

# telstar



THE NEWSLETTER OF STARS (SOUTHTOWNS AMATEUR RADIO SOCIETY)

JULY 2008

VOL 41 Issue 11

## FIELD DAY 2008



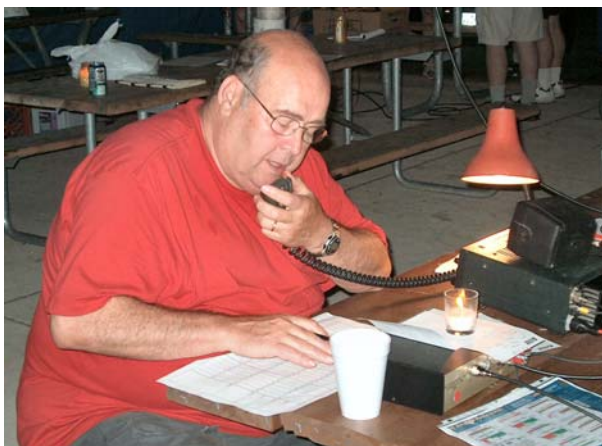
Another STARS Field Day has come and gone with fun had by all who attended!

Thanks to all who came out to set up, operate, clean up and just have fun! A special thanks Scott Bauer W2LC for stopping by to visit. It was great to have our ARRL representative see the STARS setup and to share dinner with us.

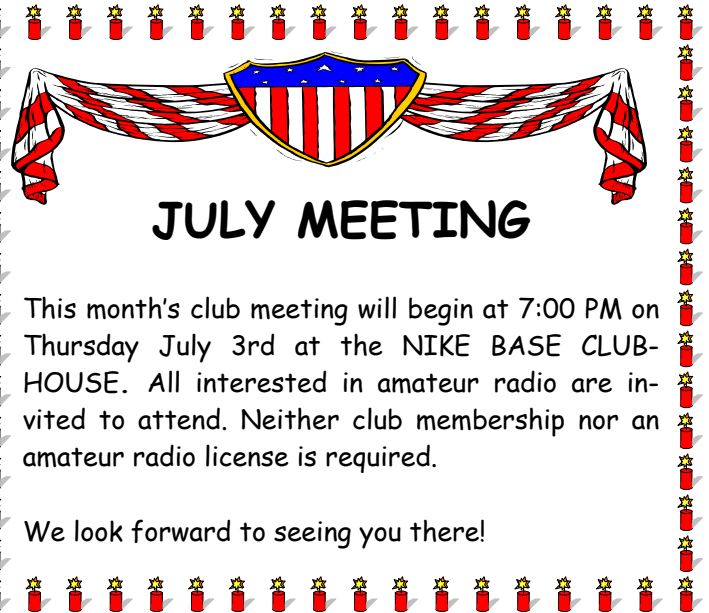
Look for a full report next month!



Don K2PMC and Scott KB2KOL work CW



John KA2RFT on 40m



## JULY MEETING

This month's club meeting will begin at 7:00 PM on Thursday July 3rd at the NIKE BASE CLUB-HOUSE. All interested in amateur radio are invited to attend. Neither club membership nor an amateur radio license is required.

We look forward to seeing you there!

## HAPPY JULY BIRTHDAY!

- 10th: Ken Brown KA2QLH
- 16th: John Crawford Sr KB2VWC
- 26th: Edgar Bangsil N2DNK



Now that's a slingshot!  
Ken KG4KQW, John KA2RFT and Keith KC2DGC

## STARS MAY VE SESSION

STARS will be holding a VE Test Session on Saturday July 12th. The session will be held at the Hamburg Youth Center (corner of Prospect and Hawkins Aves.)



All candidates should arrive by 9AM. Walk-ins will be allowed, but pre-registering will help speed up the processing the day of the test.

All candidates should bring the following to the test session:

1. An original photo ID or two other original forms of ID, plus a photocopy of the ID(s) to be turned in to the examiners for their records.
2. Your current amateur radio license (if any) plus a photocopy of it.
3. The original copies of any applicable Certificate of Successful Completion of Examination (CSCE) plus a photocopy of each.
4. A test fee of \$14.00
5. Your Social Security Number (SSN) or your FCC Federal Registration Number (FRN). Your application for a new or upgraded amateur radio license will be rejected by the FCC if you do not provide one of these numbers.

For more information, or to register for the test, contact John Crawford KB2VWC 649-5933.

## A SUMMER OF E-SKIP

Tired of the lousy conditions on the HF bands? Come join the crowd on the "Magic Band." Each summer regardless of where the sunspot cycle is, sporadic E -- or E-skip -- blooms on 6 meters and sometimes even on the bands above that. What often appears to be a dead band jumps to life with signals -- some relatively close, only hundreds of miles away -- but some representing worldwide DX on 6 meters.

This year is no different. After a slow start, the 6 meter band came into its own in May and has been open in some direction from almost every location in the US almost every day. Sporadic E peaks around the summer solstice (June 21) with a minor peak around the winter solstice (about December 21.).

Each summer season has unique characteristics that are not predictable, but make the band so fascinating to follow. This year, the emphasis has been on paths to the west and northwest, extending much further east and south than normal. According to VHF expert and conductor of QST's "World Above 50 MHz" column Gene Zimmerman, W3ZZ, there have been several strong openings from Hawaii to the mainland that have included many areas other than the West Coast. Stations in the Mid-Atlantic, the Southeast and the Midwest have had good shots at KH6 in both May and June.

Zimmerman said that summer has brought a nice surprise: "The highlight of this season has been repeated openings to Japan that have mostly bypassed the West Coast and settled in the Southwest, the Southeast and the Midwest; Japanese stations have even been heard, but not worked, on the East Coast. The latter is a very rare occurrence indeed."

Calling conditions to the Caribbean "outstanding," Zimmerman said that stations in that part of the world have been working the US and Canada, as well as many stations in Europe. "Inside the US, stations up to 1500 miles away have been easy to get, and there have been lots of openings where the West

*(Continued on page 3)*



STARS has been  
designated a Special  
Service Club by the ARRL.

(Continued from page 2)

Coast and the Pacific Northwest worked the East Coast and the Southeast."

Six meter operators should be alert for very short E-skip that indicates a rare increase in the maximum usable frequency (MUF) to a point where 2 meter E-skip -- or very, very rarely 222 MHz E-skip -- is possible. Zimmerman said there have been several 2 meter sporadic E openings and one 222 MHz E-skip opening this summer: "On May 29-30, 2 meter contacts were reported from Maine to Ohio, south to the Mid-Atlantic, to the Northeast, to South Carolina, Florida, Alabama, Louisiana in the south and Michigan, Western Tennessee and Southern Illinois to the West. The longest was 1477 miles from Maine (David Olean, K1WHS) to Louisiana (William Kemp, K5EMP)."

Zimmerman said that conditions are likely to continue to be very good until the middle of July when the E-skip traditionally begins to wind down. "Most areas of the country have not had good conditions to Europe, so that may still be something to look forward to," he said. "Two DXpeditions to rare Caribbean countries are coming up later in June -- to San Andres (HK0) and to St Barts (FJ). If you have an HF/VHF radio that covers 6 meters, put up a dipole or try your 80 meter antenna - it should work on 6 meters as well -- and have some fun. You never know what you may work next."

—ARRL News

## SUMMER NIKE BASE OPENING SCHEDULE

Just a note...during July and August, the NIKE Base clubhouse will only be open on Thursday evenings that Board or General meetings are scheduled.

## DATES TO REMEMBER

July 3rd—General STARS Meeting  
July 24th—STARS Board Meeting

## CHINA OLYMPIC SPECIAL EVENT STATIONS ON THE AIR

Amateur Radio Special Event stations for the 2008 Beijing Olympic Games are now on the air. The Southgate news says that the stations began operating May 18th with five special event calls representing the five rings of the Olympic flag. The calls are BT1OB, BT1OJ, BT1OH, BT1OY and BT1ON with the last letter of the callsign corresponds to the color of each of the rings of the Olympic flag. BA4EG will be the QSL manager for all stations. QSL's can be sent either direct or via the bureau and will begin to be answered in October. There is a website set up that includes an on-line log search, a QSL card receive and sent status, and other information. Find it online at [www.bj2008ses.com.cn](http://www.bj2008ses.com.cn).

—Amateur Radio Newslite

## CLUB MEETINGS

Club meetings are held on the first Thursday of the month at 7:00PM at either the Hamburg Youth Center (Prospect and Hawkins Avenues) or the NIKE Base Club Station.

Board meetings are held on the fourth Thursday of the month at the Nike Base Club Station at 7:30PM and are open to all club members.

## CLUB NETS

STARS club nets are open to all to exchange information on local amateur radio activities.

STARS WB2EZU Memorial HF net meets at 10AM local time on Saturdays on 3.925 MHz +/- QRM. Bob Lehning WA2YSJ is usually the net controller.

STARS co-sponsors, along with WB2JPQ, the Sunday morning RagChew Net at 9:30AM on 28.380 Mhz.

# RADIALS DEMYSTIFIED

## PART 3

By Bill Rinker - W6OAV

Part 1 of this article discussed elevated  $\frac{1}{4}$  wave length resonant verticals. Part 2 discussed ground mounted  $\frac{1}{4}$  wave length resonant verticals. Part 3 discusses the pros and cons of ground mounted verticals verses elevated verticals. It also discusses why certain verticals do not require radials or a ground plane.

### GROUND MOUNTED VS ELEVATED VERTICALS

The charts below are self explanatory. They provide the pros and cons of ground mounted verticals verses elevated verticals.

#### GROUND MOUNTED VERTICALS

PRO
Radials can be any length and work on all bands
Easy to mount and access
Low visibility
CON
Takes 120 radials to closely match an elevated ground plane with 4 radials
Surrounding structures reduce the radiated signal and distort the radiated pattern.
Limited ground wave coverage

#### ELEVATED VERTICALS

PRO
95% efficient with 4 radials
Above surrounding structures so radiated signal not reduced nor is pattern distorted
Better ground wave coverage
A metal roof makes a great ground plane
CON
Requires between 2 to 4 radials per band
Hard to mount and access
Radials must be tuned for each band
Must be mounted high enough so that people will not contact the radials

### "RADIAL-LESS" VERTICALS

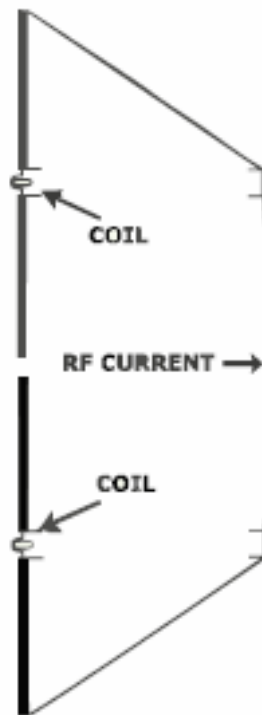
Parts 1 and 2 of this article discussed why  $\frac{1}{4}$  wave length resonant verticals, and shorter loaded  $\frac{1}{4}$  wave length resonant verticals, require radials or a ground plane. Why is it then that certain verticals do not require radials or a ground plane?

The answer is that these "radial-less" verticals are self resonant  $\frac{1}{2}$  wave length antennas. They are either a physical  $\frac{1}{2}$  wave length antenna or a form of shorten loaded antenna which is  $\frac{1}{2}$  wave length resonant. The total  $\frac{1}{2}$  wave length RF current resides on the vertical. See Figures 1 and 2.



Full Half Wave Vertical

Figure 1



Shortened Loaded Half Wave Vertical

Figure 2

Half-wave length verticals are more efficient than a well designed  $\frac{1}{4}$  wave length resonant ground mounted. Why is this? There are several reasons:

1. Unlike the  $\frac{1}{4}$  vertical, there is no RF current flowing in the lossy ground around the base of the antenna. Therefore, one needs not to worry about using radials to decrease the RF current loss of the ground.

(Continued on page 5)

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2. The maximum radiation occurs above ground at the mid-point of the  $\frac{1}{2}$  wave length resonant vertical. This allows much of the RF to "clear" surrounding structures. The opposite is true of  $\frac{1}{4}$  wave length ground mounted verticals. Maximum radiation from a  $\frac{1}{4}$  vertical occurs at ground level.

3. A  $\frac{1}{2}$  wave length vertical has a lower angle of radiation compared to a  $\frac{1}{4}$  wave length vertical.

## RADIALS AND LONG WIRE ANTENNAS

The rules are:

- A long wire which is a self resonant  $\frac{1}{2}$  wave length, or a multiple thereof, does not require radials or a ground plane. The reason is the same as that for  $\frac{1}{2}$  wavelength resonant verticals. All the  $\frac{1}{2}$  wave length RF current is contained within the antenna.

A long wire which is not a self resonant  $\frac{1}{2}$  wave length, or multiple thereof, does require a ground plane or radials. The reason is the same as that for  $\frac{1}{4}$  wave length resonant verticals. The radials or a ground plane are required to provide for a total  $\frac{1}{2}$  wave length resonance or multiples thereof.

*Thanks to Bill W6OAV for allowing us to re-print his antenna articles!*

## GRAM HAMFEST

July 19, 2008

Alexander Firemen's Grounds Route 98,

Alexander Open 7AM

Admission: \$6 presale / \$7 gate

VE Testing

Breakfast and Chicken Barbeque

More info:

Rob McLean KC2MHH 585-343-1347

kc2mhh@verizon.net

Joe DeFazio W2DIG 585-343-1145

w2dig2@verizon.net

## ARRL ANNUAL REPORT

The ARRL Annual Report for 2007, now available online at [www.arrl.org/announce/annualreport/](http://www.arrl.org/announce/annualreport/) reviews the League's major events of the year and documents the renewed growth of both the ARRL and the activities of the Amateur Radio Service. Just 50 years ago, there were fewer than 90,000 ARRL members; in 2007, ARRL achieved its highest level of membership growth since 1993. By the end of 2007, there were 153,535 ARRL members -- a single year increase of 3.3 percent. In this period of growth, ARRL has upheld its commitment and mission as the leading representative of active radio amateurs.

"As it played out, 2007 was a great year for ARRL and Amateur Radio," said ARRL President Joel Harrison, W5ZN. "We experienced growth in the Amateur Service, growth in ARRL membership, the League is in good fiscal shape and hams are excited about getting on the air. Our headquarters staff is more excited and pumped about our mission than I've ever seen and that enthusiasm is being reflected in our membership numbers."

ARRL Chief Executive Officer David Sumner, K1ZZ, concurred: "The mentoring of newcomers by a friendly, welcoming, and supportive community of experienced amateurs is an essential part of 'service after the sale.' It's what turns license-holders into active, lifelong radio amateurs. It's what will ensure our success as a radio service and as a national and community resource for public service communications. The ARRL and its 2100 affiliated clubs are working to meet the challenge."

According to ARRL Media and Public Relations Manager Allen Pitts, W1AGP, "The Annual Report is not only useful for showing members the strength of the organization, but it is also a valuable tool in presentations to major public officials. At times they may know little about Amateur Radio, but when they see the quality of the annual report, even before they open it up, they know this is an organization to be taken very seriously. We are indeed a national association and very active."

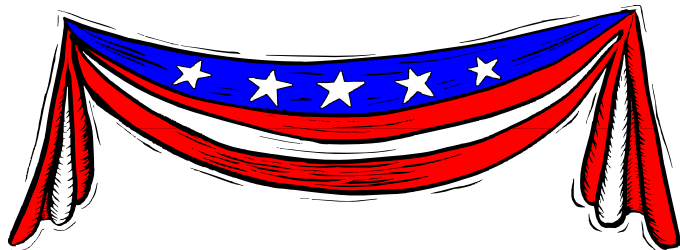
## CHINA PRAISES ITS HAM COMMUNITY FOR QUAKE RESPONSE

Chinese television has heaped praise on that nation's ham radio community—this for its volunteerism following that nation's recent earthquake.

Reports on the Chinese national TV network news said that when all other communication means failed, amateur radio operators came out to provide valuable first hand information from the center of the earthquake disaster. This included a High Frequency link for the Red Cross from the disaster area back to the nation's capital city of Beijing, enabling that aid agency to do its essential humanitarian work.

Other reports said that BY8AA continuously coordinated VHF and UHF communications for a 100 km radius from the capital of southwest China's province of Sichuan. Additional repeaters were set up in two other cities that were among the worst hit areas outside the epicenter. This formed an effective amateur radio relay communication network to provide an Amateur Radio response.

—Amateur Radio Newline, Bill Pasternak, WA6ITF



### STARS Board of Directors

President	Keith Patterson KC2DGC
Vice President	Scott Barto KB2KOL
Treasurer	Jack Cullum KB2ESM
Fin. Secretary	Judy Levan N2TEZ
Secretary	Wayne Carpus W2ZDP
Director	John Crawford, Sr. KB2VWC
Director	Ken Pokigo KC2AYK
Past President	Bob Koster KA2WYE

## JULY CONTESTS

**July 5 0000Z—July 6 2400Z** — DL DX RTTY Contest — Exchange: RST and serial; [www.drcg.de](http://www.drcg.de)

**July 5 2000Z—July 6 0200Z** — 070 Club Firecracker PSK31 Spring — Exchange: RST and S/P/C; [www.podsx070.com](http://www.podsx070.com)

**July 11 2000Z—July 11 2400Z** — FISTS Summer Sprint — CW; Exchange: RST, S/P/C, name, FISTS number or pwr; [www.fists.org](http://www.fists.org)

**July 12 1200Z—July 13 1200Z** — IARU HF World Championship — Phone, CW; Exchange: RST and IARU zone; [www.arrl.org/contest](http://www.arrl.org/contest)

**July 13 2000Z—July 13 2400Z** — QRP ARCI Summer Homebrew — CW; Exchange: RST, S/P/C, QRP number or power; [www.qrparci.org](http://www.qrparci.org)

**July 19 1200Z—July 20 1200Z** — DMC RTTY Contest — Exchange: RST and serial; [www.digital-modes-club.org](http://www.digital-modes-club.org)

**July 19 1500Z—July 19 1700Z** — Feld-Hell Monthly Sprint — Digital; Exchange: RST, S/P/C, Feld-Hell member nr or age; [www.wa6l.com/contests](http://www.wa6l.com/contests)

**July 19 1800Z—July 20 0600Z** — NA RTTY QSO Party — Exchange: Name and S/P/C, [www.ncjweb.com](http://www.ncjweb.com)

**July 19 1800Z—July 20 2100Z** — CQ WW VHF Contest — Phone, CW, Digital; Exchange: 4-digit grid square; [www.cqww-vhf.com](http://www.cqww-vhf.com)

**July 26 1200Z—July 27 1200Z** — IOTA Contest — CW, Digital; Exchange: RS(T), serial, IOTA number if island; [www.rsgbhfcc.org](http://www.rsgbhfcc.org)

## JULY SPECIAL EVENTS

**Jul 1-Jul 31, 0000Z-2359Z**, Quantico, VA. FBI Amateur Radio Association, K3FBI. 100<sup>th</sup> Anniversary of the Federal Bureau of Investigation. All bands phone & PSK. Certificate. FBIARA, ERF Building 27958A, Quantico, VA 22135. *No SASE required for certificate, just send QSL.* [www.fbi.gov/fbihistory.htm](http://www.fbi.gov/fbihistory.htm)

**Jul 4, 1200Z-1700Z**, Harrisburg, PA. Harrisburg Radio Amateurs Club, W3W. 2008 ARRL Eastern Pennsylvania Convention. QSL. Joe Stepansky, KQ3F, 7648 Patterson Dr, Harrisburg, PA 17112. [hrac.tripod.com](http://hrac.tripod.com)

**Jul 4-Jul 6, 0000Z-2359Z**, Isabela, PR. Federation Radio Amateur of Puerto Rico, W4P. Independence Day Week End. QSL. Carlos R Rodriguez, KP3S, RR 5 Box 73A, Isabela, PR 00662-4509. [kp3s@arrl.net](mailto:kp3s@arrl.net) or [kp3s.50megs.com/memory.htm](http://kp3s.50megs.com/memory.htm)

**Jul 4-Jul 18, 0000Z-2359Z**, Northern, NJ. North Jersey DX Association, W2B. 50<sup>th</sup> Anniversary of the North Jersey DX Association. QSL. W2 QSL Bureau or direct to W2IRT, PO Box 1623, West Caldwell, NJ 07007-1623. [www.njdx.org](http://www.njdx.org)

**Jul 5, 1500Z-2100Z**, Hammondsport, NY. Keuka Lake Amateur Radio Association, N2WEA. 100<sup>th</sup> Anniversary Flight of the June Bug - Glenn H. Curtiss aviator. Certificate. John Babbitt, WB2SQX, 1990 Square Woods Dr, Canisteo, NY 14823. From the Glenn H. Curtiss Museum in Hammondsport, NY. [glennhcurtissmuseum.org](http://glennhcurtissmuseum.org). [www.klara.us](http://www.klara.us)

**Jul 5, 1600Z-2300Z**, San Diego, CA. USS Midway CV-41 Museum Radio Room, NI6IW. Commemorating Independence Day. QSL. USS Midway CV-41 Museum Radio Room, 910 N Harbor Dr, San Diego, CA 92101. [af6ha@yahoo.com](mailto:af6ha@yahoo.com).

**Jul 9-Jul 13, 1800Z-2200Z**, Austin, TX. Naturist Amateur Radio Club, NU5DE. Nude Awareness Celebration -- Nude Recreation Week. QSL. Naturist Amateur Radio Club, PO Box 200812, Austin, TX 78720-0812. [www.nu5de.org](http://www.nu5de.org)

**Jul 12-Jul 13, 1200Z-2200Z**, Geneseo, NY. Squaw Island Amateur Radio Club, W2G. Geneseo, NY Airshow & Flying Tigers Reunion. QSL. Norm Schrader, WB2GGM, 6009 Pine Haven Ln, Honeoye, NY 14471. [wb2ggm@yahoo.com](mailto:wb2ggm@yahoo.com) or [www.siarc.us](http://www.siarc.us)

**Jul 12-Jul 20, 0100Z-2359Z**, 50<sup>th</sup> Anniversary of the Collins S-Line Collect 4 or more QSLs from 4 different facilities & mail to W0CXX for special certificate (QSLs will be returned). [w5rok.us](http://w5rok.us) or [w0cxx.us](http://w0cxx.us)  
-- Cedar Rapids, IA. Rockwell Collins Amateur Radio Clubs, W0CXX. QSL. Collin Amateur Radio Club, South Campus, HQ Station, 10211 Hall Rd, Cedar Rapids, IA 52411.

-- Richardson, TX. Rockwell Collins Amateur Radio Clubs, W5R0K. QSL. Rockwell Collins Amateur Radio Club, PO Box 833807 Mail Stn 461-290, Richardson, TX 75083-3807.

-- Toulouse, France. Rockwell Collins Amateur Radio Clubs, F6KNZ. QSL. Rockwell Collins Amateur Radio Club, 6 avenue Didier Daurat, Blagnac, FRANCE.

-- Tustin, CA. Rockwell Collins Amateur Radio Clubs, W6CXX. QSL. Rockwell Collins Amateur Radio Club, Southern California Chapter, 14192 Franklin Ave M/S 550-100, Tustin, CA 92780.

-- Melbourne, FL. Rockwell Collins Amateur Radio Clubs, W4CRC. QSL. Rockwell Collins Amateur Radio Club, 1874 Palmer Dr, Melbourne, FL 32935.

**Jul 13, 1800Z-2359Z**, Cookeville, TN. Sons of Confederate Veterans, N4F. Confederate General Nathan Bedford Forrest Day. N4ECW-R. Certificate. Dennis M. Barrett, N4ECW, 1035 E 6th St, Cookeville, TN 38501. [N4ECW@arrl.net](mailto:N4ECW@arrl.net)

**Jul 19-Jul 20, 1300Z-2300Z**, Forest City, IA. Winnebago-Itasca Travelers Ham Club, W0WIT. 50<sup>th</sup> Anniversary of Winnebago Industries. QSL. Frank Krizan, 1005 Talley Rd, Garland, TX 75044. [www.orgsites.com/ia/witcars](http://www.orgsites.com/ia/witcars)

**Jul 25-Jul 27, 1500Z-0300Z**, Indianapolis, IN. Indianapolis Motor Speedway Amateur Radio Club, W9IMS. 15<sup>th</sup> running of the Brickyard 400. QSL. Indianapolis Motor Speedway ARC, PO Box 18495, Indianapolis, IN 46218-0495. QSL and certificate available. [www.w9ims.com](http://www.w9ims.com)

Another puzzle from H. Ward Silver NOAX. You can find more like these in QST or on the ARRL website.

# The "Simple" Diode?

The amateur is confronted regularly with a variety of the most simple of semiconductor devices—the two-terminal diode. These come with a large variety of characteristics optimized for rectification, large and small-signal handling, power control, etc. How many

are you familiar with? Try to name each symbol and match it to its voltage-current characteristics.

All graphs have current on the vertical axis and voltage on the horizontal axis.

Last Month's Answer

1	R	Y	2	B	A	3	N	4	N	5	A	6	T	7	N																		
8	M	Y	9	I	10	T	11	E	12	R	13	M	14	I	15	N	16	A	17	L	18	O											
19	P	20	A	21	C	22	K	23	E	24	T	25	Q	26	M	27	S	28	A	29	G	30	E										
31	I	32	E	33	E	34	A	35	N	36	Y	37	M	38	E	39	S	40	S	41	A	42	G	E									
43	L	44	L	45	Y	46	M	47	C	48	O	49	O	50	B	51	B	52	A	53	U	54	F	55	E	C							
56	17	57	B	58	A	59	U	60	D	61	O	62	T	63	19	A	64	L	65	C	66	U	67	21	F	E	C						
68	22	69	O	70	O	71	I	72	O	73	R	74	U	75	24	T	76	X	77	T	78	25	H	79	T								
80	26	81	X	82	T	83	A	84	L	85	G	86	R	87	27	B	88	B	89	S	90	W	91	E									
92	R	93	I	94	I	95	Y	96	L	97	A	98	T	99	C	H																	
100	31	101	C	102	O	103	D	104	E	105	32	P	106	R	107	O	108	C	109	E	110	S	111	S	112	O	113	R	114	115	R	116	K
117	E	118	O	119	S	120	E	121	N	122	S	123	E																				
124	34	125	O	126	F	127	F	128	35	B	129	A	130	37	T	131	T	132	38	L	133	P	134	I	135	40	G	136	U				
137	41	138	S	139	H	140	I	141	42	N	142	A	143	43	M	144	O	145	44	D	146	E	147	M	148	S							
149	45	150	Q	151	S	152	K	153	T	154	46	C	155	O	156	N	157	47	N	158	E	159	C	160	T	161	48	B					

This Month's Answers

- A - PNP Diode—curve 4
- B - Schottky rectifier—curve 1
- C - TRIAC—curve 5
- D - Silicon rectifier—curve 2
- E - Zener diode—curve 3