



WB8ERB installed the 1296-MHz antenna for the Cambridge, Ohio ARC station, W8VP. This photo was taken from the 220-MHz tower.

The Seventh ARRL UHF Contest, held August 4-5, 1984, was its usual success. Since it is such a resilient contest, changes in recent years have not dampened it, but enthusiasm has increased on the higher frequencies. This edition was well-attended, with 120 entries received at Hq.

WB8BKC made the top single-operator score for the second year running. VE3CRU upped his score to fill in the no. 3 slot. The no. 2 man last year, K2UYH, dropped to sixth place this year. K1PXE and K2LNS competed seriously this year, taking the fourth and fifth spots, respectively. K8WW moved from third last year to second this year.

The Mt. Airy VHF Radio Club was represented in West Virginia by the W3CXC/8 group, who put in an outstanding operating effort and maintained the no. 2 multioperator position with 55,080 points.

Although multiop station W2SZ/1 didn't break their last year's record, they are definitely the number one station to watch on UHF. Again this year, W2SZ/1 was the top station for multipliers on 220 MHz. They went from second to first for multipliers on 432 MHz, and they went from first to third on 1296 MHz. They had the top number of multipliers in 1983 and 1984 on 2.3 GHz, 3.4 GHz, 5.7 GHz and 10 GHz, and they appeared both years on the 24-GHz band.

Let's take a concentrated look at W2SZ/1 and see what is behind the scenes. This super station belongs to the Rensselaer Polytechnic Institute Radio Club in Troy, New York, and operates from Mt. Greylock, Adams, Massachusetts, in grid locator FN-32. Following is their equipment list.

220-MHz CW: A Kenwood TS-830S was used with a converter designed by WA2AAU and aided by a GaAsFET Preamp by WA2GFP. The

Results, Seventh Annual ARRL UHF Contest

By Edith Holsopple,* N1CZC

transmitter was designed for CW only with VCXO. The transmitter and power amplifier were designed by WA2AAU. It uses two 4CX250Bs in push-pull and delivers about 600-W CW out. The antenna system was an H-frame array of four NBS 4.2-wavelength-long Yagis by WA8USA.

220-MHz FM: The transceiver was a Midland 13-509 with preamp. The antenna system was a pair of 11-element Yagis at 40 feet. No power amp was used.

432-MHz SSB/CW: The IF was a Kenwood TS-830S. The transverter was a tower-mounted converter including two stages of GaAsFET preamp. The converter was by WB1CBH; preamps by WA2GFP. Local oscillator injection for the converter was provided by the remainder of the transverter in the truck near the operating position. The power amplifier was a pair of 4CX250Bs of K2RIW design that delivered about 600-W output. The antenna system, designed by K2CBA, was an array of 16 six-element Yagis arranged four high by four wide. The antenna and converter were mounted 35 feet up. The receiving system had a measured noise figure of 0.7 dB with almost no feed line loss.

1296-MHz CW: A Kenwood TS-830S was

used for receiving on 1296, 2304 and 3456 MHz. The converter was homemade and tower-mounted, and featured about a 2-dB noise figure. The converter and preamps were mounted at the rear of the 6-foot dish, and the LO chain was kept in the truck where the temperature was more stable. The exciter was a GE Progress Line FM strip-tuned to 432 driving a single 3CX100A5/7289 tripler, which drove a pair of 7289s to 70- to 100-W output. The antenna was a six-foot dish fed with a dipole feed mounted on 30 feet of Rohn 25.

2304-MHz CW: A Kenwood TS-830S was used for receiving (shared with 1296 and 3456). A homebuilt tower-mounted converter by WA2AAU was mounted at the top of the tower, but the LO injection chain was kept in the truck. The first-low noise amplifier was mounted near the antenna relay in the TWT box described below. LNAs by WA2GFP. The exciter was a GE Mobile Radio 800-MHz exciter board redesigned to deliver about 250 mW of drive at 2304 for the TWT (only 4 mW are needed). The TWT delivered 20-W output from 2 to 4 GHz. The exciter and multipliers were designed by WA2AAU and the TWT box by WB1CBH. The antenna was the same 6-foot dish used on 1296, but a 1 lb coffee-can feed was used on 2304.

3456-MHz CW: The Kenwood TS-830S was used for receiving (shared with 1296 and 2304). The TWT box contained the low noise amplifier for the 3456-MHz receiving system as well as an 1152-MHz drive buffer and 3456 tripler. A TVRO GaAsFET preamp works very well on this band. The noise figure was estimated at under 5 dB with all cable losses considered. No image-noise reject filter was used on this band. The 3456-MHz converter was mounted in a box at the top of the tower with the 2304-MHz converter, but the LO chain was kept in the truck at constant temperature. The exciter was the same mobile-radio exciter board used on 2304, but a racquetball can was used for feed on 3456 MHz.

Top Single Operator Scores

WB8BKC	27,885	MI
K8WW	23,976	OH
VE3CRU	20,313	ON
K1PXE	17,082	CT
K2LNS	16,560	NNJ
K2UYH	16,095	SNJ

Top Multioperator Scores

W2SZ/1	113,469	WMA
W3CCX/8	55,080	WVA
K1FO	45,435	CT
VE3LNX	21,735	ON
AB4L	20,010	VA

Multiplier Leaders

220 MHz	N2CEI*	16	WB8BKC	35	W3CCX/8*	16	W3CCX/8*	4	10 GHz	
W2SZ/1*	K8DIO	16	K1FO*	35	W2SZ/1*	13	WA8TXT	2	W2SZ/1*	7
W3CCX/8*	K2BJG*	15	WB3IMS	34	NF2P	12	WB8TCZ	1	AB4L*	5
W3GPY	W1QK*	15	AB4L*	33	WB8BKC	12	VE3LNX*	1	VE2DUB	3
VE3LNX*	K1FO*	20	VE3CRU	31	VE3CRU	11			W3CCX/8*	3
VE3LNX*	432 MHz		K2UYH	28	K2LNS	11	3400 MHz		K6TZ*	2
VE3CRU	W2SZ/1*	40	VE3LNX*	27	VE3LNX*	11	W2SZ/1*	7	WA3EEC/1	1
WB8BKC	K8WW	37	VE3BFM	26	W2VC	10	WA8TXT	1	WA5VJB	1
WB4NMA	W3CCX/8*	36	W1XX/2	26	K1FO*	10	WB8TCZ	1		
AA2Z/3			WB9MSV	25	W3IP	9			24 GHz	
									W2SZ/1*	1
			1296 MHz		2300 MHz		5700 MHz			
			K8WW	17	W2SZ/1*	7	W2SZ/1*	6		

*Communications Assistant, ARRL

*Multioperator stations

5760-MHz CW: Used on this band was a homebuilt 5.995-MHz receiver. The receiving converter used a circulator as a junction to connect the transmitter and the receive mixer to the common antenna lead. The first mixer was a double-balanced hot-carrier diode mixer, and the transmitter provided the local oscillator power in an offset IF scheme similar to the way Gunnplexers are used at 10 GHz. We have exciter crystals to receive and transmit both the offset and normal 5760-MHz signals so we can work conventional stations as well as our own. This system was designed by WA1UGE. The exciter was a mobile-radio exciter similar to the one used on 2304, but this time driving a quintupler to 5760 MHz mounted in a box at the feed together with the receiver front end. WA1UGE also modified a surplus X5 step-recovery multiplier for this station that delivers 5 mW to an amplifier delivering about 100 mW. The antenna was a 3-foot dish mounted on a rotating tower used on 5.7, 10 and 24 GHz. The feed was a length of 1.5-in copper drainpipe.

10-GHz FM: The transceiver used was a Gunnplexer with a homebuilt IF receiver by WB1CBH and WB2PKO. We used wide-band

FM with 75-kHz deviation. We were able to use both 30-MHz and 10.7-MHz IF offsets, and have worked stations not associated with our group on both offsets. The Gunnplexer was mounted at the focus of a 4-foot dish on a rotating tower 35 feet tall. The tower could easily be pointed to an accuracy of less than a degree even when the wind was blowing at 50 MPH!

24-GHz FM: The transceiver was a Gunn oscillator with a circulator junction designed by WA1UGE. We used wide-band FM with 75-kHz deviation. The Gunn transceiver was mounted at the focus of a 13-in dish on a 35-foot rotating tower. The tower could be pointed to an accuracy of less than one degree.

Thanks to all who entered and helped to make this contest a success. See you next year.

SOAPBOX

Conditions were average all weekend on tropo, although some extended range QSOs were made by brute force (K2UYH). Conditions were poor on all the bands, and apparently activity was low on 220 MHz. I was glad most stations were working CW (K2GK). You could easily tell the guys who also run EME. They had the memory keys with an endless CQ (WA3YON). I thought 432 was really down. Compared

to the QSO party, I had a lot less contacts this time. This time I was using an amp, while during the QSO party I was only running 10 W with no amp (KR3C). My 10.250-GHz system failed the 40-ft drop test Saturday A.M. so I didn't make it on that band (VE3BFX). Conditions were only fair, but lots of fun (VE3OCX). My first 10-GHz contact with FN45 was also a new Canadian record of approximately 100 miles, between Mt. St. Hilaire and Mt. Megantic (VE2DUB). One must learn humility and patience when your QSO rate is slightly above 2 per hour over the entire contest... however, half way to VUCC on 432 MHz in one weekend isn't too bad (WB9MSV). I made solid QSOs on 432 out to 300 miles, despite running only 10 W and average tropo conditions (WA0VJF/5). 432 MHz maintained the normal conditions we have had for several months—terrible (KB5PX). I was impressed with the activity on 1296 MHz during this contest (KD8SI). These were the worst conditions ever for this contest (KC4EG). I had thunder storms almost all the time Saturday. The rotator died aimed east at 10 P.M. Overall, it was much better than last year with 10 W to a satellite antenna on a picnic bench (K8TL). Too many people were on vacation (K2LNS). Many regulars were missing. Were they all watching the Olympics? (W1JR). Activity seemed very slow at times. For the first time in many years, Murphy visited everywhere in my system (K1LPS). W2VC was the loudest ever on 432 MHz (K1FWF).

FEEDBACK

K7RUN should have been listed in the 1983 results as K7RUN 234-7-3-C and -6-3-D instead of as a checklog.

Scores

Call sign, total score, QSOs, multipliers, bands operated (C = 220 MHz, D = 432 MHz, E = 1296 MHz, F = 2.3 GHz, G = 3.4 GHz, H = 5.7 GHz, I = 10 GHz, J = 24 GHz, K = 48 GHz) and ARRL Section. Example: K2UYH had a total score of 16,095, with 3 QSOs and 1 multiplier on 220 MHz, 88 QSOs and 28 multipliers on 432 MHz, and 27 QSOs and 8 multipliers on 1296 MHz. He is located in the Southern New Jersey Section. Among the single-operator stations, the overall Division winners and single-band winners are indicated by bold-face type for the call sign of the Division winner and for the one letter(s) denoting the bands won.

Call Sign	Score	QSOs	Multipliers	Bands	Section
K2UYH	16,095	3	1	C-SNJ	Atlantic Division
W3IP	15,360	19	10	C-MDC	Atlantic Division
K2GK	10,179	25	11	C-WNY	Atlantic Division
WB3IMS	7850	75	34	D-WPA	Atlantic Division
AA2Z3	6789	34	16	C-EPA	Atlantic Division
W2EIF	6630	32	11	C-SNJ	Atlantic Division
W3GPY	5266	73	24	C-EPA	Atlantic Division
WA2OMY	4761	27	10	C-EPA	Atlantic Division
WB3ESS	4290	39	17	D-EPA	Atlantic Division
WA3YON	3519	29	13	C-EPA	Atlantic Division
NF2P	2232	31	12	E-SNJ	Atlantic Division
W3CL	2016	25	8	C-EPA	Atlantic Division
KA3HTY	1806	9	3	C-EPA	Atlantic Division
KR3C	528	16	11	D-WPA	Atlantic Division
WA2ABN	495	15	11	D-WNY	Atlantic Division
K3SXA	315	15	7	D-EPA	Atlantic Division
W1QK2 (+WA1WXV)	8541	21	15	C-WNY	Atlantic Division
VE9CRU	20,313	28	19	C-ON	Canadian Division
VE3BFX	13,680	18	14	C-ON	Canadian Division
VE3OCX	3780	18	14	C-ON	Canadian Division
VE2FUT	1500	10	8	C-PQ	Canadian Division
VE3CKU	821	4	3	C-ON	Canadian Division
VE3FN	243	9	9	D-ON	Canadian Division
VE2DUB	144	4	3	PQ	Canadian Division
VE3DJ	108	9	4	D-ON	Canadian Division
VE3LNX (+VE3s ADJ,NSC)	21,735	32	24	C-ON	Canadian Division
N8BJN					Hudson Division
K2LNS	16,560	24	9	C-NNJ	Hudson Division
W2VC	10,494	66	23	D-NNJ	Hudson Division
W1XX2	10,098	20	8	C-ENY	Hudson Division
N2BJ	6006	32	8	C-ENY	Hudson Division
N2BMN	4026	13	8	C-NNJ	Hudson Division
W2WWW	2499	30	9	C-NLI	Hudson Division
K2BJG (+WB2RFB)	11,880	40	15	C-NNJ	Hudson Division
N2CEI (+N2EOC)	8835	49	16	C-NNJ	Hudson Division
WB8TEM	6930	4	4	C-IA	Midwest Division
WB8RAP	2160	36	20	D-IA	Midwest Division
K8TLM	2070	7	7	C-MO	Midwest Division
WB8JRP	12	2	2	D-MO	Midwest Division
K8BM (+KB8DW)	810	3	3	C-KS	Midwest Division
K1PXE	17,082	29	11	C-CT	New England Division
W1JR	13,104	34	13	C-EMA	New England Division
WA1JOF	7938	25	8	C-EMA	New England Division
W1EJ	5175	31	10	C-NH	New England Division
W1GXT	2703	27	9	C-EMA	New England Division
K1LPS	2484	23	9	C-VT	New England Division
WA1AYS	1050	35	10	D-EMA	New England Division
K1ISW	810	30	9	D-WMA	New England Division
K1FWF	780	9	7	C-EMA	New England Division
KB1KM	720	30	8	D-EMA	New England Division
AC1J	672	10	3	C-NH	New England Division
W1QXX	624	26	8	C-EMA	New England Division
K1VZI	462	22	7	C-EMA	New England Division
K1DS	456	17	7	C-RI	Pacific Division
W1AIM	390	2	2	C-VT	Pacific Division
W1JOT	342	7	2	C-EMA	Pacific Division
KT1K	210	14	5	D-EMA	Pacific Division
W1AW (K1TR,opr.)	180	12	5	D-CT	Pacific Division
W1QXX	624	26	8	C-EMA	Pacific Division
WA3EEC/1	12	1	1	WMA	Pacific Division
W2SZ1 (AG1M,WB1CBH,NF2B, W2ARQ,WA2s AAU,SPL,ZPQ, WB2QCJ,AK4L,WA8USA,G3SEK, oprs.)	113,469	73	28	C-WMA	Pacific Division
K1FO (+WA1RWU)	45,435	59	20	C-CT	Pacific Division
KA1OJ (+K1ME)	3150	11	5	C-ME	Pacific Division
WA1YKN (+WA4STO)	528	22	8	D-EMA	Pacific Division
K8DW	3240	10	7	C-OR	Northwestern Division
K7HSJ	780	9	4	C-OR	Northwestern Division
W8RXQ	2370	47	6	D-SCV	Pacific Division
NR8E	864	5	3	C-EB	Pacific Division
W8HAB	0	0	0	D-SJV	Pacific Division
N6AMG (+K8QXY,WA8MXI)	2988	8	3	C-SF	Pacific Division
K4HWG	1974	47	14	D-VA	Roanoke Division
K4QIF	1530	20	13	D-VA	Roanoke Division
K4CAW	1311	23	19	D-NC	Roanoke Division
W3CCX/8 (K2EVM,N2SB,WB2s NPE,RVX,N3CX,WA3s AXV,JUF,NUF,KD8KD,opr.)	55,080	64	26	C-WVA	Roanoke Division
AB4L (+KB4NT,WA4s IVF,PGL, WB4WTC,WD4DUU)	20,010	20	14	C-VA	Rocky Mountain Division
WB7CO (+KA5EB,W5LTR)	6	1	1	E-NM	Rocky Mountain Division
WB4NMA	6360	21	17	C-GA	Southeastern Division
W4ODW	1056	2	2	C-NFL	Southeastern Division
WD4JQV	585	1	1	C-GA	Southeastern Division
WD4MBK	429	13	11	D-GA	Southeastern Division
W4ISS	264	11	8	D-GA	Southeastern Division
K8TZ (KA6SFN,W1UUQ,WA6s GNG,MBZ,VNN, WB8HOZ,opr.)	6984	61	7	C-SB	Southwestern Division
W5GQ	3087	25	13	D-NTX	West Gulf Division
WA5VJB	2310	22	5	C-NTX	West Gulf Division
K5SW	2070	5	4	C-OK	West Gulf Division
K5DHU	1260	16	11	D-NTX	West Gulf Division
KE5EP	1188	23	11	D-NTX	West Gulf Division
K5IS	90	1	1	C-NTX	West Gulf Division
W5NZS (+KJ5Q)	162	1	1	C-OK	West Gulf Division
W3HQTM					Checklog