

times the savings in spectrum space as the narrow-band pnwssystem.

The third article in the VVr series will describe the generation of the different VVr signals: The

single-tone waveform, the single-tone waveform with carrier, the two-tone waveform, the square waveform, and the voice waveform.

References:

1. J1ulwHoney, •p performance of AM

and S B Communications," Tele-Tech, S ptember 1953.
2. H. Magnuski and W. % .. t "Comparison of SSB and up wor lb uWMobile Service, • Proceedi gs of the IRE, December 1956.

SONAR DIRECTIVES

The accompanying directives that apply to the installation and maintenance of sonar equipments were listed in the enclosure to Bureau of S ips instruction 9674.25 of 7 August 1957.

Additional copies may be ordered in accordance with Bureau of Supplies and Accounts instruction 5604.3.

RADIOACTIVE TUBES-CORRECTION

the Bureau of Ships Journal December 1957, in the list of tubes containing radioactive material, page 28, wherever Ce 137 appears, it should be Cs 137: In column 1, third and fifth items from bottom of page and in column 2 at top, items 1, 2, 3, 4, 6, and 8.

Number	Date	Title
4750.1	5/8/57	Non-painting of AN/SQ5 4 domes.
9110.16A	1/18/56	AN/UQ5 1- Installation and Maintenance tit/i Ew
9190	3/19/57	Z nc exterior to sonar domes.
9670.89	1/24/57	Testing electron tub s.
9674	6/25/57	Ground straps for A /SQ5-4 t a sducers.
9674.2	4/20/55	Marking of conductors in.
9674	4/1/57	AN/SQ5-4 type qua titative meas rements.
9674	5/1/57	A /S' S-4 type qua titative measurements.
9674.3A	1/23/56	60-inch rubber domes- installation program.
9674.6	9/11/52	Transducer filling fluid.
9674.9	10/3/52	Bathythermograph repair.
9674.11	1/2/53	AT-200B/UQN-1A ad 1B transducer lugs.
9674.12A	11/28/56	Transducer repair.
9674.13C	12/10/56	Recaulking of 60-inch r bber domes.
9G74.14S1	8/24/53	Hydrophone fairings.
9674.15A	5/31/55	Galvanic protection of sonar hoists ad domes.
9674.16	8/18/53)T, AN/BQR-3, BQR-3A, BQ5-3 cable allowance.
9674.17	8/27/53	Transducers handling.
9674.18A	4/16/56	Tra sducers- installation inspection sheets; dis-continuance.
9674.19	12/2/53	Tra sducers antifouling painting.
9674.21	1/8/54	Antifouling painting.
9674.22	2/2/55	Transducer- reusable shipping container.
% 74.24	9/18/56	AN/U' S-1 domes- Replacements.
9674	9/20/57	S nar sweep generators, repairing of.
4900.11	7/22/55	WQA-1 keyers for MSC and MSO, MDAP ships.
9070.8	11/8/55	Docking plans and vertical clearance for sonar domes.
09674	9/17/57	SQS-4/UQN-1 interference.

TEST EQUIPMENT...

(Continued from page

The output pulse will be displayed approximately 1,000 microseconds after the input pulse at a precise multiple of the reference delay. Because of the sweep multiplication provided by using two sweeps per delay interval and because any error in beacon delay is allowed to accrue through the many delay intervals in the 1,000 microsecond period, a y small error in the timing of the overall zero distance radio beacon delay will cause a noticeable shift in the superposition of the input and output pulse pairs displayed on the oscilloscope.

By checking superpositi'on at multiples of the 49.8 and 50.2 microsecond reference delays, it may readily be seen whether the beacon delay is between these two figures. If it is, then it is within tolerance.

Video b rrm - rmb - The video zero distance delay is measured exactly by the same technique as the overall distance delay described above. The reference delays used for checking video delay are changed to 42 and 44 microseconds, by the crystal selector switch. At the same time, contacts of the cryseal selector switch transfer the mixer input to the video input and output points on the beacon.

Position 4

When the test function switches

are placed in position 4, n/waeovw connections of the oscilloscope are removed. Each one of the test units may then be used as an independent piece of test equipment.

The oscilloscope sweep and signal circuits may next be adjusted by means of front panel controls for observing any desired waveform in the equipment. Signal and sync voltages may be fed to the oscilloscope by means of flexible test leads.

With this arrangement the number of operating tests may be extended to include any other tests which may arise later, also the test equipment may be used as an 9Iw in troubleshooting the radio G9rw con.