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Title: Communications for Project Oscar
Author: T.M. Lott, VE2AGF

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WA6LZC ("Rep") at Vandenberg, California is in an enviable QTH. From the shack window he can often see the silver streak of a space vehicle carrying a satellite into orbit, and can hear from afar the deafening roar as the rocket leaves the launching pad. On December 12, 1961 at 2042 GMT, WA6LZC was in QSO on 7-Mc. s.s.b. with K6QEZ, the Oscar Communications station in Redwood City, Calif. Discussing the forthcoming Oscar launch, Rep suddenly said, "Hey, fellows — I can see a missile leaving the pad! I bet it's Oscar!" Thus, the first news of the launching reached the outside world!

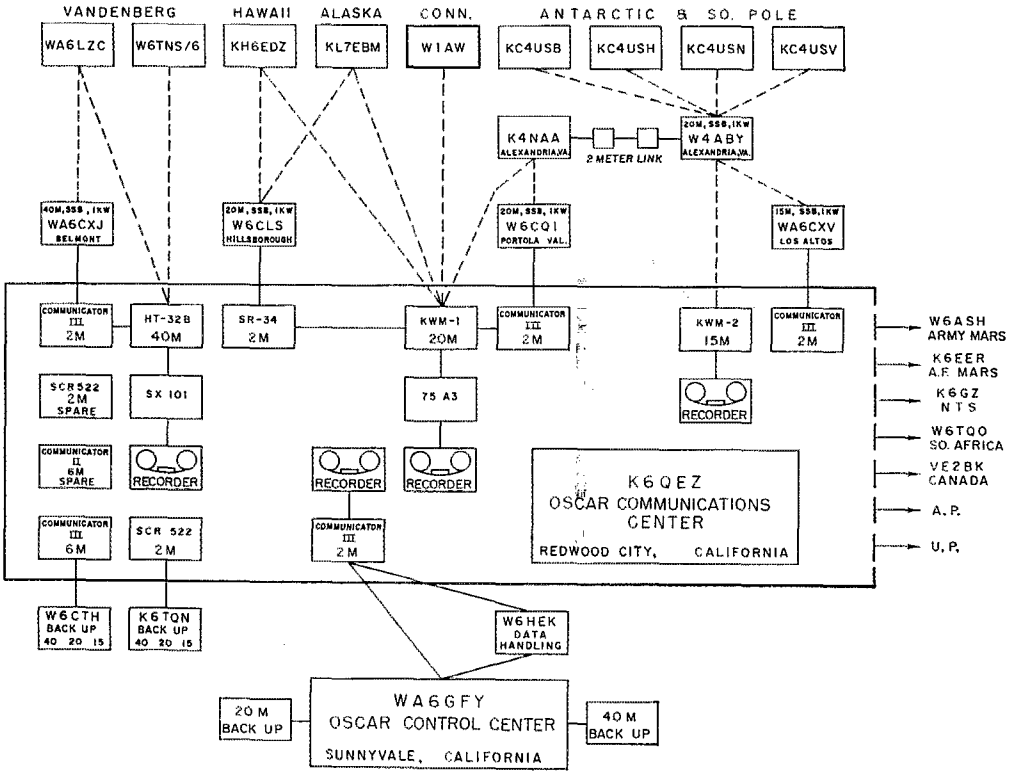
Communications for Project Oscar

BY T. M. LOTT,* VE2AGF (ex-G2CIN)

SETTING up a system of rapid and reliable communications with radio amateurs in strategic locations around the world to ensure immediate and accurate verification of the Oscar satellite being in orbit presented a considerable problem. Matters were not made any simpler by security restrictions imposed by virtue of Oscar being carried into space aboard an Air Force vehicle. This meant, of course, that we could not tell any of the Oscar stations the date and time of firing prior to the launch, but had to have them standing by in a state of readiness for two or three days beforehand. Once the vehicle was off the pad, security restrictions were lifted, and the Oscar communications net could spring into life.

In view of the importance of instant and reliable communications, it was decided that every circuit should have an emergency back-up (see Fig. 1), and that every piece of operating equipment should have an operating spare alongside it. To guard against power failure, the Ampex Radio Club provided a 5-kilowatt Field Day a.c. generator in stand-by condition. To insure that the network was in working order, several communications drills were held in the weeks prior to launch, and a full-scale dress exercise was held two days prior to launch. A practice message was flashed from Oscar Communication headquarters (K6QEZ) to KC4USB at the Marie Byrd Base, Antarctica. In turn, the hams at the Pole sent back an acknowledge message to K6QEZ.

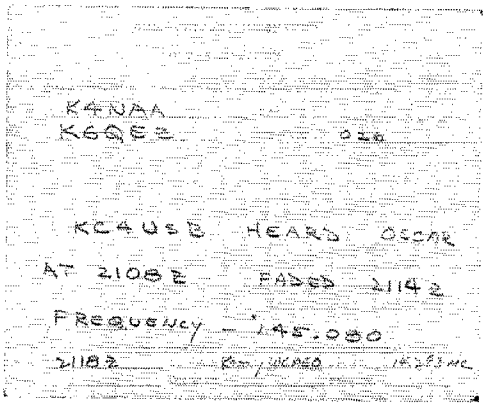
* Project Oscar Association, Box 183, Sunnyvale, Calif.



At the left, above, Tom Lott, VE2AGF, Director of Communications, passes on the news from the Communications Center to the Control Center via the 2-meter link. Looking on are Clyde Haggbloom, W6WZF (seated), and Mr. Alexander Poniatoff, founder and Chairman of the Board of Ampex.
At the right, the exciting news comes in from Marie Byrd Land—Oscar is being heard at the South Pole! Dave Keresey, W6AEO, operates the 20-meter rig at this historic moment.

Because of space limitations at K6QEZ and previous field day experience in operating several one-kilowatt rigs in close proximity, it was decided to have several external amateur stations linked into the center by means of 144-Mc. equipment. These back-up stations were chosen for their operating ability and signal punch on the DX bands. Power level at K6QEZ was held to 120 watts to reduce cross-talk and interference, as simultaneous transmissions on six bands were to be used.

As single sideband voice was used on all long-distance links (and a.m. on 2- and 6-meter links) it proved relatively easy to operate the remote kilowatt transmitters by feeding the 144-Mc. received signal into the sideband transmitter, thus actuating the VOX circuit. Telephone facilities were also available at all operating positions for use if needed. Messages coming into the Oscar Communications Center (K6QEZ) from WA6GFY (Oscar Project Control Center), Sunnyvale, were written on specially made carbon-interleaved message forms and passed to the operators at the 15-, 20-, and 40-meter positions. Incoming messages received at K6QEZ were written on single forms and given to the 144-Mc. control-link operator for retransmission to WA6GFY.


K4NAA
K6QEZ 0226
KC4USB HEARD OSCAR
AT 2108Z FADED 2114Z
FREQUENCY - 145.080
2118Z

To accommodate all the extra circuits, additional beam antennas were erected on the roof at K6QEZ, and the beams for the 2- and 6-meter links were permanently aligned on the respective terminal stations. In view of the historical significance of the forthcoming event, tape recorders were spliced into all the major circuits and when time is found to edit the rolls (more than eight miles of tape!) we hope to have an interesting story of the eventful day of December 12, 1961. In the excitement of the moment, when word was flashed from the Antarctic station that Oscar was in orbit, I am sure many things were said and done of which we now have little or no recollection, but which one day may be of interest to posterity! I am waiting to hear again the thrilling visual description of the lift-off of Discoverer XXXVI given on 40-meter sideband by WA6LZC from Vandenberg, and the excited voice of K4NAA on 20-meter s.s.b., relaying the historic message that KC4USB had heard Oscar's greeting as it swept overhead in orbit! The biggest thrill of all was the sideband message from KL7EBM

(Continued on page 136)

Operators at K6QEZ on December 12, 1961

Tom Lott, VE2AGF	J. Michaelis, K6KOP
G. Christofferson, K6MTZ	Dean Grant, WA6LGK
Dave Keresey, W6AEO	Lloyd Honey, K6GXH
Pat Casias, K6RCD	Bill Widera, ex-WV6DQM
C. Haggbloom, W6WZF	Erno Fechner (recording)
Fred Streib, W6QPM	
Bob Sferra, WA6FLY	

Operators at WA6GFY on December 12, 1961

John Ruzik, K6HPO	Fran Evans, W6GBS (recording)
Jim Cox, W7QIS/6	
Don Peterson, WA6GQE	Stan Benson, K6CBK
Jerre Crosier, W6IGE	Hugh McLain, K6SPK
Fred Hicks, W6EJU	Woody Koehler, WA6GXI