Wide-band Matching Technique for VHF and GPS dual antenna set

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ABSTRACT

The development of science and technology in recent years, the maximization gradually of fishing boat, and it catch technology progress day by day too, cause global total catch increase over 100 million metric tons suddenly and violently, make global fishery resources deficient day by day. So in order to strengthen fishery's resource management of high seas, guarantee the continuous utilization of marine fishery resources, the United Nations require that should install the monitoring system of fishing boat in the fishing boat of its water areas work had (Vessel Monitoring System; VMS) ,In order to monitor the boat. The system antenna is use GPS antenna. The frequency band of the communication among fishing boat and fishing boat is VHF frequency band, So design an antenna which accords with the fishing boat communication for fishing boat communication, the structure of the antenna uses Sleeve dipole form, and combine GPS antenna with Sleeve dipole antenna, for save volume. Because the impedance between two antennas not match, has used Transformer in order to overcome the f impedance not match. Combine the GPS and VHF dual band antenna. Finally combine two antennas, sleeve dipole and GPS antenna to one antenna. Reduce the user volume successful.

Keywords : Sleeve dipole ; VHF ; Global Positioning System

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REFERENCES

[1] David K. Cheng, ”Field and Wave Electromagnetics , ” Addison Wesley Longman, (1998).

[2] Nathan R.Crossner, “Transformers for Electronic Circuits, ” New York , 1967.

[3] http://www.dgt.gov.tw/chinese/Frequency-management/7.1/fm-policy.shtml.

[4] 全球衛星定位系統（無日期）。屏東科技大學高中職類科在職進修網。（無日期），取自: http://www.forestry.npust.edu.tw/%BA%F4%B8%F4%B1%D0%A7%F7/gps.htm [5] Kyung-Ho Chung; Sung-Ho Pyun; Jae-Hoon Choi; “The design of a wideband TEM horn antenna with a microstrip-type balun ” Antennas and Propagation Society Symposium, 2004. IEEE , Volume: 2 , 20-25 June 2004 Pages:1899 - 1902 Vol.2 [6] Majid Manteghi and Yahya Rahmat-Samii; ”A novel UWB feeding mechanism for the TEM horn antenna, reflector IRA, and the vivaldi antenna ” Antennas and Propagation Magaz.

[7] John D. Kraus and Ronald J. Marhefka: Antennas For All Applications Third Edition, 1910.

[8] Reinhold Ludwin, Pavel Bretchko: RF Circuit Design Theory and Applications, 2000.
[9] King and R., “ Measured Admittances of Electrically Thick Monopole ”, IEEE Trans. on Antennas and Propagation, [10] Wunsch and A.D., “ Fourier series treatment of the sleeve monopole antenna ”, IEE Proceedings H. Microwaves. Antennas and Propagation.
[11] Zhongxiang Shen and MacPhie R.H, “ Rigorous evaluation of the input impedance of a sleeve monopole by modal-expansion method ”, IEEE Trans. on Antennas and Propagation.