The Study of RF BFN for Multiple Beams Antenna System

陳國章、張道治

E-mail: 9121536@mail.dyu.edu.tw

ABSTRACT

In this thesis, we have designed multiple beams antenna system by two beam-forming network. They can improve the multi-path effect in communication system. The two kind of beam-forming network that are：（1）Beam-forming network by 64 coaxial cable delay lines and 16 power dividers, and connect the antenna array that have eight coaxial collinear antennas locate above large ground plane to form one multiple beams antenna. The total eight beamwidth are changing form 10 degrees to 15 degrees for different beam scan angles, and the horizontal azimuth can scan 70 degrees.（2）Beam-forming network by Rotman Lens, and connect the same antenna array to form one multiple beams antenna. The total eight beamwidth are changing form 15 degrees to 20 degrees for different beam scan angles, and the horizontal azimuth can scan 100 degrees.

Keywords : Rotman lens

Table of Contents

REFERENCES

[1] CONSTANTINE A. BALANIS,“ ANTENNA THEORY: ANALYSIS AND DESIGN ”, SECOND EDITION, WILEY, 1982.
[2] David K. Cheng,“ Fundamentals of Engineering Electromagnetics ”, Addison Wesley, 1993.
[3] R. C. Johnson H. Jasik Editor“ Antenna Engineering Handbook ”, McGraw-hill book company, 1961.
[4] W. ROTMAN ,“ Wide angle microwave lens for line source applications ”, IEEE Trans. AntennasPropagate.AP-11, pp623-632, Nov1963.
[5] Carlyle J. Sletten, Editor,“ Reflector and Lens Antennas: Analysis and Design Using Personal Computers ”, Artech House.
[6] ANTCOM Near-Field Scanner Test System Technical Manual, 1999.
[7] HP 8719D/8720D/8722D Vector Network Analyzer User ’s Guide.
[8] 張智星,“ MATLAB程式設計與應用 ”,1999.
[9] 鄭錦聰,“ MATLAB程式設計基礎篇 ”,2000.
[10] 黎志成,“ Auto CAD入門與實例應用 ”,1995.
[11] http://www.iec.org/online/tutorials/smart_ant/