

Signal Level to the satellite = 114.6 dBm
Satellite Receiver Threshold = -138 dBm
Predicted Signal-To-Noise = +23 dB

It appears that the rough predictions for a required ground-station power of 500 to 1000 W ERP are well within agreement with the analysis just performed.

Ground Station

90 W rf out less 1.1-dB line loss = 70 W

12-dB Antenna Gain (15.85×70) = 1109 W ERP

Thus, the analysis confirms, if somewhat laboriously, the general contention that 100 W out to a 10-dB gain antenna will suffice for OSCAR-10.

It is left to the student to plug in his own values to the downlink and uplink methods outlined here in order to determine not only how well he might expect to hear AO-10, but also to evaluate what effect on receiver

threshold sensitivity any proposed change in the station will have. Using the method outlined herein, one may easily discover the inherent cost/benefit ratio of using a better preamp, reducing line losses, moving the preamp to the antenna or increasing transmit power or antenna gain. In this way, any proposed change may be evaluated prior to purchase and implementation. Would that we were always so lucky as to be able to perform an effectiveness evaluation prior to making untoward purchases.

References

1. *RSGB VHF-UHF Manual*, Third Edition
2. *ARRL 1982 Radio Amateur's Handbook*, Chapters 8-1, 9-2

Comets

Please publish the attached *Call for Papers* for our 29th Annual VHF Conference to be held Saturday October 29th, 1983 at Western Michigan University, Kalamazoo, Michigan. Paper synopsis' are due for selection by August 15th and final papers are due October 1st.

We will provide proceedings for the conference participants and anyone who orders them by mail.

Reports from the past two years have encouraged us to continue a quality technical VHF Conference for those Radio Amateurs and others interested in the design, construction and testing of VHF equipment. — *C.A. Hesselberth, Chairman and Professor, College of Engineering and Applied Sciences, Department of Electrical Engineering.*

CALL FOR PAPERS

29th ANNUAL VHF CONFERENCE

CONFERENCE TO BE HELD ON SATURDAY, OCTOBER 29, 1983
8:00 A.M. - 5:00 P.M. WITH A 5:30 DINNER

AT WESTERN MICHIGAN UNIVERSITY, KALAMAZOO, MI
KOHLMAN HALL

Papers are invited for the 1983 Annual VHF Conference sponsored by the Electrical Engineering department. Principle emphasis will be placed on engineering developments applied to radio communication, design and construction on the frequencies of 30 to 1200 MHz.

FUTURE TRENDS & NEW IDEAS

Papers are solicited on from a wide range of areas including, but not necessarily limited to, those listed below:

Antennas & Transmission Lines
Applications of Microprocessors
Audio Frequency Equipment Used With VHF Transmitters and Receivers
Emergency Gear
Grounding and Shielding
Keying, Break-in & Control Circuits
Measurements & Test Equipment for VHF
Mobile and Portable Equipment
Modulation and Mixing
Narrow Band voice Modulation
Noise Reduction
Phase Locked Loop Uses
Picture Transmission & Reception
Power Supplies including Switchers
Production Technology and Model Building
Propagation
Recent Equipment/New Apparatus
RTTY
Satellite and Moon Bounce Topics
State of the Art Semi-conductors, I.C.'s and Filters With Applications
Transceivers

One of the basic purposes of this Conference is to provide a maximum opportunity to present findings by those experimenting, designing, constructing, testing, and inquiring into problems and methods applicable to VHF radio. Practicing engineers who are radio amateurs find this conference "planned for them".

This is an opportunity for beginning or mature researchers to report their findings to their peers. We especially encourage the unexperienced inquirers to obtain some experience by presenting a paper at our VHF Conference.

Authors wishing to present papers should send a synopsis or abstract (typically one or two pages with diagrams) describing the paper to Dr. Cassius Hesselberth, W8FLH, Chairman, Department of Electrical Engineering, Western Michigan University, Kalamazoo, MI 49008. Foreign authors are requested to have a U.S. contact.

Deadline for submission of synopsis is August 15, 1983. Speakers will be notified of acceptance by August 20th, 1983. Reproducible copy for the printed proceedings should be mailed to the Chairman one month prior to the day of the Conference.