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A Radyne ComStream Company

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November 6, 2003

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Reference: BJ Services Company, U.S.A.
Call Sign: E020083
File Number: SESLIC2002032600479
Review of Application, Request for Further Information
FCC Letter dated October 10, 2003

Dear Ms. Dortch:

In accordance with Part 1 of the Commission's rules concerning the Commission's requests for further information, enclosed is the response of Armer Communications, on behalf of the applicant, BJ Services Company, USA, to the above referenced request. Please direct further correspondence regarding the technical sections of this application to:

Armer Communications
Attn: Brian Mitchell
315 South Bracken Lane
Chandler, AZ 85224

Your assistance in this matter is greatly appreciated.

Sincerely,

Brian Mitchell
Project Engineer

BM: ta
Enclosures

Cc: Mr. William E. Howden
Chief, Systems Analysis Branch
Satellite Division

ARMER COMMUNICATIIONS' RESPONSE TO
THE FCC'S REQUEST FOR FURTHER INFORMATION
CALL SIGN E020083
FILE NUMBER: SESLIC2002032600479

Armer Communications respectfully submits this response to the Commission's request for further information regarding the application submitted by Armer Communications on behalf of BJ Services Company, U.S.A., for the operation of a Ku Band satellite communications system consisting of remote terminals located on vessels operating in the Gulf of Mexico with a central hub located in Tomball Texas. Please reference the FCC request for information sent to Armer Communications by Mr. William Howard, Chief, Systems Analysis Branch, Satellite Division, dated October 10, 2003.

Should further information be required in support the Commission's request for further information, please forward such request to:

Armer Communications
Attn: Brian Mitchell
315 S. Bracken Lane
Chandler, AZ, 85224

FCC Request: Points of Communication: Identification of specific points of communication by satellite name and orbital location. Any number of points of communication may be identified. ALSAT is not applicable to this operation.

Armer Response: Armer is seeking FCC authorization to utilize the SES Americom satellite AMC-6, located at 72 degrees W.L.

FCC Request: Pointing Accuracy: A statement attesting that the maximum pointing error is within 0.2 degrees, under all operating conditions, with supporting data.

Armer Response: The system design utilizes the SeaTel Model 4996T Dual Optic antenna system employing high-accuracy, closed-loop servo technology. This system is designed and specified to maintain 0.2 degrees peak error stabilization accuracy in all operating conditions, including conditions of +/- 25 degrees of roll and +/- 15 degrees of pitch. Please refer to the SeaTel 4996T data sheet attesting to the accuracy of the 4996T system, which is incorporated by referenced and attached to this response.

FCC Request: Muting: A statement attesting that the emissions will stop if correction of more than 0.5 degrees is required to maintain lock on the satellite, with supporting data.

Armer Response: Emissions will be inhibited (stop) whenever the satellite modem receiver looses lock on the received carrier. This is accomplished internally within the Radyne/ComStream IPSAT modem's base software. Upon successful reacquisition of the received carrier, the IPSAT will re-enable the transmit signal. This will occur automatically, with no manual intervention required. This feature has been successfully tested and

demonstrated by the IPSAT modem manufacturer (Radyne/ComStream), and by Armer Communications.

The actual antenna offset required to generate this mute feature would require further operational testing with both the antenna manufacture in conjunction with the modem manufacture. The typical level that the receiver will loose lock in the proposed operating system is a level of approximately 4.0 dB Eb/No. It should be noted that the Eb/No of the receiver is not directly proportional to the RX antenna gain since the RX carrier power and RX noise floor will both be affected by the antenna offset. Should the antenna offset required be greater than the controller can effectively control, causing the antenna to loose track of the operating satellite, the controller will attempt to adjust the antenna to the proper coordinates as calculated by the controller. During this time, the receiver Eb/No of the desired carrier will be less than 4.0 dB thus causing the transmitter to be disabled due to the modem receiver loosing lock, and will stay disabled until the antenna controller regains satellite lock and the modem receiver re-acquires lock (typically 3 to 20 seconds after the antenna controller has re-acquired satellite lock). Should the antenna controller false lock on another satellite while attempting to acquire the satellite, the transmitter will continue to be muted as the modem will not be able to re-acquire lock on the proper signal.

Additionally, the SeaTel 4996T transmit antenna patterns supplied by SeaTel are incorporated by reference and have been included as supporting data with this response. Armer believes that the overall objective of this request is the identification of possible adjacent satellite interference. Referring to the data plots, the following information can be ascertained: At a 1.5 degree offset, the transmit signal strength is -24 dB, at a 1.0 degree offset, the transmit signal strength is approximately – 9 dB, and at a 0.5 degree offset the transmit signal strength is approximately - 2 dB as referenced to the full power output at a 0.0 degree offset. The system link budgets revel that the remote system will operate with a TX EIRP of 38.7 dBw. Thus, with the antenna at a 1.0 degree offset, an equal distance theoretically from the adjacent satellite operating at 2 degrees, the TX EIRP will be reduced 9 dB to 29.7 dBw on both satellites.

FCC Request: Affidavits: An affidavit or declaration from the operator of each satellite adjacent within four degrees of the points of communication identified by the applicant, attesting or declaring that each such operator is aware of and acknowledges the applicant's proposed operation in the Ku Band, and does not object to that operation.

Armer Response: Affidavits have been requested by Armer communications for the following satellites which are within 4 degrees of the point of communication. These satellites are identified as Nahualsat 1 located at 71.8 degrees W.L., SBS6 located at 74 degrees W.L., and Galaxy 12 located at 74 degrees W.L. E-mail requests were made for affidavits from Nahualsat, corporate offices located in Argentina, and PanAmSat, operators of SBS6 and Galaxy 12 with corporate offices located in Wilton CT. At the time of this response, the requested affidavits are in process but have not been received by Armer Communications. SES Americom is currently working with PanAmSat and Nahualsat to obtain the requested affidavit. Armer will forward these affidavits as soon as they are received from the above fore mentioned satellite service providers.

An affidavit was originally requested from the FCC (reference Bill Howden e-mail dated 8-20-03) and was to be obtained from the satellite service provider the applicant identified as the point of communication. This affidavit has been completed and is incorporated by referenced and is attached to this response.

FCC Request: 24 Hour Contact: The name and telephone number of a contact person in the United Sates, available seven days a week, 24 hours a day, for cessation of emissions from suspected source of interference in the event of need to resolve interference issues, on direction from authority with jurisdiction for licensing in the area of operation.

Armer Response: Mr. David Kendrick (832) 326-4393

FCC Request: Subject to Outcome of Rule Making: Acknowledgement that any license will be subject to the outcome of any Rule Making.

Armer Response: Armer acknowledges that any license will be subject to the outcome of any Rule Making.

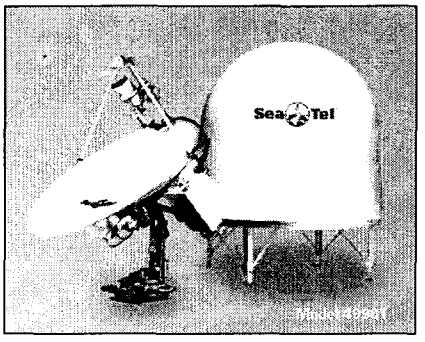
Enclosures:
SeaTel 4996T System Data Sheet
SeaTel 4996T TX Antenna Pattern Test Plots
Affidavit Letter From SES Americom

Sea Tel®

Marine Stabilized Antenna Systems

The VSAT Leader in a Class by Itself with Eutelsat Approval

The Sea Tel Model 4996T



If you find yourself with large communications requirements that go beyond the traditional marine satellite antenna offerings, you probably are in need of very small aperture terminal (VSAT) solutions that only Sea Tel can provide. Sea Tel delivers the most sophisticated VSAT solutions and is also uniquely positioned to deliver installation efficiencies no other maritime antenna competitor can offer.

Technological Superiority:

Sea Tel's Model 4996T Dual Optic antenna is produced specifically for marine VSAT applications. The Dual Optic design offers high efficiency by locating all of the focal point hardware out of the pathway of the RF energy.

The 4996T uses Sea Tel's most advanced, high-accuracy, closed-loop servo technology. With a heritage of hundreds of installations worldwide it has proven to be rugged, reliable and extremely accurate, making rough weather and sea conditions irrelevant.

Sea Tel mounts the RF equipment directly behind the antenna. This allows the efficient use of rigid waveguide from the High Power Amplifier to the feed assembly. For systems using HPAs greater than 100 watts, using waveguide rather than coax cable is the only option.

Eutelsat Type Approval:

This built-in high performance makes antenna licensing and registration easier than ever. In fact, the 4996T is the only maritime "system" including antenna, pedestal and radome that has ever been granted Eutelsat Type Approval.

With Type Approval a system is guaranteed in advance to be accepted by Eutelsat for use on its constellation of satellites. This translates to a substantial reduction of commissioning testing time, saving the shipping company a significant amount of time and money on installation.

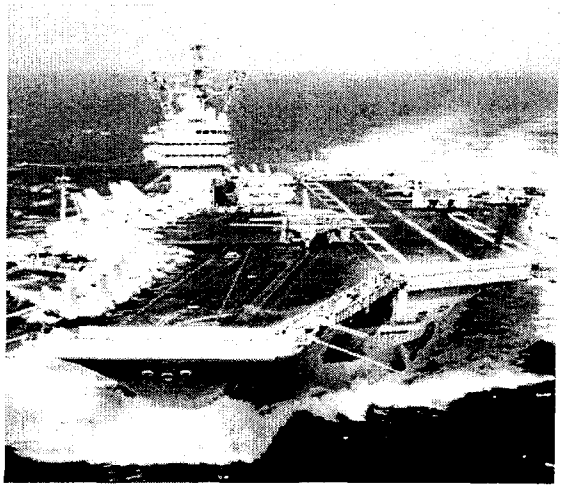
Less Than One-Hour Installation Time:

Sea Tel also speeds you through the installation process with a unique one-piece radome ready to install right out of the crate. From the arrival of the crate dockside to the final touch of the welder's torch, the Above Deck system installation process can be completed in less than one hour.

LRU Philosophy:

Sea Tel stabilized antennas are designed to provide years of uninterrupted service. When service is required, the physical layout has been designed for ease of access to system components. System components are sealed inside shielded and grounded gold colored aluminum enclosures: Lowest Replaceable Unit, or LRU. Simply put, the LRU is the piece of the system that is replaced to correct a system fault. LRUs are each secured to the antenna pedestal with 4-6 screws and 1 or 2 dB type connectors.

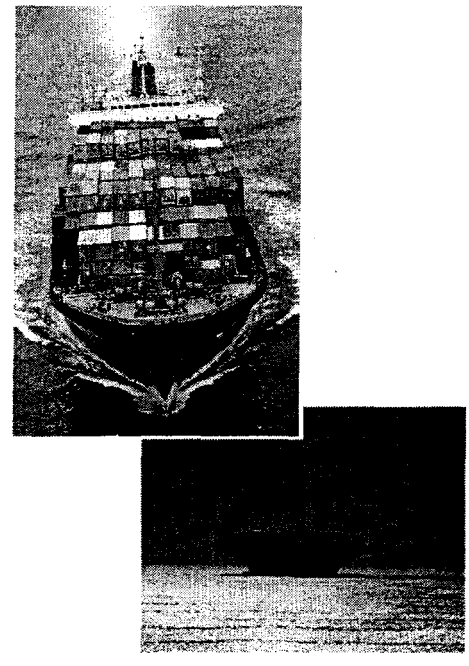
The built-in test functions of our Remote Antenna Management (RAM) Software, which can be run locally (on-ship) or remotely (on-shore), will identify faults down to the LRU level, allowing that LRU to be easily changed in a minimum amount of time.



The Sea Tel 4996T – the VSAT solution that delivers on the high seas and installs with ease.

Features, Benefits and Specifications for the Sea Tel 4996T

- Eutelsat Type Approval #EA-V037- Saving you time and money on every installation as well as guaranteed system operation on the Eutelsat Satellite System.
- Use of proprietary 1.2 meter dual-optic composite antenna ensures consistent RF performance from one antenna to another.
- 80 inch diameter one-piece radome - shipped complete, saves at least one day during the installation process, arrives dockside ready to install.
- Stabilized Antenna platform is state-of-the art due to evolutionary improvements.
- Unlimited Azimuth capability eliminates signal outages due to cable wrap/unwrap process.
- The Model 4996T maintains 0.2 degrees peak error stabilization accuracy in conditions of +/-25 degrees of roll AND +/-15 degrees pitch. This high stabilization accuracy eliminates interfering with other customers on the same satellite.
- Feed Assembly Rotary Joint allows the use of waveguide between the transmit port of the feed assembly and the output of the power amplifier. This minimizes signal losses between the HPA output and the feed assembly well below 1 dB, maintaining amplifier efficiency. This means you don't have to purchase a larger and more expensive amplifier to compensate for transmit-cabling losses.
- Automatic Polarization Control keeps satellite operators happy by continuously maintaining proper antenna polarization with the satellite. Our three-axis stabilized platform does half the work of polarization control, as the antenna is held still in inertial space, thus providing a good reference for polarization positioning. The competitions' designs are only two axis, which means that their polarization control must compensate for geographical changes and the antenna roll caused by vessel roll, pitch, or heading changes.



Standards and Compatibilities

- Standard configuration meets U.S. Navy Mil-Std 461 EMI/RFI specification. Operational EMI/RFI hardening available for applications requiring operation in extreme EMI/RFI environments (for instance Aegis-class ships)
- MIL-STD 167-1 for vibration
- CE Marked
- Receive gain is 41.5 dBi @ 11.85 ghz
- Transmit gain is 42.5 dBi @ 14.25 ghz
- Transmit Cross-Polarization Isolation (XPD) is >35 dB @ 13.75 to 14.5 ghz.

Sea Tel is ISO 9001 certified by NSAI

Sea Tel®
Look to the Leader. Look to Sea Tel.

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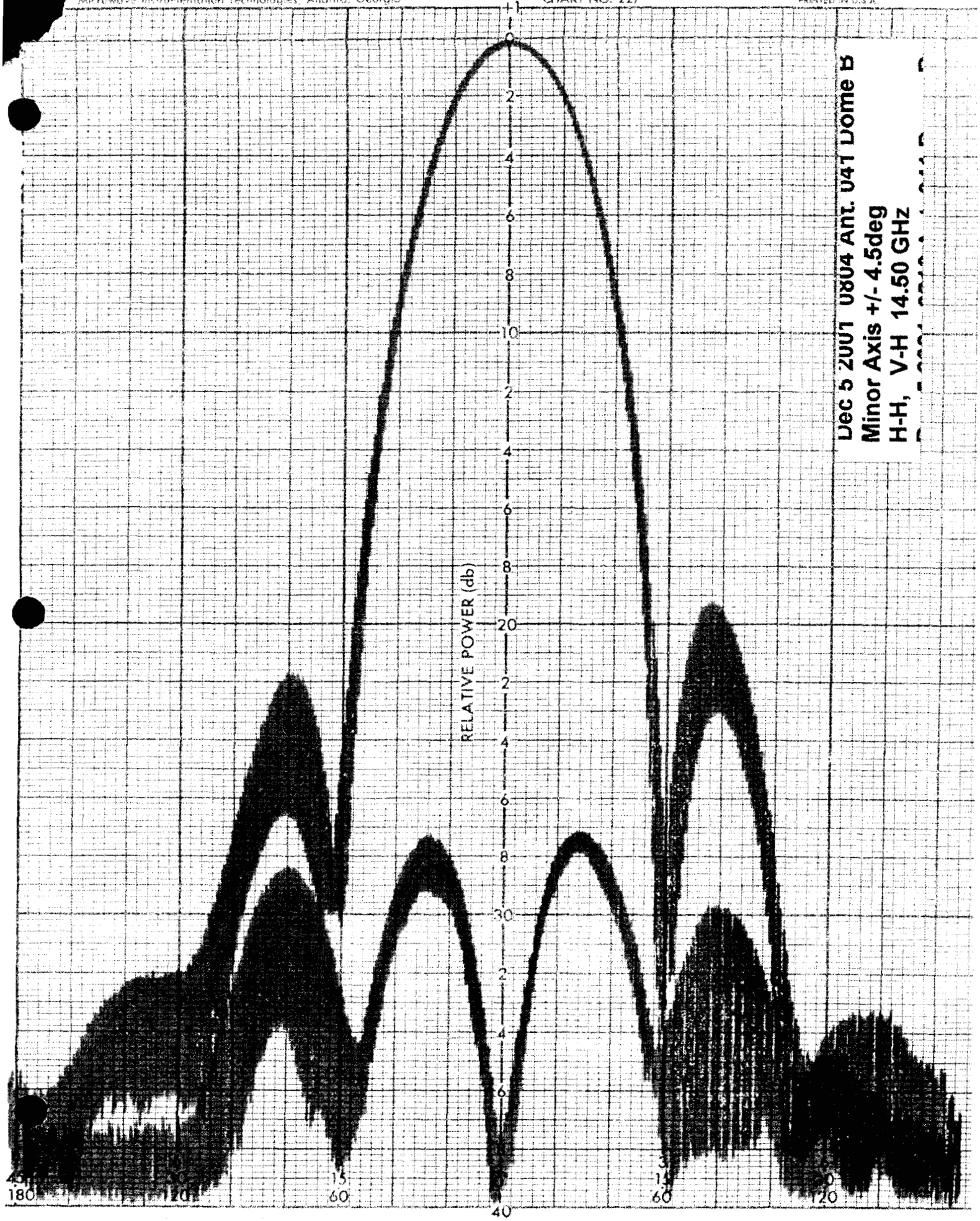
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Minor Axis +/- 4.5deg
H-H, V-H 14.50 GHz
RELATIVE POWER (db)
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2
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8
10
20
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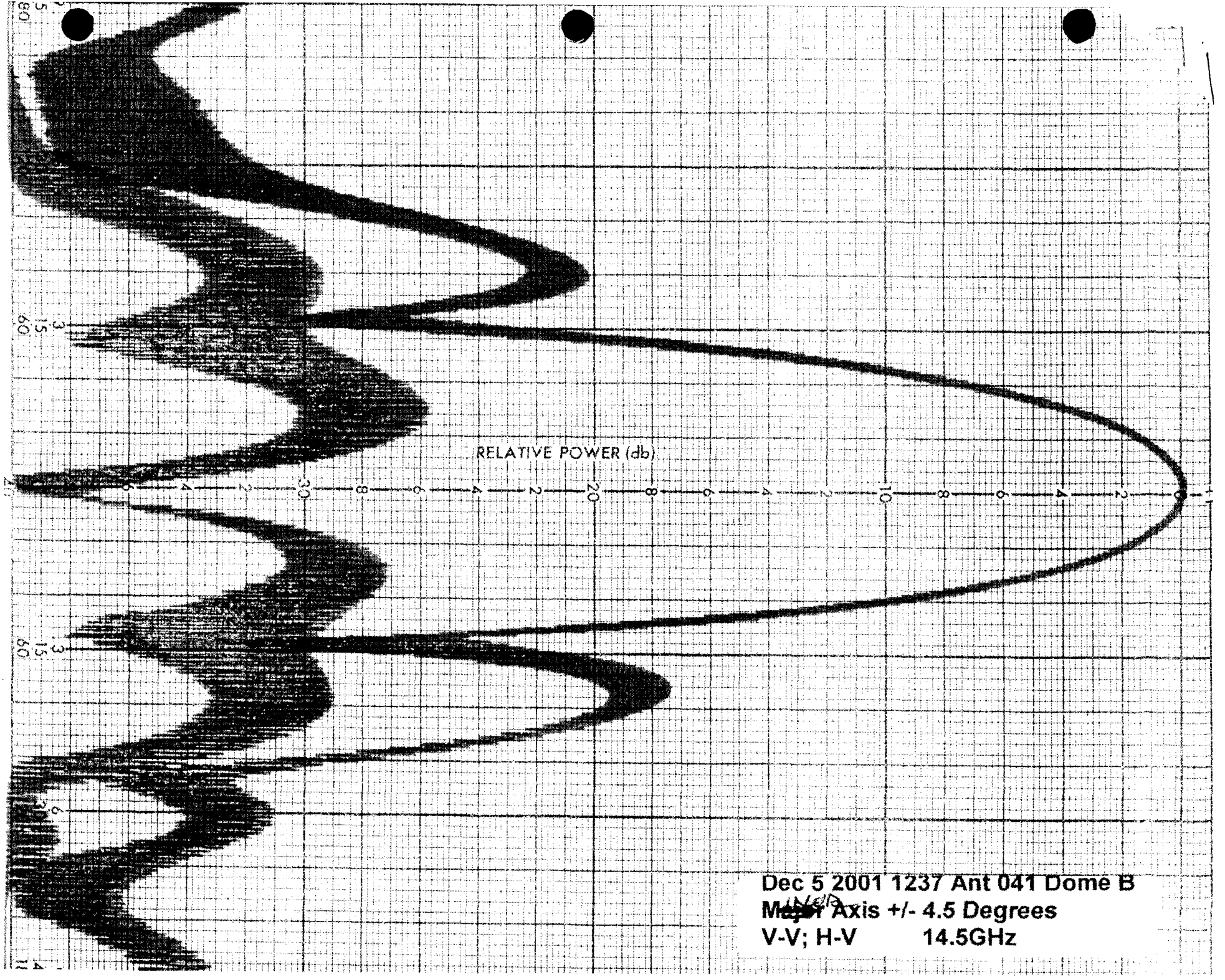
40
180
120
60
60
120


RELATIVE POWER (db)
Dec 5 2001 1237 Ant 041 Dome B
Major Axis +/- 4.5 Degrees
V-V; H-V 14.5GHz