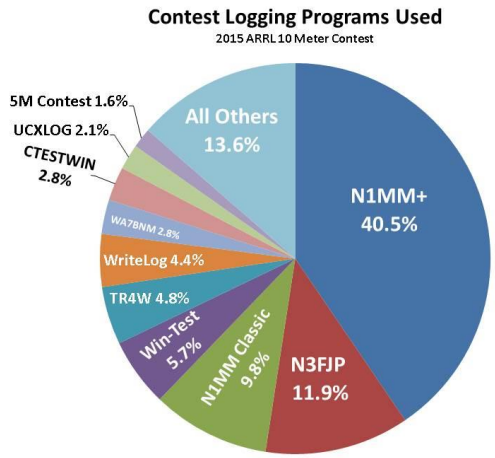
Comparing how often Virginia was worked from other states in 2014 vs 2015

Log data sure seems to confirm the gut-feel observations made by operators. Something changed between 2014 and 2015 with band openings in the United States. I am not an expert in propagation by any means. Perhaps it is because the ionized F2 region supporting 10 meter openings was at a higher altitude in 2015 than in 2014? This would seem to lead to longer hops and the changes everyone saw. I will take a look at this again after the 2016 edition and see if it is an overall trend related to the solar cycle or just one of those interesting things that happens in our hobby.

An Updated View of Contest Logging Programs in Use

As I have done in past years, I looked at what logging programs people were using for the ARRL 10 Meter Contest. With access to Cabrillo log files it is fairly easy to investigate. One of the standard Cabrillo tags is "CREATED-BY:" which is followed by the name of the logging program. A simple Python program looks through all the logs tallying the programs everyone used.

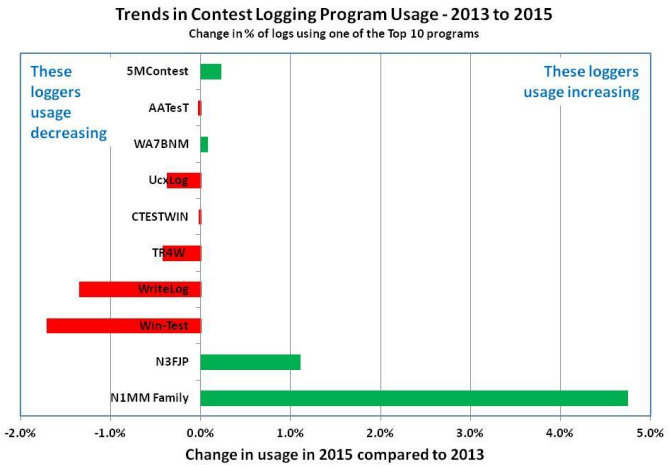
For the 2015 ARRL 10 Meter Contest logging program usage is illustrated by the pie chart at right. There are a few programs on this list I am not familiar with. The ARRL 10 Meter Contest is a worldwide event and there are several countries that have a logging program that is popular just in their country or region. For example CTESTWIN is popular in Japan and UCXLOG is popular in central and eastern Europe. There are also a noticeable number of operators who still log by hand and then use the WA7BNM Cabrillo Web Form (**www.b4h.net/cabforms**) to create their log file.



Contest logging programs used during the 2015 ARRL 10 Meter Contest

Across all 2015 entrants there were more than 70 different logging programs used. Still, the N1MM family is used by far more contesters than any other logging program. It is used by more than four times as many contesters as the second most popular logging program, N3FJP. Looking into the N1MM family itself you can see that the migration to N1MM+ is progressing rapidly. In 2015 80% of N1MM users were using N1MM+ versus 53% in 2014. And, the N1MM+ functionality that encourages/forces you to use the latest version seems to be effective as well. Almost 70% of N1MM+ users were using the latest version at the time of the contest. Whereas among the N1MM Classic users there were

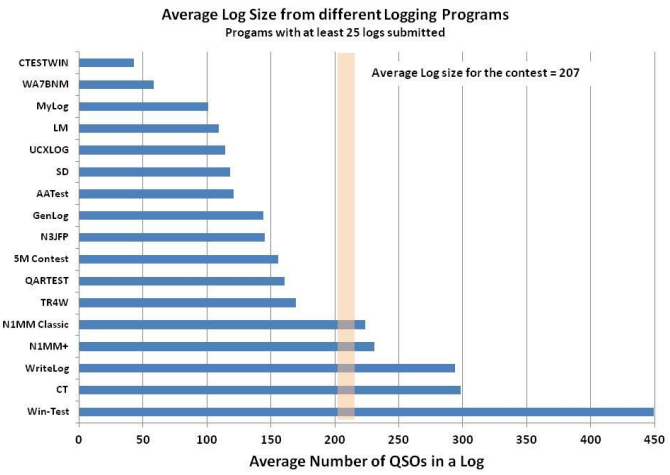
likely 50 different versions in use stretching across 3 different major releases.



The trends in contest logging program usage -- 2015 versus 2013 ARRL 10 Meter contest.

To observe longer term trends in program usage I compared the logging programs used in 2015 to those used in 2013. Among the Top 10 programs, the N1MM family and N3JFP are the only ones growing substantially in usage. The N1MM family usage has increased from 45.4% of logs in 2013 to 50.2% of logs in 2015. Both Win-Test and WriteLog usage have declined over the same period by 1.7% and 1.3% respectively. Among the rest of the Top 10 the changes less than 0.5%.

Another perspective about contest logging program that I have heard discussed is "What do serious contesters use?" Using a metric of "Average size of log submitted" seems at least plausible to provide this insight. Serious contesters usually make more QSOs than the casual ones. Using this metric the view looks as follows:



Average log size by logging program. 2015 ARRL 10 Meter Contest

Win-Test users have the largest average log size. Over twice the average log. CT and WriteLog logs sizes are next, but on average 150 QSOs smaller than a Win-Test log. It is interesting that CT does not have many users but those that do continue to use it are pretty serious. Also interesting is that N3FJP, which is the second most popular program, has relatively small logs at around 70% the average log. It would thus seem to appeal to more casual contesters. The N1MM family users had logs just slightly bigger than average.

One New Category Record

In last year's write-up I conjectured that 2014 may be the last year any new world records are set during this solar cycle. If so, it may not be until 2022 or 2023 that we see any new world records established. This turned out to be one of the easiest forecasts I have ever made. In fact there were no new world records set during 2015. The top category scores worldwide averaged under 50% of the current world records. The two closest to setting a new record were LT7H in Single-Operator, Unlimited, QRP, CW Only and FY5KE in Multioperator Low Power. Their scores were about 83% of the current record. The world category records thus stand unchanged and are displayed below.

ARRL 10 Meter Contest World Records

Single-Operator Categories

	Station	Score	QSOs	Mults	Year
High Power, Mixed Mode	ZD8Z (N6TJ, op.)	4,733,880	5,063	309	2002
Low Power, Mixed Mode	ZF2DX	2,957,580	3,543	270	2014
QRP, Mixed Mode	KG9X	886,650	1,064	257	2001
High Power, Phone Only	D4C (IZ4DPV, op)	1,885,290	4,810	197	2013
Low Power, Phone Only	VP2EXX	1,291,800	4,306	150	1990
QRP, Phone Only	V31MA	388,750	1,565	125	2014
High Power, CW Only	PZ5JR (OHØXX, op)	2,100,744	3,211	163	1999
Low Power, CW Only	CE2/VE7SV (VE7SV, op)	1,328,000	2,105	160	2011
QRP, CW Only	KP2/N3IQ (ND3F, op)	791,120	1,593	124	2000

Single-Operator, Unlimited Categories

	Station	Score	QSOs	Mults	Year
High Power, Mixed Mode	NP2X (K9VV, op)	3,690,296	3,985	284	2014
Low Power, Mixed Mode	PY3OZ	1,816,580	1,855	305	2014
QRP, Mixed Mode	RT4W	311,538	668	137	2014
High Power, Phone Only	K4XS	1,062,360	2,959	180	2014
Low Power, Phone Only	YN5Z (K7ZO, op)	701,964	2,304	153	2014
QRP, Phone Only	IZ8GNR	101,640	390	132	2014
High Power, CW Only	KP2Q (K3TEJ, op)	1,601,312	2,467	163	2014
Low Power, CW Only	KP4EJ	919,080	1,750	135	2014
QRP, CW Only	VE3KI	299,592	660	114	2014

Multioperator Categories

	Station	Score	QSOs	Mults	Year
High Power	FY5KE (F1HAR, F5HRY, F6FVY, ops)	4,457,120	3,797	356	2014
Low Power	TI5N (N2BA, TI5KD, ops)	2,565,348	2,709	313	2011

The story was even grimmer in the W/VE/XE region. Top category scores in 2015 averaged under 40% of the current region record. With one notable exception. N5DO worked hard and managed to set a new record in Single-Operator, Unlimited, QRP, Mixed Mode. The

updated category records for the W/VE/XE region are displayed below.

ARRL 10 Meter Contest
W/VE/XE Records

Single-Operator Categories

	Station	Score	QSOs	Mults	Year
High Power, Mixed Mode	KM3T (@ KC1XX)	3,018,720	3,647	285	2011
Low Power, Mixed Mode	VY2TT (K6LA, op)	1,884,420	2,336	261	2002
QRP, Mixed Mode	KG9X	886,650	1,064	257	2001
High Power, Phone Only	K4XS	1,151,580	3,387	170	1991
Low Power, Phone Only	K4XS	815,300	2,630	155	1999
QRP, Phone Only	K5RX	301,630	1,090	139	2001
High Power, CW Only	VY2ZM	1,638,972	2,587	159	2011
Low Power, CW Only	K1TO	1,218,000	2,040	150	2002
QRP, CW Only	VE5UF	527,076	1,102	121	2002

Single-Operator, Unlimited Categories

	Station	Score	QSOs	Mults	Year
High Power, Mixed Mode	N8OO	2,577,568	3,179	259	2014
Low Power, Mixed Mode	K9OM	1,427,090	1,575	259	2014
QRP, Mixed Mode	N5DO	187,620	504	118	2015
High Power, Phone Only	K4XS	1,062,360	2,959	180	2014
Low Power, Phone Only	W9XG (K2DRH, op @ K2DRH)	333,760	1,132	149	2014
QRP, Phone Only	W9RPM	41,064	239	87	2014
High Power, CW Only	N9NC	1,495,988	2,228	169	2014
Low Power, CW Only	VE6WQ	621,760	1,348	116	2014
QRP, CW Only	VE3KI	299,592	660	114	2014

Multioperator Categories

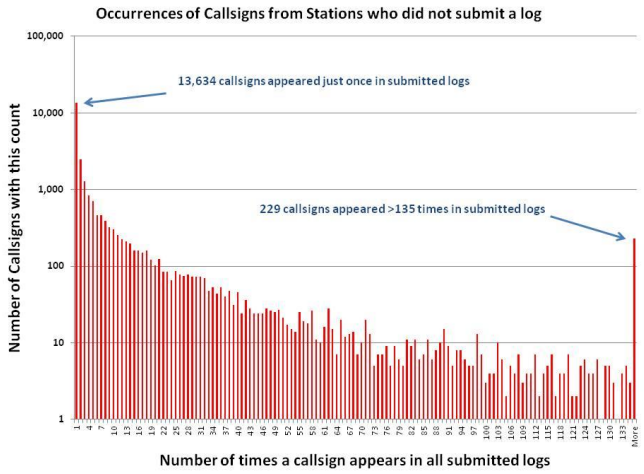
	Station	Score	QSOs	Mults	Year
High Power	K1LZ (K1LZ, KB1WKF, W2GB, K3JO, N8BO, ops)	3,635,992	3,037	361	2011
Low Power	KH6LC (KH6LC, AH6RE, NH6V, ops)	1,780,660	2,442	230	2013

Total Contest Activity - How Many Stations? How Many QSOs?

Inquisitive types might wonder sometimes "I wonder how many stations worldwide actually got on the air during the contest" and or "I wonder how may QSOs were really made during the contest?". While exact answers are impossible to obtain some educated guesses are possible by looking at the logs submitted.

What we do know from the logs is that 4,148 stations submitted logs for scoring and these contained 834,816 QSOs. (For this article I am going count as a QSO each contact in each log. You could argue that a contact in a log is just one side of a QSO between two stations and thus I am double counting. But, for contest scoring each contact is a QSO for each station so I am going to use this method.)

The question then becomes how many other stations were on the air that did not submit logs and how many QSOs did they make? Again, we can look at the submitted logs. Incredibly, looking across all logs submitted, a total of 29,217 different call signs can be found. Does this mean that this many station were actually on the air? No way. For example, of this total, 13,364 call signs were found in just a single log. While some of these represent a real operation the vast majority of them are busted call signs. So, while the QSO was likely real and should count towards total QSOs the call sign is not valid. The number of QSOs reported with stations with call signs that did not submit a log shown below. Note that the Y-axis is in logarithmic scale in order to display the huge number of call signs for which there are very few instances. In fact of the 29,217 call signs, 19,099 or 65% are found in 5 or fewer logs.



Occurrences of call signs from stations who did not submit a log

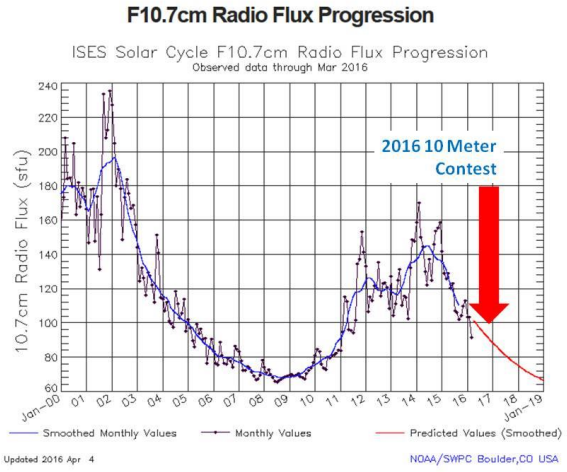
So, then how many stations were actually on the air? A closer estimate could be calculated by applying sophisticated analysis to the call sign list, attempting to match likely busted calls to a known good call. But, I don't have those tools. So, as a simple estimate, I drew a line at 15 QSOs. If a call sign, from a station that did not submit a log, was found in more than 15 logs it was a good call sign. Sure some call signs with more than 15 QSOs were busted. And some call signs with less than 15 QSOs were good. But, this seemed like a reasonable in-between point. And with this approach I arrived at an estimate of 7,378 stations on the air -- 4,148 for which we have logs and 3,230 for which we don't. If you feel like the good/no-good line should be drawn at 25 QSOs then the total estimate drops to 6,238. So, it seems reasonable 75% more stations were on the air than turned in logs. My estimate last year was that at least 100%, or double, the number of stations were on the air than turned in logs. This makes sense as with last year's better conditions more casual operators would get on the air.

Moving on now to the question of how many QSOs were made in total? The logs submitted contain a about 834,00 QSOs. Of these QSOs 72%, or 600,000, were made with stations who also submitted logs. The rest, or 234,000, are with stations who did not submit logs. So, if we had those missing logs we would first add another 234,000 QSOs to the total. (Remember I am counting both sides of a contact as a QSO.) What about contacts between two stations who didn't submit logs? Those certainly

occurred. But, how many? By making the assumption that 85% of their QSOs were with stations who turned in logs then there may be another 35,000 QSOs between two stations neither of whom submitted logs for score. This gets us to a final estimate of 1.1 million QSOs being made during the contest. Spread evenly across the 48 hour operating period this means about 6 QSOs were being made every second or over 23,000 QSOs per hour. Though down quite a bit from 2014, that's still a lot of activity.

Predictions for 2016

The 44th annual ARRL 10 Meter Contest will be held on December 10th and 11th, 2016. What might we expect this year? In past years I have offered projections relative to the next contest in terms of operator activity and scores needed to make it into a Top Ten box – if that is your goal. My projections were based on looking at past contest results, the solar conditions that existed for that contest, reviewing the Space Weather Prediction Center's solar forecast for next year, and then making some educated interpolations and extrapolations. After doing these for a few years I have gotten relatively good at them. However, I can also see that in the bottom parts of solar cycles, when Solar Flux drops below 100, I have to discard this logic and approach. It just does not work. History has shown that 10 meters "Turns On" with widespread long distance propagation when the solar flux rises above 100. And with next year's SFI forecast of around 90 it is a totally different ball game. I am just not going to try.



Solar Cycle Progression (Chart courtesy of NOAA/SWPC)

But, what I can project is what is going to be different about successful operating strategies in the coming years of reduced propagation. These are:

An ability to operate CW will become more important for Mixed Mode entries or those Single-Ops interested in maximum QSO counts. CW is a much more effective emission mode in times of marginal propagation

Searching out other propagation modes than traditional F2-layer ionosphere refraction are going to be key for those seeking top scores, meeting your personal goals, or just having fun. For instance: backscatter, meteor scatter, transequatorial and sporadic E propagation will become more important. If you are not familiar with these the ARRL Store has several books which can help you out.

Having the patience and conviction to find path openings that may exist for only minutes over the whole weekend rather than hours on end. Meteor scatter is ethereal in nature with the path open for just a few seconds. It is best around your local dawn – though could happen any time in the day. Sporadic E often occurs in the early evening hours – just when you think you might as well walk away from the radio and the 10 meter band. "It's shut down for good!" may be your thinking. Well – not always. Even regular F2 openings will be short, sometimes really short. As Jim, AD1C, mentioned in his comments: "I heard JM7OLW for about 30 seconds on Sunday". That was the extent of his opening from Colorado to Japan. Or as David, WKØP, put it: " One minute you hear stations half way around the world and the next only those in your backyard"

It may also be tempting in these years to just say "I will just watch the packetclusters and let others tell me when the band is open." This might work if you are a CW op and you live near, or have your own, skimmer. But 10 meter openings can be very localized and the band might be open for you and not the skimmers. Also, my past studies have shown that skimmers often will not start producing spots until well after the band is actually open. See for example the "Expanded Results" article for the 2013 ARRL 10 Meter Contest. The reason being is skimmers typically have lower gain antennas than many contest stations, especially on 10 meters where beams of all size are more common.

The 44th annual ARRL 10 Meter Contest will be held on December 10th and 11th, 2016. My recommendation is commit yourself to actual seat time using that big knob on the front of the radio to tune the band yourself to see what you can hear. If you don't hear anything. Fine. Get up and walk away. But not for too long. Come back in 15 minutes, or 30 minutes, and check again. By doing it this way at some point you will catch a band opening and have some fun. Thus, the key to a successful operating strategy in 2016 will be as much to catch the opening as it will be to work it.

Division Winners

	Call	Score
Single Operator, Mixed Mode, High Power		
Atlantic	K3ZU	672,810
Central	W9GT	145,600
Dakota	KØTT	505,960
Delta	KØEJ	322,944
Great Lakes	N8LJ	104,104
Hudson	W2XL	406,896
Midwest	KØDEQ	188,972
New England	K1KI	1,545,774
Northwestern	N9RV	698,544
Pacific	W6YX (N7MH, op)	924,288
Roanoke	N8II	860,064
Rocky Mountain	WØETT	216,412
Southeastern	KT4Q	156,864
Southwestern	W6YI	940,500
West Gulf	WA5FWC	28,792
Canada	CJ3A (VE3AT, op)	895,648
Single Operator, Mixed Mode, Low Power		
Atlantic	W2TF	140,824
Central	N9JF	28,536
Dakota	WAØMHJ	354,576
Delta	AC5O	158,844
Great Lakes	WB8WKQ	234,740
Hudson	WA2ALY	16,830
Midwest	KTØK	198,492
New England	W1CCE	127,764
Northwestern	N7LOX	268,830
Pacific	N6ZFO	444,276
Roanoke	N4CF	50,706
Rocky Mountain	KFØUR	139,140
Southeastern	K2PS	281,504
Southwestern	KI6RRN	512,256
West Gulf	WA8ZBT	96,448
Canada	VC1E (VE1ZA, op)	85,120
Single Operator, Mixed Mode, QRP		
Atlantic	N2HTT	754
Central	N9JR	10,374
Dakota	WØUC	3,404
Delta	N4ELM	12,584
Great Lakes	KT8K	7,236
Midwest	NØLY	5,626
New England	KB1VWQ	168
Northwestern	KA7T	49,080
Pacific	AE6JV	10,080
Rocky Mountain	NS7K	21,944
Southeastern	N4TOL	13,764
Southwestern	WA6FGV	104,220
West Gulf	N3CI	748
Canada	VA3RKM	5,356
Single Operator, Phone Only, High Power		
Atlantic	WA8UEG	136,944
Central	W9NY	108,996
Dakota	ACØB	4,130
Delta	KD5UVV	33,176
Great Lakes	KC8QDQ	49,096
Hudson	KE2DX	170,856
Midwest	NUØC	4,620
New England	W1SJ	116,662
Northwestern	K7YK	227,840
Pacific	WX6B	100,716
Roanoke	NW8U	60,378
Rocky Mountain	K9MWM	15,912
Southeastern	KP2XX	341,376
Southwestern	W2RD	116,848
West Gulf	NR5M	282,384
Canada	VE2GSO	36,210
Single Operator, Phone Only, Low Power		
Atlantic	N3VOP	19,038
Central	N9RJM	30,720
Dakota	KØVVX	27,552
Delta	KG5IQU	4,410
Great Lakes	N8CWU	47,180
Hudson	N2HMM	46,768
Midwest	WBØYYE	21,808
New England	KT1I	8,464
Northwestern	N7FLT	56,400
Pacific	K7XE	15,300
Roanoke	K4PZC	43,690
Rocky Mountain	WD4IXD	38,122
Southeastern	WP4PGY	181,560
Southwestern	KI6QDH	57,620
West Gulf	WR5O	59,272
Canada	VA7JW	45,200
Single Operator, Phone Only, QRP		
Atlantic	AB3WS	1,218
Central	K9JK	3,000
Dakota	NDØC	8,118
Delta	N2WN	2,592
New England	AB1DQ	192
Northwestern	W7PT	260
Pacific	WB6CZG	4,650
Roanoke	NO4FX	3,132
Rocky Mountain	KIØII	3,024
Southeastern	KO4PM	2,052
Southwestern	W6QU	25,916
West Gulf	KB5KYJ	13,904
Canada	VE3BKM	572
Single Operator, CW Only, High Power		
Atlantic	KD4D	830,220
Central	K9BGL	387,040
Dakota	WØVTT	202,536
Delta	WQ5L	174,088
Great Lakes	N8BJQ	309,120
Hudson	NX2X	390,104
Midwest	WØUY	31,248
New England	W1QK	423,120
Northwestern	WJ9B	460,224
Pacific	N6WM	130,080
Roanoke	NR4M	490,912
Rocky Mountain	N5FO	394,304
Southeastern	K1TO	807,868
Southwestern	W6PH	425,856
West Gulf	K5NA	563,568
Canada	VE9AA	266,304
Single Operator, CW Only, Low Power		
Atlantic	W3BGN	172,688
Central	K9QVB	184,040
Dakota	KNØV	103,272
Delta	N4ZI	211,068
Great Lakes	WB8JUI	105,560
Hudson	W2EG	120,056
Midwest	WNØL	39,440

New England	W3SM	81,280
Northwestern	W7GF	52,800
Pacific	N7YK	153,680
Roanoke	K4ORD	108,836
Rocky Mountain	ADØDA	5,704
Southeastern	NP3A	870,480
Southwestern	WN6K	183,580
West Gulf	N4IJ	158,712
Canada	VE6WQ	221,616
Single Operator, CW Only, QRP		
Atlantic	K2SM	20,976
Central	K9AY	16,168
Dakota	N7IV	20,928
Delta	NA5DX	11,280
Great Lakes	K2YAZ	33,152
Hudson	NQ2W	18,240
Midwest	WØGJ	208
New England	AA1CA	72,048
Northwestern	W7YAQ	90,024
Pacific	W6JTI	130,640
Roanoke	KI4FW	13,832
Rocky Mountain	ADØDA	5,704
Southeastern	N4AU	17,004
Southwestern	N6HI	10,904
West Gulf	N5OE	62,744
Canada	VY2OX	75,140
Single Operator Unlimited, Mixed Mode, High Power		
Atlantic	NK3Y	123,926
Central	W9IU	66,518
Dakota	KØKX	284,412
Delta	N8OO	1,124,928
Great Lakes	W8MJ	811,640
Hudson	N1EU	234,824
Midwest	KØBJ	81,536
New England	K1NYK	351,120
Northwestern	KA6BIM	346,578
Pacific	K6SRZ	638,768
Roanoke	W4ML	890,460
Rocky Mountain	K8TE	195,494
Southeastern	NP2P (N2TTA, op)	1,426,156
Southwestern	KY7M	428,120
West Gulf	K5ZO	268,128
Canada	VE3EJ	339,692
Single Operator Unlimited, Mixed Mode, Low Power		
Atlantic	NK3Y	123,926
Central	WD9EXD	54,194
Dakota	AAØAW	102,270
Delta	W5WZ	35,000
Great Lakes	N8VV	103,270
Hudson	KD2RD	412,452
Midwest	KØOU	74,284
New England	KS1J	204,078
Northwestern	KN7K	97,200
Pacific	K6MM	93,438
Roanoke	W4PJW	31,724
Rocky Mountain	WA7LNW	8,938
Southeastern	K9OM	199,626
Southwestern	N7IR	190,032
West Gulf	AJ4F	35,280
Canada	VA3DF	270,864
Single Operator Unlimited, Mixed Mode, QRP		
Great Lakes	KU4A	21,424
Pacific	K2GMY	70,664
Roanoke	W2OL	8,236
Southeastern	WO4O	163,344
West Gulf	N5DO	187,620
Canada	VE3KI	130,416
Single Operator Unlimited, Phone Only, High Power		
Atlantic	W3LL	269,352
Central	WB9Z	316,758
Dakota	KØSIX	17,576
Delta	KIØE	112,056
Great Lakes	AC8G	69,936
Hudson	N2YBB	49,290
Midwest	WGØU	9,450
New England	KA1ZD	85,446
Northwestern	KI7M	99,824
Pacific	K3EST	370,800
Rocky Mountain	WB9KPT	51,840
Southwestern	W7WW	146,160
West Gulf	W5PR	229,320
Canada	VE6KD	41,654
Single Operator Unlimited, Phone Only, Low Power		
Atlantic	N3ALN	20,196
Central	K2DRH	114,144
Dakota	KØYR	1,932
Delta	KF5BA	3,364
Great Lakes	KG9Z	64,408
Hudson	NY6DX	58,860
Midwest	WBØGBI	6,420
New England	KC1BOH	15,232
Northwestern	WA7YXY	6,580
Pacific	KG7LKI	14,304
Roanoke	W4ZAO	9,990
Rocky Mountain	KNØMAP	4,278
Southeastern	KT4ZB	73,752
Southwestern	K6DSW	5,304
West Gulf	WW5TT	10,320
Canada	VA7IR	19,300
Single Operator Unlimited, Phone Only, QRP		
Atlantic	N2GBR	5,180
Central	N9NBC	264
Delta	NA5NN (K2FF, op)	7,480
Northwestern	K7ATN	17,376
Rocky Mountain	KIØII	3,024
Southeastern	WB3D	1,850
West Gulf	WBØTEV	12,628
Single Operator Unlimited, CW Only, High Power		
Atlantic	K2SSS	672,600
Central	K9NW	218,556
Dakota	KØQC	87,848
Delta	AA5AU	281,344
Great Lakes	W5MX	465,248
Hudson	W2LE	117,096
Midwest	KØJPL	102,008
New England	W1WMU (W5WMU, op)	398,664
Northwestern	N7NM	364,688
Pacific	NW6P (DG1CMZ, op)	417,060
Roanoke	W4OC	411,768
Rocky Mountain	KØUK	50,160
Southeastern	KP2Q (K3TEJ, op)	968,240
Southwestern	K6LL	532,560
West Gulf	AC5K	178,992
Canada	VO1MP	279,864

Single Operator Unlimited, CW Only, Low Power		
Atlantic	N2CQ	54,720
Central	W9XT	203,904
Dakota	KØQC	87,848
Delta	WB5EIN	122,880
Great Lakes	K8AJS	150,144
Hudson	KA2D	48,840
New England	N2KW	315,744
Northwestern	KE7X	216,108
Pacific	K6TOP	46,200
Roanoke	W4PM	67,480
Rocky Mountain	AD1C	57,600
Southeastern	KP4EJ	442,800
Southwestern	W7ZR	268,092
West Gulf	K5KJ	73,372
Canada	VA3MJR	39,744
Single Operator Unlimited, CW Only, QRP		
Dakota	NØUR	14,356
Delta	K1GU	137,180
Great Lakes	K8ZT	1,872
Pacific	KU7Y	29,808
Roanoke	K4YND	3,520
Southeastern	KØLUZ	73,872
Multioperator, High Power		
Atlantic	N3RR	1,276,928
Central	N2BJ	196,350
Dakota	NØAT	368,344
Delta	K5KDX	19,800
Great Lakes	W8PR	293,020
Hudson	AB2DE	73,084
Midwest	NØAX	52,688
New England	KC1XX	2,139,000
Northwestern	K7RI	531,200
Pacific	W7EB	97,920
Roanoke	W4HZ	451,350
Rocky Mountain	AA5B	325,680
Southeastern	K4MM	839,952
Southwestern	NX6T	301,300
West Gulf	AA5NT	132,132
Canada	VE3YAA	389,440
Multioperator, Low Power		
Atlantic	W3KWH	44,712
Central	N9MT	162
Dakota	NØHJZ	74,868
Delta	WN2E	16,016
Great Lakes	K4FT	208,320
Hudson	K3YT	266
Midwest	NØNI	461,340
New England	W1FM	85,692
Northwestern	W7TVC	550,074
Pacific	K6EI	70,866
Roanoke	N3ZV	144,648
Rocky Mountain	KK5OV	2,948
Southeastern	NP2N	812,036
Southwestern	K7TNX	24,662
West Gulf	KS5Z	50,544
Canada	VA7BEC	358,290