ANALYSIS AND DESIGN OF RADAR CROSS SECTION FOR BROADBAND AND WIDE-ANGLE ANTENNA

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ABSTRACT

IN THIS THESIS, WE HAVE DESIGNED AND MADE A BROADBAND, WIDE-ANGLE PATCH ANTENNA SUITABLE FOR VAN ATTA WIDE-ANGLE RETRODIRECTIVE SYSTEM. BESIDES, WE HAVE ALSO SIMPLIED THE PATCH ANTENNA DESIGN INTO VAN ATTA FORMAT AND THEN MEASURED ITS RADAR CROSS SECTION FOR FURTHER ANALYSIS. BY MEANS OF REDUCING THE DIELECTRIC CONSTANT OF THE SUBSTRATE AND INCREASING THE PARASITIC ELEMENT, WE MADE THE PATCH ANTENNA MORE WIDE-ANGLED AND BROADBANDED, AND THEN USED THE SIMULATION SOFTWARE IE3D TO ANALYZE AND ENHANCE THE PERFORMANCE. AFTERWARDS, WE MADE THE PRODUCT OF PATCH ANTENNA AND USE NEAR-FIELD SYSTEM TO MEASURE ITS CHARACTERISTICS. WHEN THE RETRODIRECTIVE SYSTEM IS USED, THE RESPONSE AT EACH ANGLE OF THE RADAR CROSS SECTION OF THE ANTENNA PLAYS AN IMPORTANT ROLE. THEREFORE, IN THIS THESIS, WE USED THE DESIGNED ANTENNA IN VAN ATTA FORMAT TO ANALYZE THE EFFECT DUE TO THE LENGTH OF THE TRANSMISSION LINE AND THE ANTENNA ARRAY TOWARDS THE RADAR CROSS SECTION.

Keywords : 無

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