

Results of the 2019 CQWW RTTY DX Contest

BY ED MUNS,* WØYK

*Every station is DX from the heart of Africa and not many stations expect activity from this part of the world ... 5X8C
It is one of my favorite contests! ... LW3DC
RTTY is alive and well! Great fun ... NN4NT*

The 33rd annual CQWW RTTY DX Contest attracted 3,103 logs and over 6,100 participants despite continued deterioration of solar conditions that reached a new low for the 2019 event. The daily sunspot numbers for the past four contests are shown in the table below, followed by a table of the QSO breakdown by band.

	2016	2017	2018	2019
Sat	55	12	0	0
Sun	30	23	15	0

Daily sunspot numbers.

	2014	2015	2016	2017	2018	2019
80	7%	7%	10%	10%	14%	16%
40	16%	21%	24%	27%	32%	33%
20	26%	36%	41%	45%	44%	45%
15	33%	33%	23%	17%	9%	7%
10	18%	4%	2%	1%	0.5%	0.5%

Percentage of QSOs by band.

Activity continued the trend toward lower frequency bands with about the same number of total QSOs (1 million) as in recent years. Participation and submitted logs increased slightly, despite the incredible popularity of the new FT digital modes. RTTY contest activity is on par with recent years and current propagation.

There were 156 different countries active and DXCC was worked by several stations on a single band. Single-band 20-meter winner IQ1RY tied with the 20-meter position at Multi-Multi 9A1A with 108 countries. 9A1A topped the other four bands with countries as well. Thirty-seven zones were worked by two stations on 20 meters: IQ4FC and IQ1RY. As in 2018, the highest number of single-band QSOs was achieved by CR3DX on 20 meters with 2,066. The highest number of single-band US/VE QTHs was 58, by HQ9X on 20 meters who also led on 15 with 51; K1SFA and NV9L had the most on 40 meters with 56 each; K9CT topped 80 with 53; and P49X had 28 for the high on 10 meters. Overall, 9A1A had the most QSOs (4,690), down about 100 from their 2018 top number. 9A1A also led with multipliers (713), down from the 748 posted last year. 9A1A had the most countries (401) and zones (118) while P49X had the most US/VE QTHs (234). These numbers are all a bit down from 2018.

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	80	40	20	15	10	All
QSOs	970	1589	2066	947	121	4690
Zones	22	32	37	25	13	118
Countries	75	107	108	74	37	401
US/VE QTHs	53	56	58	51	28	234

Top statistics.

A number of participants posted videos on YouTube: CE3OP, G0URR, VU2ZMK, WXØV, etc.

First solo attempt at a RTTY contest. It was fun and rewarding! ... 4F3BZ

The first time in CQWW RTTY. It was GREAT! Long live RTTY! ... EA7AQ

First time RTTY :-) NICE! ... IK2LFF

My first RTTY contest, and I've had fun, so see you next time! ... IU1DUB

Beautiful contest, my first participation in an RTTY contest ... IZ8GUQ

First RTTY Contest. It was a lot of fun and I look forward to working it again ... AE4ED

First RTTY contest! Much fun! ... KA5Z

This is my first contest on my own and was a blast ... KA6PNL

My first CQWW RTTY contest. I had a lot of fun ... KD5ILA
First contest entry other than Field Day and first RTTY contest ... N6OPE

1st CQWW RTTY. FB test ... WC4T

First time using RTTY mode – that was fun ... WT8P

Single-Op High Power (470 logs received)

Single-Op All Band High Power (325): Ed, P49X (WØYK), won with 5.5 million (M) points after winning SOAB LP in



Bob, WC3O, operating Multi-Two station W3GH.

2018. Wanderley, ZZ2T (PY2MNL), took second with 2.2M followed by Ramon, PZ5RA, with 2.1M; Andrius, LY7Z, with 1.9M; Atanas, LZ9R, with 1.6M; and Nick, EMØI (UT2IZ), with 1.5M. Yuri, RG9A, was next and first in Asia with 1.2M. Ken, VK4QH, won Oceania with 1.1M and Randy, K5ZD, topped North America with 1.0M.

Single-Op 80 Meters High Power (21): Toly, UX2X (UT2XQ), won with 186,000 (K).

Single-Op 40 Meters High Power (35): Vinko, S53F, with 590K edged out Tine S50A with 526K.

Single-Op 20 Meters High Power (71): Jan, OL9A (OK2ZAW), won with 586K and Julio, YW1K (YV1KK), took second with 582K.

Single-Op 15 Meters High Power (15): Marcelo, CW4MAX (CX2DK), won with 384K, down again from his 2018 winning score. Antonio, CR6T (CT1ESV), was second with 113K.

Single-Op 10-Meter High Power (3): Chuck, W5PR, won with 7.7K and less than 7 QSOs per hour of perseverance.

Single Operator Low Power (1,217 logs received)

Single-Op All Band Low Power (883): Alex, 3Z9M (SQ9UM), won with 1.2M, barely topping Filipe, CT1ILT, also with 1.2M. Third was, Yuri VE3DZ, with 756K. Fourth was Rich, N1IXF, with 705K and fifth was Helder, CR5O (CT7AJL), with 655K. Next were Schule, 4U1A (HB9RB), with 636, Richard, AA2MF, with 613K; Dirk, ON4CT, with 589K; Matt, W4GO, with 573K; and Jurgis, LY9Y, with 563K.

Single-Op 80-Meter Low Power (32): Gerard, F5BEG, won with 91K followed by Evgeni, 4Z5UN, with 83K and Olivier, F1AKK, with 81K.

Single-Op 40-Meter Low Power (102): Martin, OK6T (OK1WCF), won with 252K and Sam, LY5W, was second with 139K.

Single-Op 20-Meter Low Power (170): Suli, 7Z1SJ, won with 318K followed closely by Vitor, PY2NY, with 300K; Ricardo, EA8PT, with 273K; Amed, CO2AME, with 253K; Vlad, UN6LN, with 202K; and Val, UR2Y (USØYW), with 203K.

Single-Op 15-Meter Low Power (27): Guilherme, PY2UD, won with 131K.

Single-Op 10-Meter Low Power (3): Takeshi, JF1OVA, won with 231 points and 10 QSOs.

Single Operator QRP (84 logs received)

Single-Op All Band QRP Power (34): Rudolf, DK7HA, won again with 282K



Masa, JH4UYB, entered the SOAB Assisted High Power category.

2019 CQWW RTTY TROPHY WINNERS AND DONORS

SINGLE OPERATOR HIGH POWER

World: Sponsored by Yankee Clipper Contest Club, Winner: **P49X (op: Ed Muns, WØYK)**

North America: Sponsored by Dick Wilson, K6LRN & Carolyn Wilson, K6TKD, Winner: **Randy Thompson, K5ZD**

USA: Sponsored by Kevin Rowett, K6TD, Winner: **Stephen Werner, AG4W**

USA – 7th Call Area: Sponsored by Hank Lonberg, KR7X, Winner: **Tom Whitted, N7GP**

SINGLE OPERATOR LOW POWER

World: Sponsored by Rich Cady, N1IXF, Winner: **3Z9M (op: Aleksander Wieczorek, SQ9UM)**

North America: Sponsored by Joseph Young, W6RLL, Winner: **Yuri Onipko, VE3DZ**

USA: Sponsored by Kevin Rowett, K6TD, Winner: **Rich Cady, N1IXF**

SINGLE OPERATOR QRP

World: Sponsored by Kevin der Kinderen, N4TT, Winner: **Rudolf Ruffer, DK7HA**

SINGLE OPERATOR ASSISTED HIGH POWER

World: Sponsored by Lakshman "Lucky" Bijanki, VU2LBW, Winner: **P33W (op: Andrey Sachkov, LZ2HM)**

Europe: Sponsored by Dimitri Cosson, F4DSK, Winner: **SN7Q (op: Krzysztof Sobon, SP7GIQ)**

North America: Sponsored by John Webster, NN1SS, Winner: **Bud Trench, AA3B**

USA: Sponsored by Bud Governale, W3LL, Winner: **Alan Fields, K6DTT/1**

SINGLE OPERATOR ASSISTED LOW POWER

World: Sponsored by Jim Barron, WB5AAA, Winner: **TM3Z (op: Dimitri Cosson, F4DSK)**

Europe: Sponsored by Pat Moyer, W3RGA, Winner: **TM7Y (op: Sebastien Sauvannet, F8BDQ)**

SINGLE OPERATOR SINGLE BAND

World 21 MHz High Power: Sponsored by Steve "Sid" Caesar, NH7C, Winner: **Marcelo Eges, CW4MAX**

North America 14 MHz High Power: Sponsored by Patrick W. Soileau, ND5C, Winner: **Mike Lisenco, N2YBB**

World 7 MHz High Power: Sponsored by John Webster, NN1SS, Winner: **Vinko Gregorcic, S53F**

Europe 7 MHz Low Power: Sponsored by John Webster, NN1SS, Winner: **OK6T (op: Martin Bohadlo, OK1WCF)**

MULTI-OPERATOR, SINGLE-TRANSMITTER HIGH POWER

World: Sponsored by PL259 Contest Club courtesy of K6TD, Winner: **IQ4FC (ops: HB9CAT, I4EWH, I4IFL, IK4DCW, IK4HVR, IK4MGP, IK4WMH, IU4FNO, IW3FVZ, IZ4NC)**

Europe: Sponsored by EA Contest Club, Winner: **LZ5R (ops: K1LZ, LZ1JZ, LZ1UK, LZ2DF, LZ5DB, OE9GHV, OE9WLL, S55M, Z36W)**

North America: Sponsored by Steve Jarrett, K4FJ, Winner: **V31VP (ops: V31VP, V31CQ)**

USA: Sponsored by Jack Satterthwaite, K3KG, Winner: **K3LR (ops: K3GP, K3LA, WW3S, K8IV, N8AA, K8RR, K3UA, N8NB, K3LR)**

MULTI-OPERATOR, SINGLE-TRANSMITTER LOW POWER

World: Sponsored by Jamie Tolbert, WW3S, Winner: **IT9BLB (ops: I8UZA, IT9BLB, IT9VDQ, IT9ZMX)**

MULTI-OPERATOR, MULTI-TWO TRANSMITTER

World: Sponsored by Ed Muns, WØYK, Winner: **CR3DX (ops: CT3BD, CT3DZ, CT3EN, CT3FW, IC8SQS, OM2KW, OM3RM, OM7LW)**

Europe: Sponsored by Sandi Spindler, S57K, Winner: **S5ØW (ops: S51DI, S51DD, S51I, S51NM, S52DR, S52SK, S57XZ, S57K)**

USA: Sponsored by John Lockhart, WØDC, Winner: **K9CT (ops: N9CK, N4RR, AI9T, K9NR, K9WX, K9CT)**

MULTI-OPERATOR, MULTI-TRANSMITTER

World: Sponsored by Mike Trowbridge, KA4RRU, Winner: **9A1A (ops: 9A5W, 9A9A, 9A6A, 9A7C, 9A7ROR, 9A8A)**

North America: Sponsored by Kevin Rowett, K6TD, Winner: Not Awarded (No non-USA/Canada MM entrant this contest)

USA: Sponsored by Brian Moran, N9ADG, Winner: **K1SFA @ K1TTT (ops: K1MK, K1NZ, K1SFA, K1TTT, K2IW, W1TO, WA3UVV)**

CLUB COMPETITION

World: Sponsored by Potomac Valley Radio Club, Winner: **Bavarian Contest Club**

North America: Sponsored by Northern California Contest Club, Winner: **Potomac Valley Radio Club**

(Plaque sponsors as of publication date. Additional plaques may be sponsored.)

TOP SCORES

WORLD

SINGLE OPERATOR HIGH POWER ALL BAND

P49X (W0YK).....	5,590,480
Z2ZT (PY2MNL).....	2,180,996
P25RA.....	2,057,643
LY7Z.....	1,851,116
LZ9R.....	1,580,140

28 MHz

W5PR.....	7,744
K4WI.....	5,124
NH2DX (KG6DX).....	2,912

21 MHz

CW4MAX.....	384,394
CR6T (CT1ESV).....	113,221
LU5VV.....	84,778

14 MHz

OL9A (OK2ZAW).....	586,401
YW1K (YV1KK).....	581,664
IZ1PKV.....	380,000

7 MHz

S53F.....	590,178
S50A.....	526,384
LY1FW.....	222,902

3.5 MHz

UX2X (UT2XQ).....	186,340
IZ0KBR.....	121,600
SO9I (SQ9ORQ).....	107,692

LOW POWER ALL BAND

3Z9M (SQ9UM).....	1,177,177
CT1ILT.....	1,169,754
VE3DZ.....	1,056,062
N1IXF.....	705,348
CR50 (CT7AJL).....	654,724

28 MHz

JF10VA.....	231
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21 MHz

PY2UD.....	131,100
PX2M (PY2XC).....	51,243
PU2WDX.....	32,550

14 MHz

7Z1SJ.....	318,351
PY2NY.....	299,744
EA8PT.....	273,180

7 MHz

OK6T (OK1WCF).....	251,518
LY5W.....	138,780
I3PXN.....	94,367

3.5 MHz

F5BEG.....	91,014
4Z5UN.....	83,214
FI4KK.....	81,244

ASSISTED HIGH POWER ALL BAND

P33W (LZ2HM).....	4,510,000
SN7Q (SP7GIQ).....	3,107,940
UW1M (UR5MW).....	2,771,055
IQ2CJ (IT9RGY).....	2,646,900
AA3B.....	2,578,576

28 MHz

N6SS.....	2,604
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21 MHz

CV7S (CX7SS).....	295,393
LO5D (LU9ESD).....	255,500
9A5D (9A3VM).....	129,504

14 MHz

IQ1RY (IZ1LBG).....	786,111
HA8JV.....	596,717
WW4LL.....	408,558

7 MHz

I4AVG.....	539,240
F4DVX.....	460,795
Z35T.....	329,130

3.5 MHz

OK3C (OK2ZC).....	181,230
R7AB.....	127,017
HA8BE.....	121,432

ASSISTED LOW POWER ALL BAND

TM3Z (F4DSK).....	1,969,506
VA3DF.....	731,688
TM7Y (F8BDQ).....	682,660
I2BRT.....	671,132
DL9YAJ.....	649,931

21 MHz

CE3CBM.....	29,273
YC2YSW.....	19,008
R7DA.....	12,169

14 MHz

R4IM.....	168,399
IK3TPP.....	164,294
WA1FCN.....	147,686

7 MHz

Z33F.....	116,207
IK4RVG.....	100,108
LZ1QV.....	90,720

3.5 MHz

EB3CW.....	129,168
LZ5XQ.....	74,880
G8X (G4FJK).....	73,800

SINGLE OPERATOR QRP ALL BAND

DK7HA.....	282,132
K2YG.....	143,154
Y09BCM.....	135,432
W6QU (W8QZA).....	122,040
UX2MF.....	105,357

21 MHz

Y03LW.....	5,535
JR1NKN.....	5,148
JR2EKD.....	2,616

14 MHz

YU1NR.....	56,180
WE6EZ.....	20,280
LY5G.....	13,600

7 MHz

OK2VVB.....	37,572
ON3DI.....	31,689
EW8G.....	21,500

3.5 MHz

YT5YTT.....	17,342
WD9FTZ.....	5,265
PA0AWH.....	3,306

SINGLE OPERATOR QRP ASSISTED ALL BAND

MM3AWD.....	429,624
IZ8JFL.....	406,886
YU1LM.....	194,928
PE2K.....	72,590
SV9/DJ9XB (DJ9XB).....	70,336

21 MHz

R7TU.....	10,560
HA3JB.....	9,936
OT6M (ON9CC).....	816

14 MHz

OQ4B (ON4BHQ).....	34,800
YU1RH.....	15,060
HA3HX.....	14,365

7 MHz

IZ7FLP.....	155,788
LZ3RR.....	73,508
HG6C (HA6IAM).....	24,384

3.5 MHz

OK6K (OK5IM).....	24,424
IZ3IBL.....	19,533
UT8UU.....	2,072

MULTI-OPERATOR SINGLE TRANSMITTER HIGH POWER

IQ4FC.....	5,061,250
LZ5R.....	4,412,550
EM2Q.....	3,243,230
S53S.....	3,222,804
K3LR.....	2,563,484

MULTI-OPERATOR SINGLE TRANSMITTER LOW POWER

IT9BLB.....	2,189,763
IQ3RK.....	1,406,784
DD1A.....	1,240,706
CSSCRE.....	1,167,790
9A7T.....	1,079,568

MULTI-OPERATOR TWO TRANSMITTER

CR3DX.....	7,742,862
S50W.....	3,853,068
LX7I.....	3,836,308
HO9X.....	3,539,646
S51A.....	3,264,066

MULTI-OPERATOR MULTI-TRANSMITTER

9A1A.....	7,068,236
CR3W.....	5,753,769
HG1S.....	3,630,896
K1SFA.....	3,557,940
NR4M.....	2,191,132

ROOKIE SINGLE OPERATOR HIGH POWER ALL BAND

VU2ZMK.....	245,280
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9M2SAF.....	56,430
HS5XWY.....	23,985
9M2TDX.....	6,929
9M2CDX.....	1,853

ROOKIE SINGLE OPERATOR LOW POWER

YF0TUR.....	278,160
AA4LS.....	180,075
PY2FRQ.....	159,594
YC7YGR.....	150,535
OD5ZF.....	146,200

CLASSIC SINGLE OPERATOR HIGH POWER

RG9A.....	1,197,616
I4JED.....	838,572
MW2I (GW4FRE).....	727,536
YP0C (Y03CZW).....	636,225
DJ3NG.....	410,592

CLASSIC SINGLE OPERATOR LOW POWER

VE3DZ.....	1,056,062
ON4CT.....	588,848
T12OY.....	557,568
HP3SS.....	358,743
R7MM.....	343,294

UNITED STATES SINGLE OPERATOR HIGH POWER ALL BAND

K5ZD.....	992,628
AG4W.....	678,506
WX8C/O.....	599,625
W19WI.....	392,980
W3RGA.....	383,625

28 MHz

W5PR.....	7,744
K4WI.....	5,124

21 MHz

K3KG.....	32,088
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14 MHz

N2YBB.....	70,818
4U1WB (AJ3M).....	58,140
A13Q.....	30,310

7 MHz

W8TOM.....	27,927
KG9Z.....	17,040
W6RKC.....	10,240

3.5 MHz

K4FJ.....	28,466
N0OK.....	7,000

LOW POWER ALL BAND

N1IXF.....	705,348
AA2MF.....	612,766
W4GO.....	572,782
N7IR.....	406,692
NU4E.....	304,440

21 MHz

N3GH.....	3,444
K5ND.....	2,190

14 MHz

W4LC.....	90,016
AB1J.....	64,400
KF6RY (W6ZL).....	24,210

7 MHz

AE4ED.....	61,586
W2VTV.....	23,630
W9LU.....	14,616

ASSISTED HIGH POWER ALL BAND

AA3B.....	2,578,576
K6D7T/1.....	1,400,100
N3OE.....	1,372,820
K6LL.....	1,147,450
W3FIZ.....	984,192

28 MHz

N6SS.....	2,604
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14 MHz

WW4LL.....	408,558
W9ILY.....	208,772
AA5AU.....	188,635

7 MHz

NN9DD.....	161,536
W0GJ.....	112,005
K7WP.....	74,880

ASSISTED LOW POWER ALL BAND

KS1J.....	351,833
W3KB.....	279,300

W0JW.....	239,652
NY3B.....	233,230
K0RC.....	184,260

14 MHz

WA1FCN.....	147,686
K1JSM.....	50,467
W5DCD (NK5G).....	22,630

7 MHz

AB9YC.....	23,068
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SINGLE OPERATOR QRP ALL BAND

K2YG.....	143,154
W6QU (W8QZA).....	122,040
AA8OY.....	33,579
N0UR.....	16,170
N7RCS.....	12,348

14 MHz

WE6EZ.....	20,280
N8URE.....	3,159

7 MHz

KH6KG/W5.....	15,549
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3.5 MHz

WD9FTZ.....	5,265
K3TW.....	2,320

SINGLE OPERATOR QRP ASSISTED 7 MHz

W4ER.....	5,537
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MULTI-OPERATOR SINGLE TRANSMITTER HIGH POWER

K3LR.....	2,563,484
NV9L.....	1,606,688
W7WW.....	1,290,210
NA7TB.....	1,274,898
KU1CW.....	1,057,968

MULTI-OPERATOR SINGLE TRANSMITTER LOW POWER

NA5MN.....	697,300
W1OK.....	449,700
W9JWC.....	165,636
K2OAK.....	57,354
AE7K.....	1,344

MULTI-OPERATOR TWO TRANSMITTER

K9CT.....	2,199,132
W0LSD.....	1,416,576
W3GH.....	1,283,355
K00O.....	1,011,528
NW8S.....	960,514

MULTI-OPERATOR MULTI-TRANSMITTER

K1SFA.....	3,557,940
NR4M.....	2,191,132
N6WM.....	1,606,895

ROOKIE SINGLE OPERATOR LOW POWER

AA4LS.....	180,075
KK5JD.....	89,646
W5MMW.....	46,500
AA8SW.....	44,998
KN4LKC.....	41,540

CLASSIC SINGLE OPERATOR HIGH POWER

W19WI.....	392,980
W3RGA.....	383,625
K4ADR.....	351,260
N6JV.....	338,640
N3RC.....	256,486

BAND-BY-BAND BREAKDOWN—TOP ALL BAND SCORES

Number groups indicate: QSOs, Countries, Zones, US/VE on each band

WORLD

TOP SINGLE OPERATOR ALL BAND

Station	80	40	20	15	10
P49X	410/16/43/48	971/24/68/53	1408/24/73/58	564/15/30/51	94/13/16/28
ZZ2T	40/10/19/10	360/19/55/36	637/21/59/50	514/19/61/42	121/13/19/25
PZ5RA	17/4/12/3	326/17/45/44	1043/23/69/49	357/18/39/41	52/8/9/18
LY7Z	567/13/60/3	850/26/83/10	639/31/88/31	97/15/45/0	6/2/5/0
LZ9R	321/12/57/3	560/25/81/19	733/30/82/29	180/17/45/0	8/4/6/0

SINGLE OPERATOR ASSISTED ALL BAND

P33W	472/15/60/6	1046/26/93/34	1358/31/86/40	267/23/58/1	53/5/22/0
SN7Q	557/19/69/15	845/29/89/33	1167/31/98/46	65/16/46/0	24/4/15/0
UW1M	392/15/60/10	1050/28/90/26	1130/29/92/34	203/18/45/0	16/5/11/0
IQ2CJ	525/16/66/12	824/29/94/33	822/33/97/48	174/18/56/2	14/4/11/0
AA3B	396/17/48/45	745/22/76/54	1084/26/92/53	221/17/37/30	21/8/8/6

MULTI-OPERATOR SINGLE TRANSMITTER

IQ4FC	383/19/69/22	1139/32/100/47	1567/37/107/57	284/25/72/7	31/5/26/0
LZ5R	517/22/74/19	1225/29/99/38	1275/32/99/44	379/24/69/2	55/4/20/0
EM2Q	508/15/65/4	1138/29/98/25	1353/33/97/35	204/19/52/0	6/2/4/0
S53S	532/18/70/16	860/29/95/41	1013/34/102/48	152/22/65/5	18/5/16/0
K3LR	281/17/42/47	861/25/74/52	1107/31/90/55	117/17/31/32	30/9/9/8

MULTI-OPERATOR TWO TRANSMITTER

CR3DX	534/19/65/36	1389/29/86/49	2066/32/100/56	475/22/73/28	10/4/7/0
S50W	710/15/64/11	1089/30/97/41	1029/32/100/43	295/19/62/7	44/5/21/0
LX7I	793/20/71/15	1129/26/92/35	1082/32/98/50	207/13/49/12	31/3/13/0
HQ9X	357/18/38/51	702/22/55/51	1448/28/80/58	526/20/31/51	39/9/9/10
S51A	790/14/62/11	981/28/92/34	944/33/97/43	221/20/58/8	26/4/18/0

MULTI-OPERATOR MULTI-TRANSMITTER

9A1A	970/20/75/25	1589/31/107/44	1525/36/108/56	500/25/74/14	106/6/37/0
CR3W	526/14/56/23	1293/25/77/39	1858/29/90/51	307/19/55/6	37/4/9/0
HG1S	652/15/66/5	1110/27/94/35	1085/31/88/44	293/22/60/7	23/4/16/0
K1SFA	555/17/53/48	942/24/73/56	1455/28/89/55	250/17/42/34	64/9/11/14
NR4M	370/14/35/46	812/20/67/52	1242/27/80/51	82/14/21/18	23/7/7/7

USA

SINGLE OPERATOR ALL BAND

K5ZD	170/11/27/34	323/15/45/36	786/23/65/44	75/11/21/15	2/1/1/2
*N1IXF	100/6/11/29	418/15/45/42	529/20/63/38	49/11/17/9	2/2/2/1
AG4W	214/12/14/41	460/21/47/46	471/19/54/47	76/10/17/18	0/0/0/0
*AA2MF	197/10/10/39	518/17/44/49	667/17/57/52	32/9/9/9	0/0/0/0
WX8C/Ø	131/8/8/33	261/17/30/39	567/20/63/45	78/12/17/21	7/5/6/1

SINGLE OPERATOR ASSISTED ALL BAND

AA3B	396/17/48/45	745/22/76/54	1084/26/92/53	221/17/37/30	21/8/8/6
K6D TT/1	107/11/28/27	495/22/71/42	908/26/83/43	32/11/18/8	0/0/0/0
N3QE	337/16/35/47	596/21/57/51	775/21/72/51	49/8/12/16	5/2/1/5
K6LL	114/13/13/43	492/25/46/52	868/26/67/56	216/15/22/35	23/6/10/4
W3FIZ	177/11/21/33	433/20/64/39	727/22/73/38	44/9/12/10	0/0/0/0

MULTI-OPERATOR SINGLE TRANSMITTER

K3LR	281/17/42/47	861/25/74/52	1107/31/90/55	117/17/31/32	30/9/9/8
NV9L	295/16/23/47	410/22/52/56	1051/28/83/54	69/16/27/26	13/8/9/5
W7WW	215/17/18/46	753/26/46/55	805/25/63/55	116/17/22/28	14/6/9/2
NA7TB	332/17/23/48	547/23/40/53	859/27/73/54	124/14/19/30	10/4/6/0
KU1CW	177/14/15/40	616/26/40/51	780/25/68/52	55/8/9/17	4/3/3/1

MULTI-OPERATOR TWO TRANSMITTER

K9CT	493/14/17/53	844/24/59/55	1138/26/74/52	252/17/32/38	18/7/7/6
W0LSD	353/13/13/49	718/23/49/52	904/23/72/55	122/13/21/28	28/8/9/6
W3GH	303/13/21/48	520/17/43/52	1042/27/78/52	102/10/16/18	0/0/0/0
K000	257/15/35/41	431/21/56/50	536/26/83/46	125/13/20/21	13/8/7/4
NW8S	306/10/15/41	543/20/49/54	677/17/57/50	38/12/17/10	4/3/3/0

MULTI-OPERATOR MULTI-TRANSMITTER

K1SFA	555/17/53/48	942/24/73/56	1455/28/89/55	250/17/42/34	64/9/11/14
NR4M	370/14/35/46	812/20/67/52	1242/27/80/51	82/14/21/18	23/7/7/7
N6WM	363/17/19/50	804/24/43/54	803/27/59/55	264/14/20/38	33/9/11/5

and Dave, K2YG, took second with 143K. Bill, W6QU (W8QZA), was next with 122K; then Virgil, YO9BCM, with 119K; and Serge, UX2MF, with 105K. Virgil, YO9BCM, is very passionate about QRP contesting. He carefully picks the best propagation hours for each band. He mostly concentrated on



Bill, W8QZA, came in 3rd place in SOAP QRP category from W6QU.

80, 40, and 20 meters. Then, he calls in the less crowded portions of the bands and looks for stations without many callers.

Single-Op 80-Meter QRP (9): Aleksandar, YT5YTT, won with 17K.

Single-Op 40-Meter QRP (18): Wieslaw, OK2VWB, won with 38K and Pieter, ON3DI, was second with 32K.

Single-Op 20-Meter QRP (15): Ratko, YU1NR, won again with 56K. Ralf, WE6EZ, was second with 20K and only one state, apparently not realizing U.S. states and VE areas are multipliers in this contest.

Single-Op 15-Meter QRP (8): Cristian, YO3LW, won with 5.5K and Atsushi, JR1NKN, took second with 5.1K.

Single-Op Assisted High Power (597 logs received)

Single-Op Assisted All Band High Power (443): P33W was piloted by Andrey, LZ2HM, to win with 4.5M. Kris, SN7Q (SP7GIQ), was second with 3.1M followed by Victor, UW1M (UR5MW), with 2.8M; Gabry, IQ2CJ (IT9RGY), with 2.6M; and Bud, AA3B, with 2.6M. Masa, JH4UYB, was 7th with 1.4M.

Single-Op Assisted 80M High Power (23): Ludek, OK3C (OK2ZC), won with 181K. Alex, R7AB, was 2nd with 127K followed by Bele, HA8BE, with 121K; Robert, VY2/W5AJ, with 118K; and Uwe, DL3BQA, also with 118K.

Single-Op Assisted 40M High Power (43): G. Franco, I4AVG, won with 539K followed by Bamba, F4DVX, with 457K; Ozren, Z35T, with 329K; Alex, EV1R, with 251K; Tom, GM4FDM, with 248K; Salvatore, IR9K (IT9DSZ), with 233K; and Ivo, S51CK, with 222K.

Single-Op Assisted 20M High Power (72): Filippo, IQ1RY

EUROPE

SINGLE OPERATOR ALL BAND

LY7Z	567/13/60/3	850/26/83/10	639/31/88/31	97/15/45/0	6/2/5/0
LZ9R	321/12/57/3	560/25/81/19	733/30/82/29	180/17/45/0	8/4/6/0
EMØI	323/9/51/0	743/20/70/17	950/27/80/30	98/14/36/0	0/0/0/0
*3Z9M	522/9/52/3	673/19/70/15	379/28/79/26	82/13/33/0	2/1/1/0
*CT1ILT	174/8/38/7	423/11/51/29	768/20/59/42	196/13/31/18	4/2/2/0

SINGLE OPERATOR ASSISTED ALL BAND

SN7Q	557/19/69/15	845/29/89/33	1167/31/98/46	65/16/46/0	24/4/15/0
UW1M	392/15/60/10	1050/28/90/26	1130/29/92/34	203/18/45/0	16/5/11/0
IQ2CJ	525/16/66/12	824/29/94/33	822/33/97/48	174/18/56/2	14/4/11/0
*TM3Z	553/11/58/9	891/27/86/35	516/29/89/41	82/11/32/0	16/3/10/0
S57AW	310/11/58/2	357/24/87/21	425/33/102/41	81/17/40/0	12/3/8/0

MULTI-OPERATOR SINGLE TRANSMITTER

IQ4FC	383/19/69/22	1139/32/100/47	1567/37/107/57	284/25/72/7	31/5/26/0
LZ5R	517/22/74/19	1225/29/99/38	1275/32/99/44	379/24/69/2	55/4/20/0
EM2Q	508/15/65/4	1138/29/98/25	1353/33/97/35	204/19/52/0	6/2/4/0
S53S	532/18/70/16	860/29/95/41	1013/34/102/48	152/22/65/5	18/5/16/0
*IT9BLB	322/12/58/9	480/27/89/36	844/32/92/48	179/21/60/6	100/7/24/0

MULTI-OPERATOR TWO TRANSMITTER

S5ØW	710/15/64/11	1089/30/97/41	1029/32/100/43	295/19/62/7	44/5/21/0
LX7I	793/20/71/15	1129/26/92/35	1082/32/98/50	207/13/49/12	31/3/13/0
S51A	790/14/62/11	981/28/92/34	944/33/97/43	221/20/58/8	26/4/18/0
OMØM	704/14/60/19	1017/29/80/28	1159/33/87/43	187/13/42/0	17/3/8/0
IQ4FA	432/13/60/9	994/29/94/38	1024/30/95/47	248/18/59/6	34/4/15/0

MULTI-OPERATOR MULTI-TRANSMITTER

9A1A	970/20/75/25	1589/31/107/44	1525/36/108/56	500/25/74/14	106/6/37/0
HG1S	652/15/66/5	1110/27/94/35	1085/31/88/44	293/22/60/7	23/4/16/0
IGVRD	309/8/50/2	341/22/61/21	602/28/77/44	93/12/29/0	4/1/3/0

*Low Power

(IZ1LBG), took first with 786K, followed by Pal, HA8JV, with 497K; Fred, WW4LL, with 409K; Noel, VE2RYY, with 357K; and Gabriele, IZ3GOM, with 304K.

Single-Op Assisted 15M High Power (13): Eugenio, CX7S (CX7SS), won with 295K; Mariano, LO5D (LU9ESD), was second with 253K; and Matija, 9A5D (9A3VM), was third with 130K.

Single-Op Assisted 10M High Power (3): Pres, N6SS, won with 2.6K.

Single-Op Assisted Low Power (435 logs received)

Single-Op Assisted All Band Low Power (314): Dimitri, TM3Z (F4DSK), took first again with 2.0M (down from his win last year), followed by Doug, VA3DF, with 731K; Sabastien, TM7Y (F8BDQ), with 583K; Rick, I2BRT, with 671K; Bernd, DL9YAJ, with 650K; Yuri, RT9S, with 644K; Oleg, UT8EL, with 574K; Anatoli, EW7BA, with 572K; and Nobuo, JA6GCE, with 488K.

Single-Op Assisted 80M Low Power (19): Axel, EB3CW, won with 129K.

Single-Op Assisted 40M Low Power (38): Zoran, Z33F, won with 116K and Sandro, IK4RVG, was second with 100K.

Single-Op Assisted 20M Low Power (54): Vlad, R4IM, was first with 168K followed closely by Fabio, IK3TPP, with 164K; Robert, WA1FCN, with 148K; Konstantin, RU4SS, with 132K; and Savvas, SV2AEL, with 107K.

Single-Op Assisted 15M Low Power (6): Juan, CE3CBM, won with 29K followed by Amri, YC2YSW, with 19K and Alex, R7DA, with 12K.

TOP SCORES IN VERY ACTIVE ZONES

Zone 3

*N7IR	406,692
N7GP	366,482
N6JV	338,640
N3RC	256,486
W7XQ	241,150

Zone 4

*VE3DZ	1,056,062
AG4W	678,506
WX8C/Ø	599,625
VE3TW	424,380
WI9WI	392,980

Zone 5

K5ZD	992,628
*N1XF	705,348
*AA2MF	612,766
*W4GO	572,782
VE2GSO	478,077

Zone 14

*CT1ILT	1,169,754
HB9ØTOC	814,800
MW2I (GW4FRE)	727,536
*CR5O (CT7AJL)	654,724
*ON4CT	588,848

Zone 15

LY7Z	1,851,116
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*3Z9M (SQ9UM)	1,177,177
I4JED	838,572
IT9VCE	768,911
*4U1A (HB9RB)	636,260

Zone 16

EMØI (UT2IZ)	1,542,378
UV5U (UX1UA)	1,013,446
UY5VA	675,880
*UT5EPP	484,191
EW8DX	457,470

Zone 20

LZ9R	1,580,140
YPØC (YO3CZW)	636,225
*YO6HSU	315,432
SV3EXU	150,072
*OD5ZF	146,200

Zone 25

JA7ACM	230,514
JA1AYO	207,756
*7N2UQC	181,300
JA8TR	152,210
JA3HBF	141,600

*Low Power

Single-Op Assisted 10M Low Power (4): Masa, JE2CPI, won with 75 points and 5 QSOs.

Single-Op Assisted QRP (39 logs received)

Single-Op Assisted All Band QRP (13): Scott, MM3AWD, won with 430K followed closely by Fabio, IZ8JFL, with 407K.

Single-Op Assisted 80M QRP (6): Jiri, OK6K (OK5IM), won with 24K followed by Fabio, IZ3IBL, with 20K.

Single-Op Assisted 40M QRP (5): Giovanni, IZ7FLP, won with 156K.

Single-Op Assisted 20M QRP (6): Wim, OQ4B, won with 35K followed by Rade, YU1RH, with 15K and Ati, HA3HX, with 14K.

Single-Op Assisted 15M QRP (5): Vlad, R7TU, won with 11K and Gabor, HA3JB, was second with 10K.

Single-Op Assisted 10M QRP (4): Mune, JH3DMQ, won with 135 points and 9 QSOs.

Single-Op Overlay (412 logs received)

Rookie (61): Turjiman, YFØTUR, won with 278K followed by Mahendra, VU2ZMK, with 245K; Charles, AA4LS, with 180K; Renan, PY2FRQ, with 160K; and Ibrahim, YC7YGR, with 151K.

Classic (351): Yuri, RG9A, won with 1.2M followed by Alberto, I4JED, with 838K; Yuri, VE3DZ, with 756K; David, MW2I, with 728K; and Marius, YPØC with 636K.

Frederik is 8 years old with an educational callsign. He was supervised by DM9EE. But pushed the buttons and logging himself ... DN5HR

I had fun trying for first time operating with 2 radios ... DL2FQ
Operated remote from Tokyo, Japan ... WA6URY

Multi-Operator (146 logs received)

Multi-Single High Power (51): IQ4FC (ops: HB9CAT, I4EWH, I4IFL, IK4DCW, IK4HVR, IK4MGP, IK4WMH, IU4FNO, IW3FVZ, and IZ4NIC) once again took first place

CLUB SCORES

UNITED STATES

Club	# Entrants	Score
POTOMAC VALLEY RADIO CLUB.....	60	11,466,317
YANKEE CLIPPER CONTEST CLUB.....	21	11,200,136
NORTHERN CALIFORNIA CONTEST CLUB.....	28	10,173,219
FRANKFORD RADIO CLUB.....	24	7,988,168
SOCIETY OF MIDWEST CONTESTERS.....	41	7,552,337
ARIZONA OUTLAWS CONTEST CLUB.....	22	6,856,933
FLORIDA CONTEST GROUP.....	12	3,017,166
NORTH COAST CONTESTERS.....	5	2,867,756
WILLAMETTE VALLEY DX CLUB.....	18	2,651,593
DFW CONTEST GROUP.....	8	2,616,614
MINNESOTA WIRELESS ASSN.....	35	2,401,101
TENNESSEE CONTEST GROUP.....	11	1,917,723
GRAND MESA CONTESTERS OF COLORADO.....	6	1,868,152
WESTERN WASHINGTON DX CLUB.....	12	1,656,640
CAROLINA DX ASSOCIATION.....	8	1,260,887
SWAMP FOX CONTEST GROUP.....	7	1,204,952
SOUTHERN CALIFORNIA CONTEST CLUB.....	16	1,172,202
ALABAMA CONTEST GROUP.....	9	1,149,974
KANSAS CITY CONTEST CLUB.....	7	1,000,741
CENTRAL TEXAS DX AND CONTEST CLUB.....	5	898,632
CTRI CONTEST GROUP.....	6	832,157
KENTUCKY CONTEST GROUP.....	11	735,121
LOUISIANA CONTEST CLUB.....	5	574,256
ROCHESTER (NY) DX ASSN.....	3	567,876
NIAGARA FRONTIER RADIOSPORT.....	7	482,772
DEEP DIXIE CONTEST CLUB.....	3	378,150
MAD RIVER RADIO CLUB.....	5	370,151
BRISTOL (TN/VA) ARC.....	3	366,226
METRO DX CLUB.....	5	365,112
NEW PROVIDENCE ARC.....	4	298,383
SHENANDOAH VALLEY WIRELESS.....	4	254,014
SOUTH EAST CONTEST CLUB.....	4	241,686
GEORGIA CONTEST GROUP.....	5	231,540
MERIDEN ARC.....	3	186,921
ORDER OF BOILED OWLS OF NEW YORK.....	4	185,663
THE VILLAGES AMATEUR RADIO CLUB.....	3	161,107
IDAHO DX ASSOCIATION.....	3	120,855
TEXAS DX SOCIETY.....	4	118,696
SPOKANE DX ASSOCIATION.....	4	103,851

DX

BAVARIAN CONTEST CLUB.....	94	25,623,620
UKRAINIAN CONTEST CLUB.....	59	18,380,754
RHEIN RUHR DX ASSOCIATION.....	50	14,922,136
SLOVENIA CONTEST CLUB.....	11	9,592,720
CROATIAN CONTEST CLUB.....	10	8,890,768
HA-DX-CLUB.....	7	6,612,240
ITALIAN CONTEST CLUB.....	31	5,430,870
CONTEST CLUB ONTARIO.....	20	5,302,099
EA CONTEST CLUB.....	19	5,161,020

Club	# Entrants	Score
ARIPA DX TEAM.....	6	5,085,368
INTEREST GROUP RTTY.....	14	4,990,088
ARAUCARIA DX GROUP.....	10	4,444,133
VYTAUTAS MAGNUS UNIVERSITY RADIO CLUB.....	9	3,635,098
LU CONTEST GROUP.....	12	3,482,685
SOUTH URAL CONTEST CLUB.....	3	1,879,500
RUSSIAN CONTEST CLUB.....	9	1,795,137
BELARUS CONTEST CLUB.....	6	1,747,045
KRIVBASS.....	4	1,358,966
ORCA DX AND CONTEST CLUB.....	9	1,286,316
CONTEST CLUB FINLAND.....	12	1,069,080
CATALONIA CONTEST CLUB.....	4	1,049,883
CONTEST GROUP DU QUEBEC.....	8	1,049,556
YB LAND DX CLUB.....	29	929,830
LATVIAN CONTEST CLUB.....	11	877,398
RSGB CONTEST CLUB.....	4	828,629
CONTEST CLUB SERBIA.....	8	700,071
RIIHIMAEN KOLMOSET.....	3	683,359
BELOKRANJEC CONTEST CLUB.....	3	666,160
THAILAND DX ASSOCIATION.....	3	654,272
RIO DX GROUP.....	9	549,389
RUSSIAN DIGITAL RADIO CLUB.....	16	534,055
MAUI AMATEUR RADIO CLUB.....	3	492,880
RADIOCLUBUL RADU BRATU.....	3	488,605
RTTY CONTESTERS OF JAPAN.....	7	460,270
SP DX CLUB.....	7	459,275
CHILTERN DX CLUB.....	5	428,752
URAL CONTEST GROUP.....	5	365,634
SK5AA VASTERAS RADIOKLUBB.....	4	341,994
LA CONTEST CLUB.....	3	324,748
RU-QRP CLUB.....	4	320,077
GMDX GROUP.....	3	269,416
DANISH DX GROUP.....	6	226,106
NORFOLK AMATEUR RADIO CLUB.....	3	193,263
GIPANIS CONTEST GROUP.....	3	182,333
SINGLE FIGHTER DX GROUP.....	4	169,331
RADIO CLUB VENEZOLANO CARACAS.....	5	161,647
599 CONTEST CLUB.....	5	155,111
UA2 CONTEST CLUB.....	4	150,838
RUSSIAN CW CLUB.....	4	140,960
VK CONTEST CLUB.....	3	131,804
SK6AW HISINGENS RADIOKLUBB.....	4	128,803
TORBAY ARS.....	4	118,291
ARKTIKA.....	3	109,618
CDR GROUP.....	7	108,517
CABREUVADX.....	4	85,030
VOLYN CONTEST GROUP.....	3	83,203
ARCK.....	5	63,845
THE AKITA DX ASSOCIATION.....	4	63,056
GUARA DX GROUP.....	5	58,547
KEYMEN'S CLUB OF JAPAN.....	5	37,734
THRACIAN ROSE CLUB.....	3	36,719
EUROPEAN PSK CLUB.....	3	29,399
CS CEAHLAUL PIATRA NEAMT.....	3	18,014

with 5.1M. LZ5R (ops: K1LZ, LZ1JZ, LZ1UK, LZ2DF, LZ5DB, OE9GHV, OE9WLJ, S55M, and Z36W) was second with 4.4M. EM2Q (ops: UW2QU, UR4QX, N8OO, UT2II, UT2IJ, UT2IV, UT3IZ, URØIM, US1ITU, US2IR, US8ICM, and UY2IF) was third with 3.2M. S53S (ops: S52K, S52X, S53NW, S53X, S55G, S56Y, S57AV, S57NA, and S5ØXX) was nearly tied also with 3.2M. K3LR (K3GP, K3LA, WW3S, K8IV, N8AA, K8RR, K3UA, N8NB, and K3LR) was 5th and first in North America. Tim let the RTTY team run high power RTTY this time.

Multi-Single Low Power (46): IT9BLB (ops: I8UZA, IT9BLB, IT9VDQ, and IT9ZMX) was first with 2.2M, down from their win last year. IQ3RK (ops: I3VUK, I3VWK, IK3VVU, IK3ZGB, IZ3ETC, IZ3KIF, IZ3KSO, IZ3SQW, IZ3ZPO, and IU3MOX) was second with 1.4M. DD1A (ops: HB9BUN, DL3GA, DL1II, DH3GAE, DO5GAR, and DO7JLF) was third with 1.2M. CS5CRE (ops: CT1FKN, CT1CWF, CT1COU, CT1BXE, CT7ABS, CT7ADX, CT2IAG, CT2JYV, and CT5KEK) was fourth also with 1.2M. NA5NN (ops: K2FF and W5UE) was 7th and first in North America with 697K. A61EK (ops: A61ZX, A61BM, and A61EK) was 8th and first in Asia with 660K.

Multi-Two (39): CR3DX (ops: CT3BD, CT3DZ, CT3EN, CT3FW, IC8SQS, OM2KW, OM3RM, and OM7LW) won with 7.7M. S50W (ops: S51DI, S51DD, S51I, S51NM, S52DR, S52SK, S57XZ, and S57K) was second with 3.9M. The new S50W station project started in 2016 with two containers in an idyllic location amidst vineyards with a single 25-meter

tower. In the three months leading up to this contest, antennas were moved from the prior location. Only two single radio stations were set up due to lack of time and still only became operational the day before the contest. The live scoreboard provided much competition between S5ØW, S51A, and LX7I with the lead changing over the 48 hours. One of their winning strategies was to work hard to get all available multipliers. The result was very pleasing, especially given the superior amount of aluminum at LX7I.

LX7I (ops: DF7EE, DL6ZBN, DK5ON, DD5ZZ, DJ6GI, DL8LAS, and LX2A) took third with 3.8M, just 17K behind S5ØW. HQ9X (ops: W1UE, N2WQ, LZ5VV, SP4Z, VE3JI, and HR1LEO) was fourth with 3.5M. S51A (ops: S5OLD, S51TC, S51ZJ, S55KZ, S55MZ, S55O, S56B, S56DE, S57PM, S59MZ, and S59VI) was fifth with 3.3M. Sixth and seventh were nearly tied at 3.0M: OMØM (ops: OK2PMU, OM8ADX, OM3CGN, OM7ZZ, OM8AW, and OM3TWM) and IQ4FA (ops: IU4AZC, IU4AOY, IU4HRJ, IZ4AKO, IK4LZH, IU4ICT, IU4JIC, IN3IDQ, IZ4VUS, IK3AES, and IZ4COW).

Multi-Multi (10): 9A1A (ops: 9A5W, 9A9A, 9A6A, 9A7C, 9A7ROR, and 9A8A) continues to dominate this category with 7.1M. CR3W (ops: DK4QT, DJ8NK, DL2AWG, DJ7JC, DG7JB, DM3BJ, DJ9RR, and DL6TK) was second again with 5.8M. HG1S (ops: HA1TJ, HA1DAI, HA1SN, and HA1DAE) was third with 3.6M. K1SFA (ops: K1MK, K1NZ, K1SFA, K1TTT, K2IW, W1TO, and WA3UVV@K1TTT) was fourth, also with 3.6M. NR4M (ops: K3UI, K4MIL, NR4M, K5OF, K4GM, W1IE, KS4Q, and K3NC) was fifth with 2.2M. N6WM

Bird's New SignalHawk Handheld Spectrum Analyzers

Bird has expanded its SignalHawk family of rugged, handheld spectrum analyzer products with the addition of the SH-60S-AOA (Angle of Arrival) and the SH-60S-TC. The new SignalHawk SH-60S-TC and SH-60S-AOA provide test coverage for all major wireless systems in a fully portable, rugged and weather-resistant test instrument that works on frequencies up to 6 GHz.

A natural integration of digital maps from OpenStreetMap, GPS location, and signal strength vectoring via a two-level internal pre-amplifier, the SignalHawk – AOA provides an easy-to-use interface to not only pinpoint potential in-band interferers and “rogue” or “pirate” broadcast locations, but also perform coverage mapping and “dead spot” identification. This can be very helpful for repeater operators as well as communications professionals.

When paired with an appropriate directional antenna, the small form-factor and extended run-time (up to 5 hours of battery life) of the SignalHawk AOA allows it to be taken to all types of remote locations to accurately pinpoint signal origination. Using a multi-touch, high resolution, TFT display users can change reference level and center of frequency with a touch of a finger and zoom and pan just like your smart phone. The display also lets users view the spectrum and trace display, spectrogram display or both.

Multi-task measurements are made easy with the ability to simultaneously review several windows for comparison. The Bird AOA features 8 GB of internal storage so you can screenshot data and transfer via USB/OTG/WIFI/Bluetooth to the cloud and email or upload PC for reference. Additionally, the AOA includes the Bird RF Meter App for interoperability with a wide range of Bird sensors.

SH-60S-TC

Combining easy-to-use intuitive menus with a multi-touch TFT screen that shows a spectrogram / waterfall display that shows intermittent power levels, the SH-60S-TC, RF Analyzer can view RF signals between 9 kHz and 6 GHz. Additional built-in functions include: FM demodulation that allows for rapid verification of communications at the specified frequency, GNSS signal quality, field strength, and spectrum masking.

The SH-60S-AOA RF Analyzer extends the capability of the SH-60S-TC by adding the ability to triangulate the location of an interferer on a map for signals. Triangulation is provided by spectrum analyzers by allowing the user to utilize Bird's interference analysis and triangular functionality to locate the source within three measurements, forming a triangle in the area of the emitter and utilizing a built-in map to find the exact location of the problem.

Both analyzers are available now and include a stylus, AC adapter (12-volt DC output), hard carrying case, instruction manual, soft carrying case, USB drive, USB adapter, and a battery. The SH-60S-AOA has a suggested retail price of \$10,150, while the SH-60S-TC has a suggested retail price of \$7,730. For more information, call (440) 519-2069 or visit <www.birdrf.com>



(ops: N6WM, N6RO, NA6O, K6DAJ, and K3EST@N6RO) was sixth with 1.6M. A44A (ops: A45VU, A41ZA, A41RO, A41HA, A45TT, A41CK, A41RF, A41PG, A41LU, A41KB, A41PL, A41QQ, and A41SP) was seventh and first in Asia.

Clubs

Worldwide: Once again, the Bavarian Contest Club (BCC) took top honors with 36M across 97 logs. The Ukrainian Contest Club took second again with 18M in 59 logs. Third place was the Rhein Ruhr DX Association with 15M, and the next three places were from North America, below.

North America: In fourth place worldwide was the Potomac Valley Radio Club (PVRC) with 11M in 60 logs, winning the North America club competition over the Yankee Clipper Contest Club also at 11M from 21 logs and the Northern California Contest Club with 10M from 28 logs.

Logs

Log statistics were similar to recent years, despite log checking itself improving. There were enough logs submitted so that 90% of all QSOs were cross-checked and 97% of those QSOs were deemed good. Approximately 1% of all QSOs had busted (incorrect) callsigns, which was the same as in 2018. Busted exchanges remained the same at 0.5%. Another 1.9% were not found in the other station's log, increasing slightly. Links for individual Log Check Reports (LCRs) were sent out as these results were completed. They are also available upon request to <w0yk@cqwrrty.com> where you can see how your log stacks up to the overall numbers.

Website

The contest website <www.cqwrrty.com> is a valuable resource for all aspects of the contest: Rules (including language translations), log format, log submittal, historical statistics, and results database (searchable for any entry and geographical breakdown and all-time records).

Thanks

Thanks to all participants who, together, make this a fun weekend for everyone. Thanks also to the team of volunteers behind the scene who make it all possible:

- Jason, KD2IWM, Managing Editor of *CQ Amateur Radio*.
- Rules translators: Boyan, LZ2BE; Caros, BH4TX; Tapani, OH2LU; Fabi, VA2UP; Steffan, DL6SFR; Kostas, SV1DPI; Joe, IT9BLB; Kazu, JK3GAD / MØCFW; Marcos, PY2WS; Andy, YO3JR; Vlad, VE3IAE; Gerardo, EA1AST; and Mehmet, TA5FA.
- Ken, K1EA, provided the ever-evolving log check software and consulting during log check.
- Randy, K5ZD, for his substantial support on a wide range of issues, including almost all of the log fixes so that the check software ran smoothly and correctly.

I look forward to seeing everyone again in the 34th annual CQWW RTTY DX Contest on 26-27 September 2020.

– Ed, WØYK

Great contest as usual ... IW2LLH

Great fun as always to make some Qs in

WW RTTY ... KØGEØ

Great fun ... KØ5U

CQWW RTTY always a lot of fun ... NN2NN

Thanks, had a blast ... WØTUP

Had big fun ... W3GH

Fun contest ... W4EE

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