The Study of Phase Error Effect on the Characteristic of Phased Array Antenna

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ABSTRACT

Due to the rapid develop in mobile communication in the recent year, the demand in the market is growing with each passing day, relatively, the consumers demand on the quality of communication is rising in follow. In order to provide a better quality in communication, it is important to avoid break off and bad contact. We have to understand the reasons why to cause the break off and bad contact to avoid it. Besides mutual interference, multi-path is another major factor. Though an wider azimuth beam-width may cause an multi-path and RF interferences, as to avoid the interferences and to improve the quality in communication, we use Phase Array Antenna on traditional base, using a number of horizontal antenna beam-width which is narrower on beam-width to cover some wider horizontal antenna beam-width in order to decrease the interference caused by multi-path and to improve the quality on communication. Phase Array Antenna including RF Radiator Element, Matrix Switch, Phase Delay Line, Power Combiner and a narrower Antenna beam-width to decrease the effect by multi-path and to increase the capacity of channel. In the thesis , we design and produce a form of Phase Array Antenna to be used on one dimension scanning. An wide band antenna to be used only for its easy producing and lower price, combining with a RG-316 coaxial cable for Phase Delay Line on the 128 Matrix Switch produced by CYTEC Co. Frequency range between 1.7GHz to 2.2 GHz conforms with 3G in the near future, the center frequency to be at 1.95GHz to design of Phase Delay Line, after the PAA devices were done, using the Lab''s Near field equipment to measure the center frequency of all of phase delay lines which were designed, it shows all of the following condition that patterns, gains, SLL and main-beam shift angle which to know the antenna characteristic relation and to analysis.

Keywords : Mutli-path、Phase Array Antenna、Phase Delay

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