

FIGURE 3

Alan Dick Broadcast Feasibility Report

Circularly Polarised Band I Antenna System,
Channels 3, 4 & 5.
Tower One World Trade, New York.

Technical Proposal

Created by: Alan Dick Broadcast
Chris Randall
Senior RF Engineer

Approved by: Jon Watson
RF Engineer

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1.) Document History & Structure

Prepared by: Chris Randall
Senior RF Engineer

Approved by : Jonathan Watson
RF Engineer

Document History			
Version No.	Date	Change Details	Author
1.0	10 th March 2017	Original Version	CCR
2.0	31 th March 2017	4 Bay with Platform Information Added	CCR
3.0	3 rd April 2017	Horizontal Parasitics Added	CCR

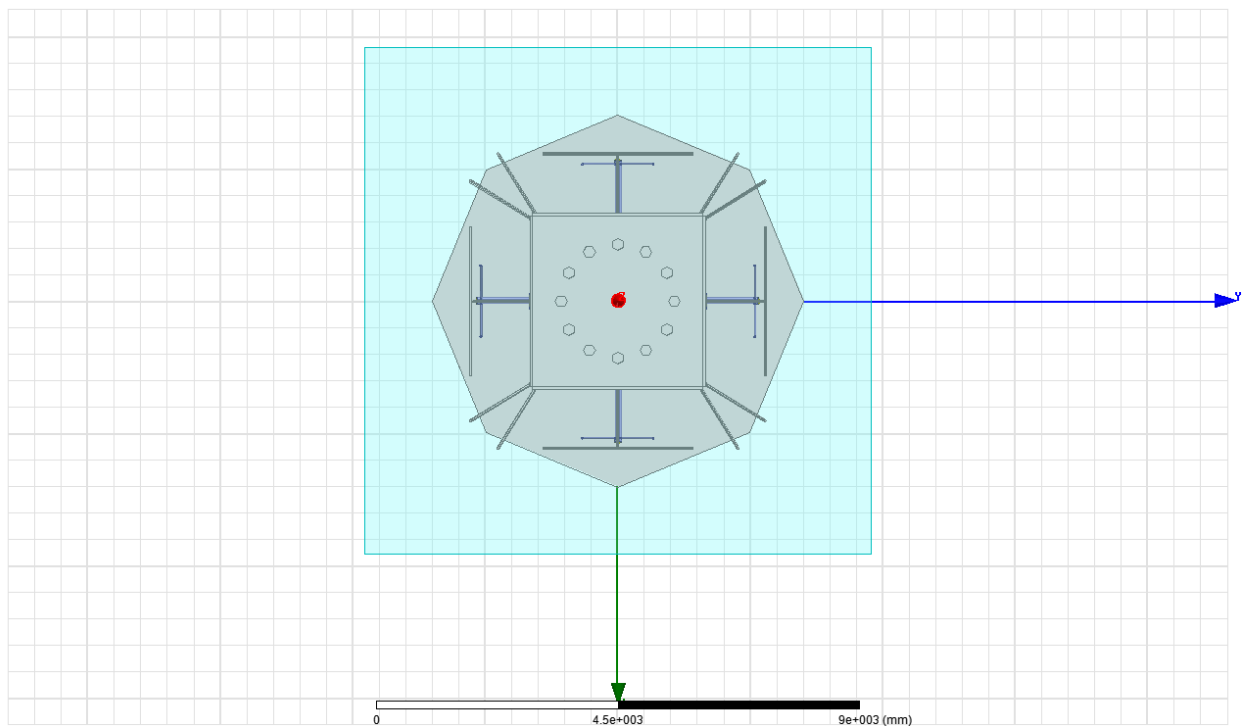
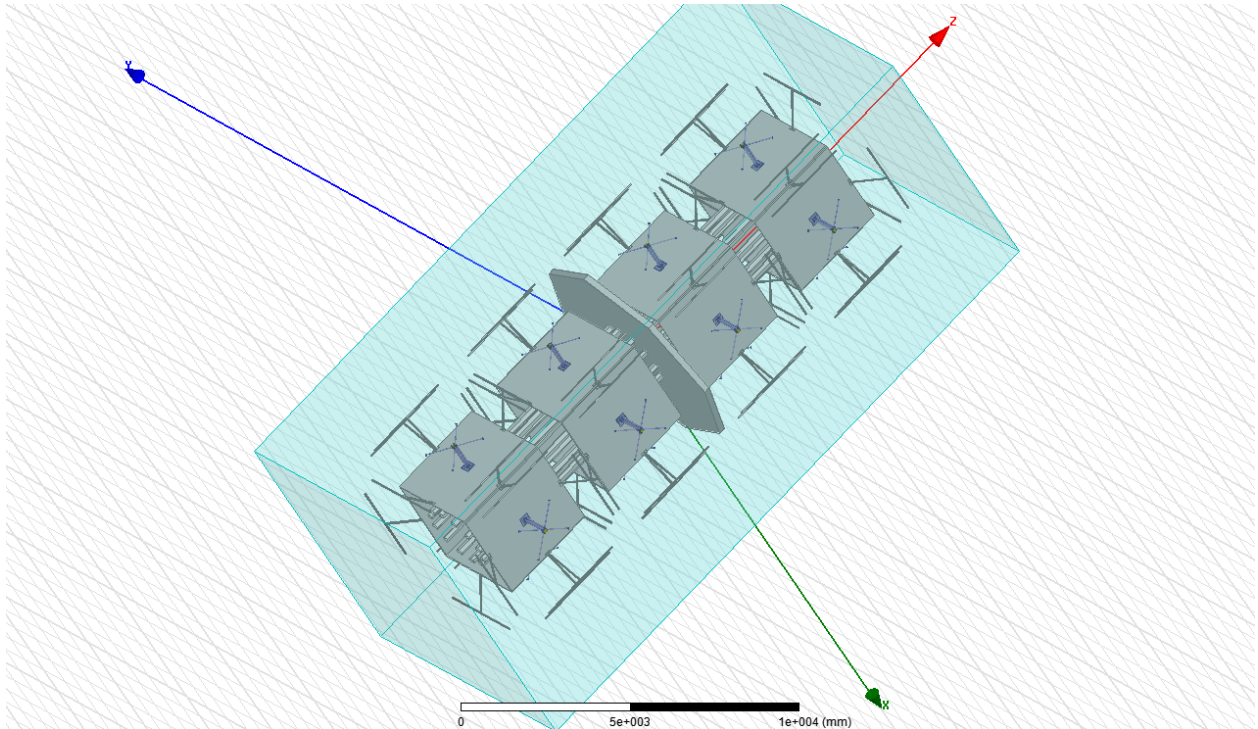
Structure of document

This document consists of the following sections and appendices:

Subject	Description
Technical Solution	System Data: Antenna Electrical Parameters

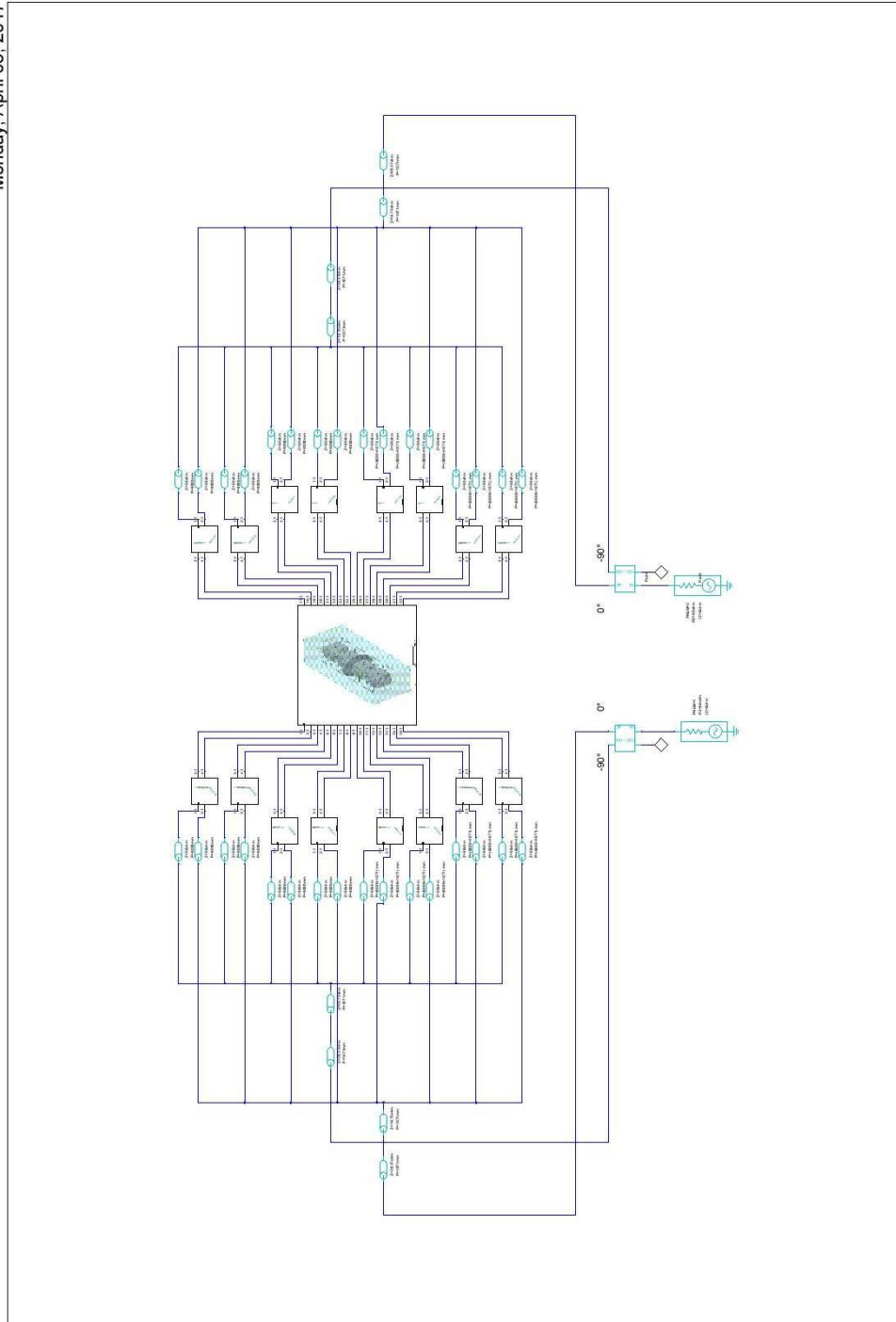
2.) Proposed Antenna System

4 Bay 4 around Band 1 Crossbow Antenna. Bay Spacing is 1 Wavelength mid band 70MHz



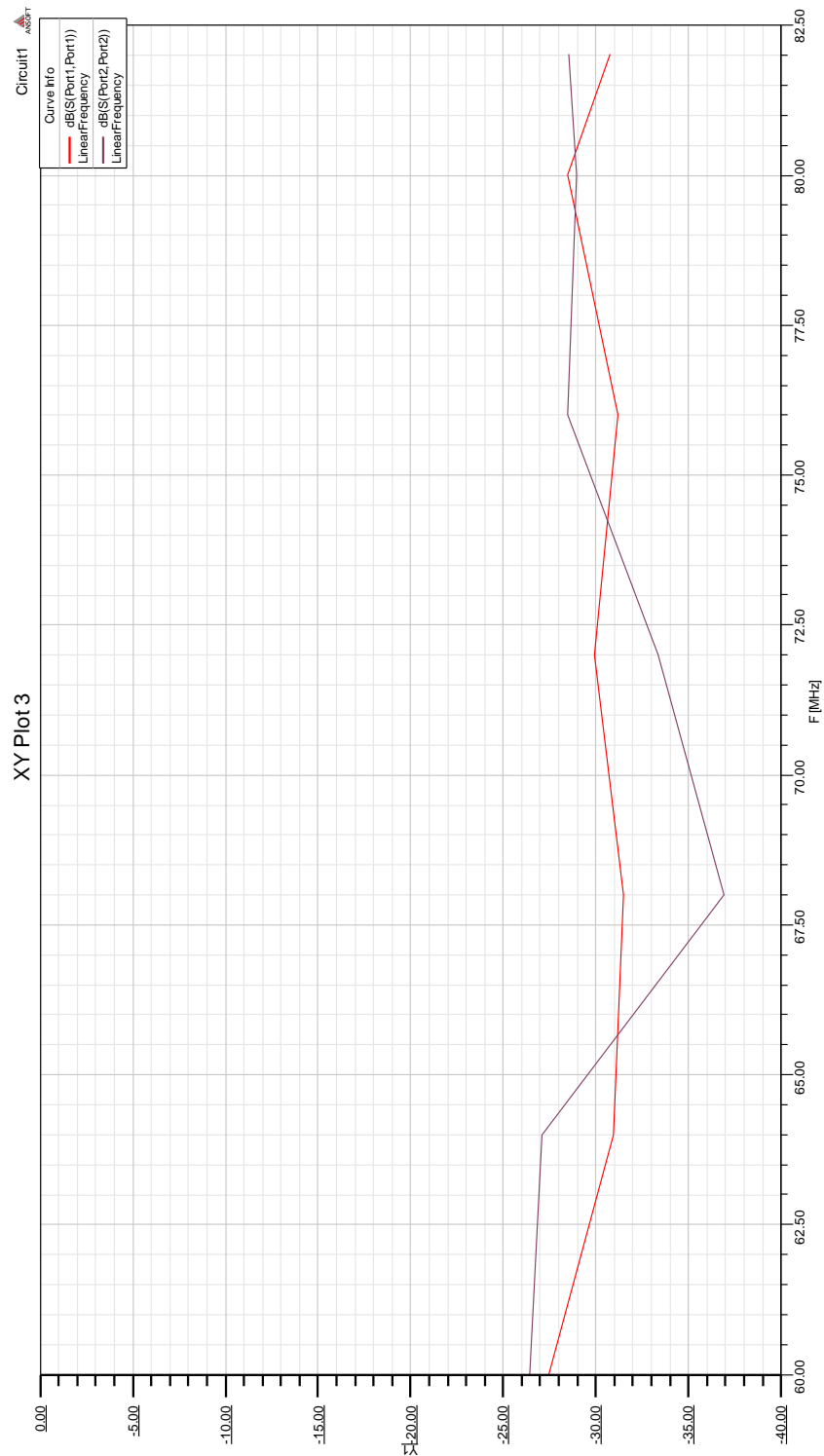
3.)System Distribution Designer 4 Bay System

Monday, April 03, 2017

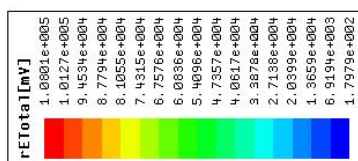
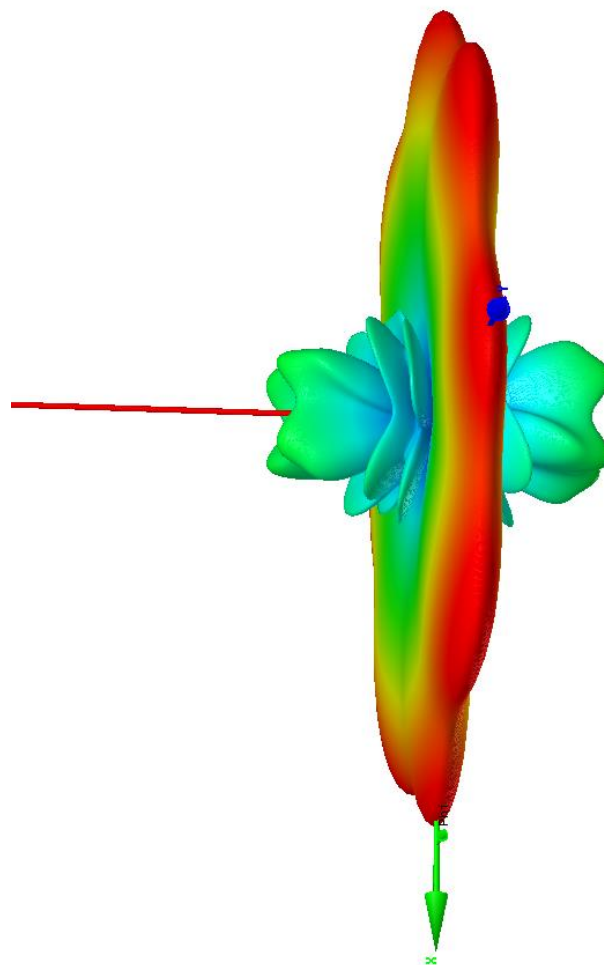


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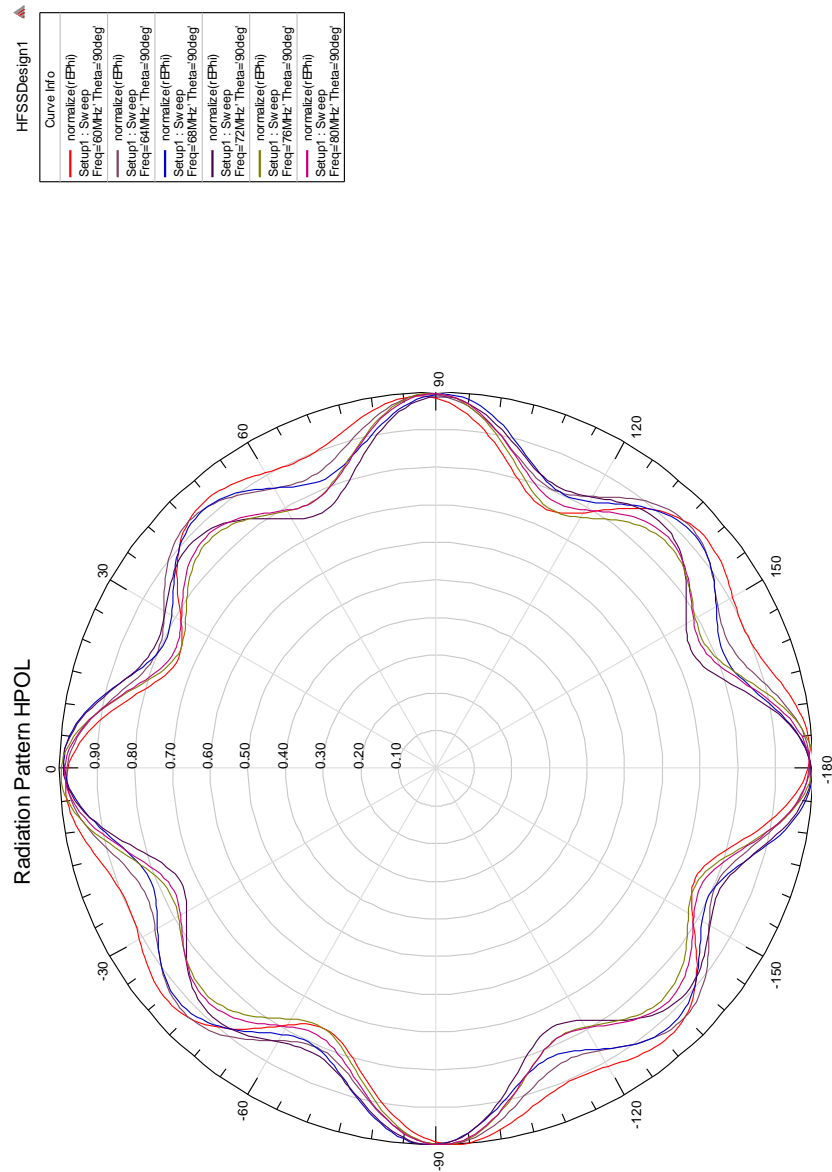
4.) Return Loss Half Antennas 4 Bay System



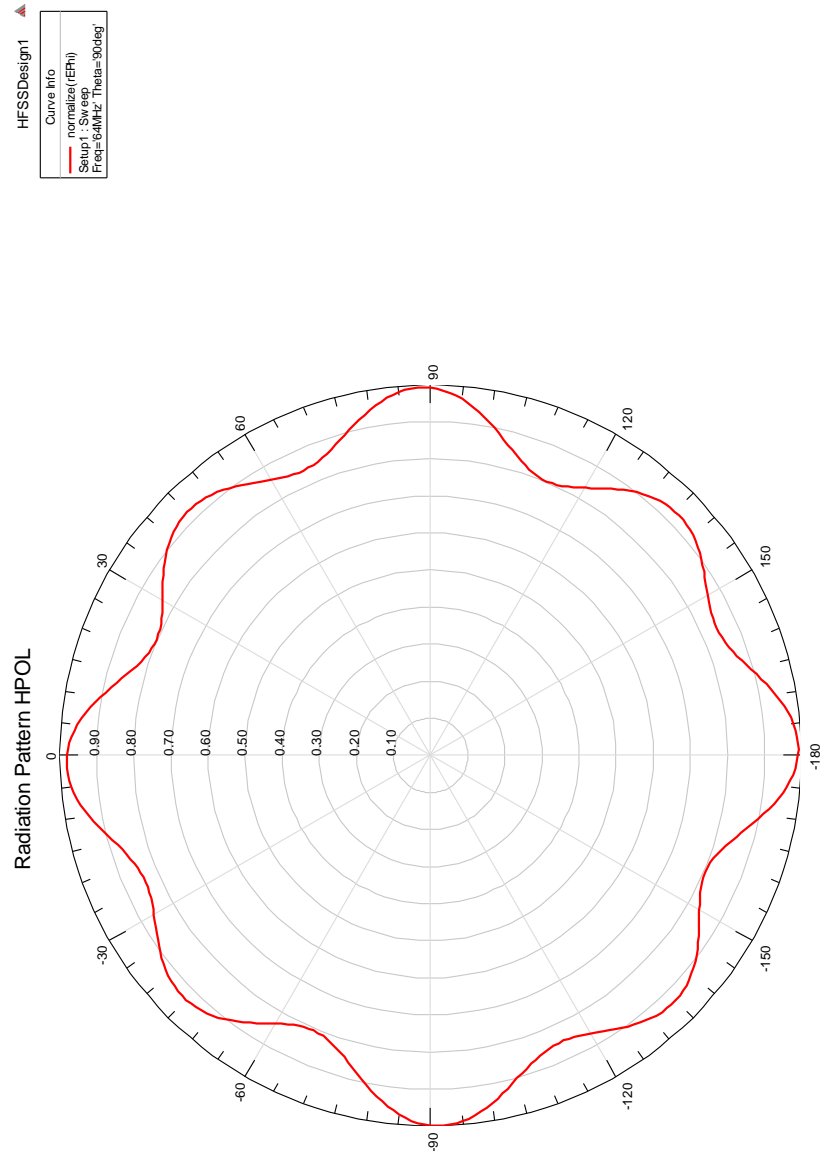
5.) Total Radiation Pattern 3d Plot



6.)Horizontal Radiation Pattern Horizontal Component



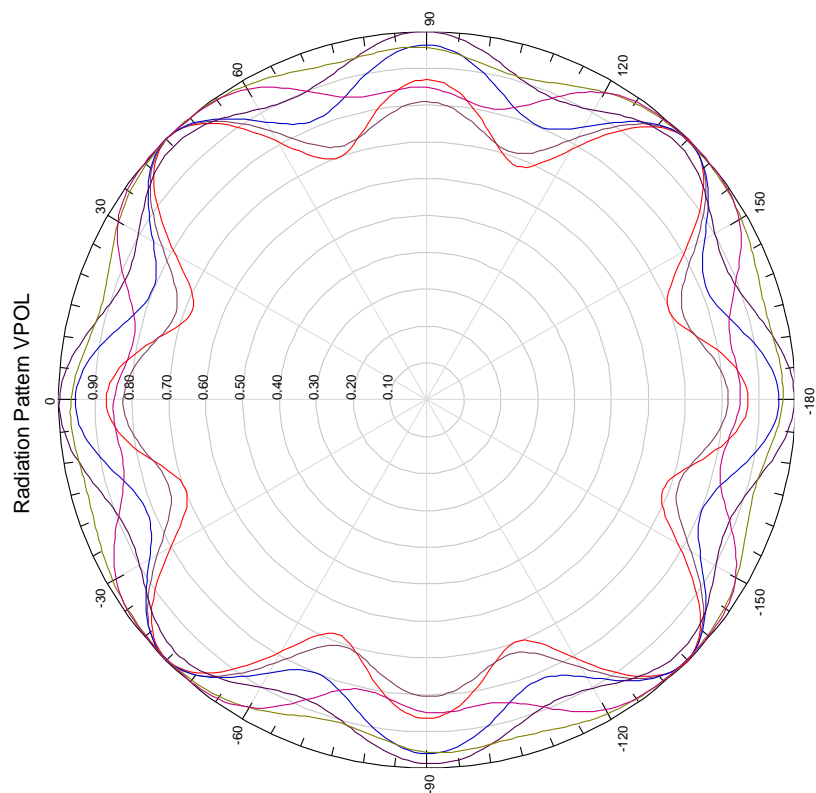
7.)Horizontal Radiation Pattern Horizontal Component 64MHz



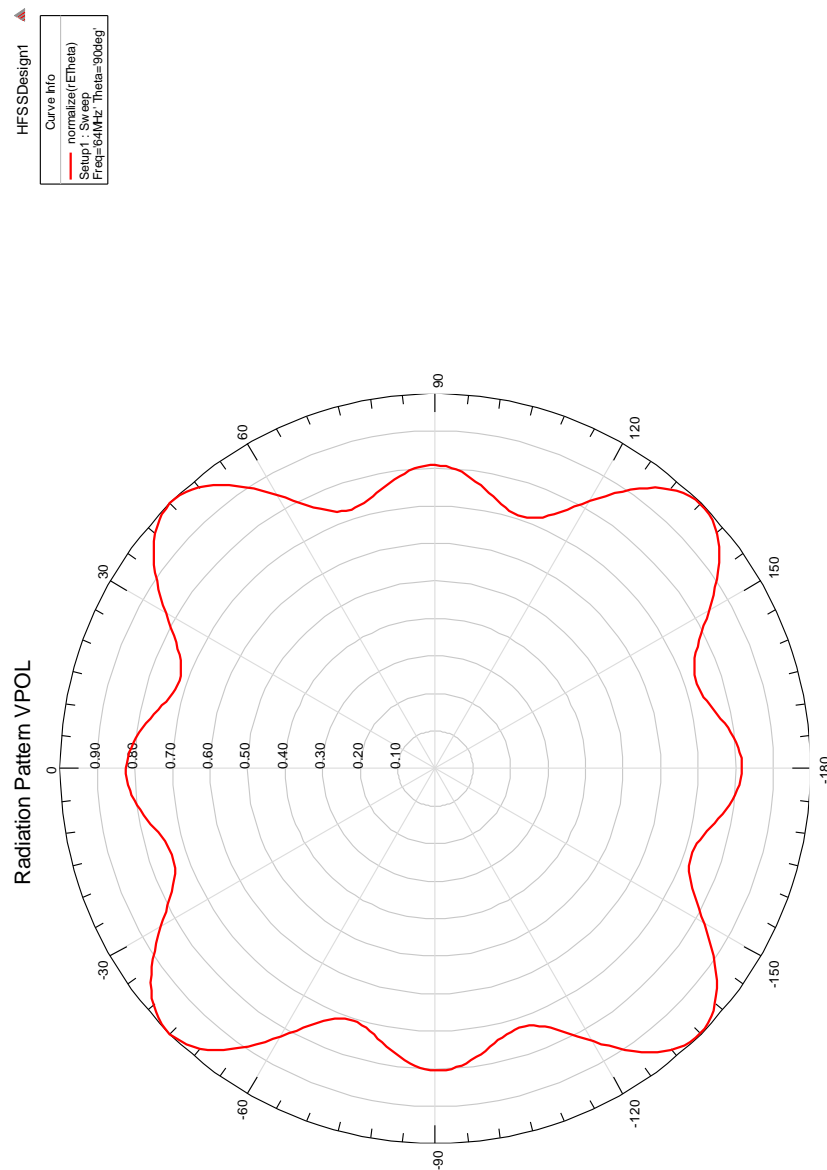
8.) Horizontal Radiation Pattern Vertical Component

HFSSDesign1

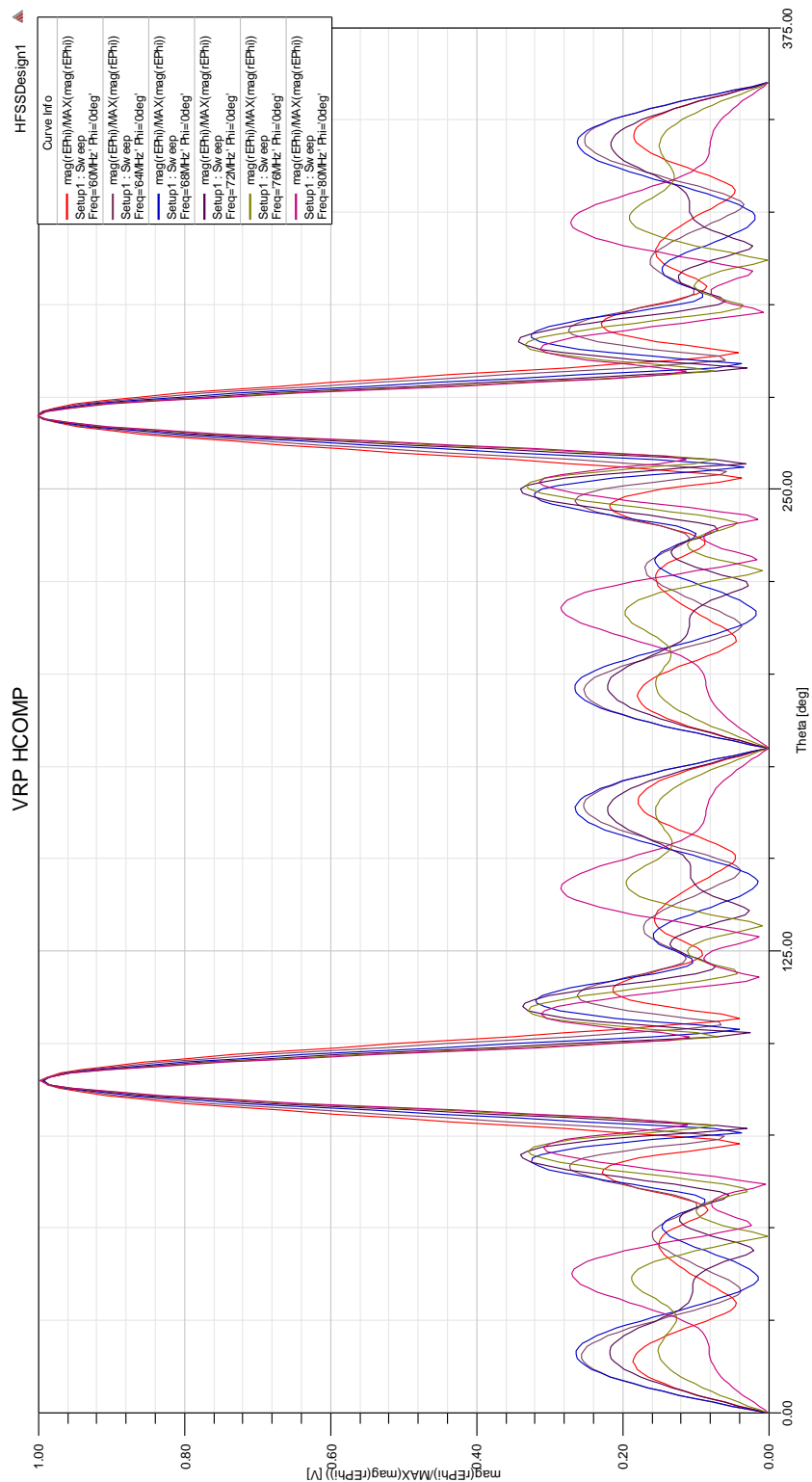
Curve Info
Setup1: Sweep normalize(r(Etheta)) Freq=80MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=84MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=88MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=92MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=96MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=100MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=104MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=108MHz Theta=90deg
Setup1: Sweep normalize(r(Etheta)) Freq=112MHz Theta=90deg



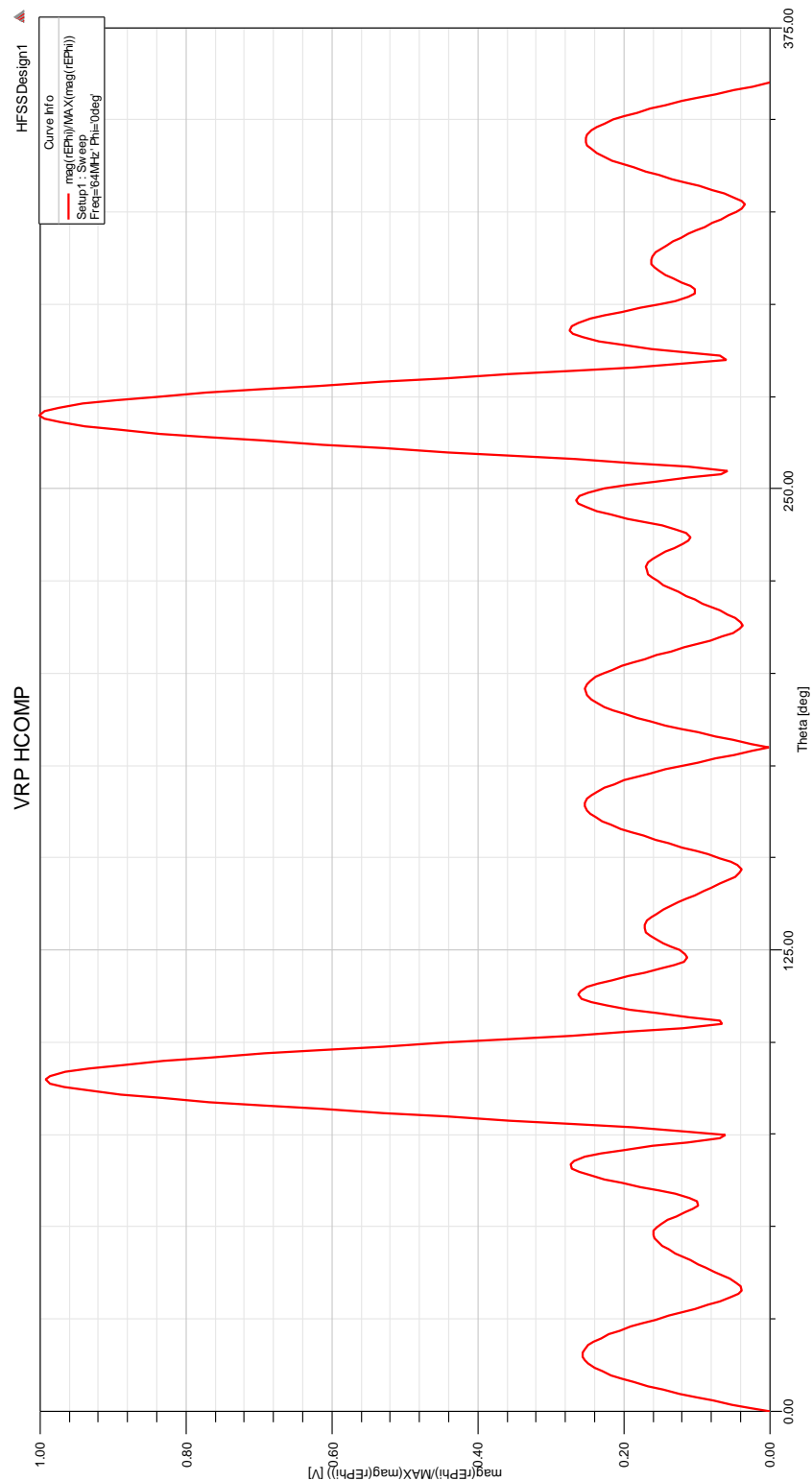
9.)Horizontal Radiation Pattern Vertical Component 64MHz



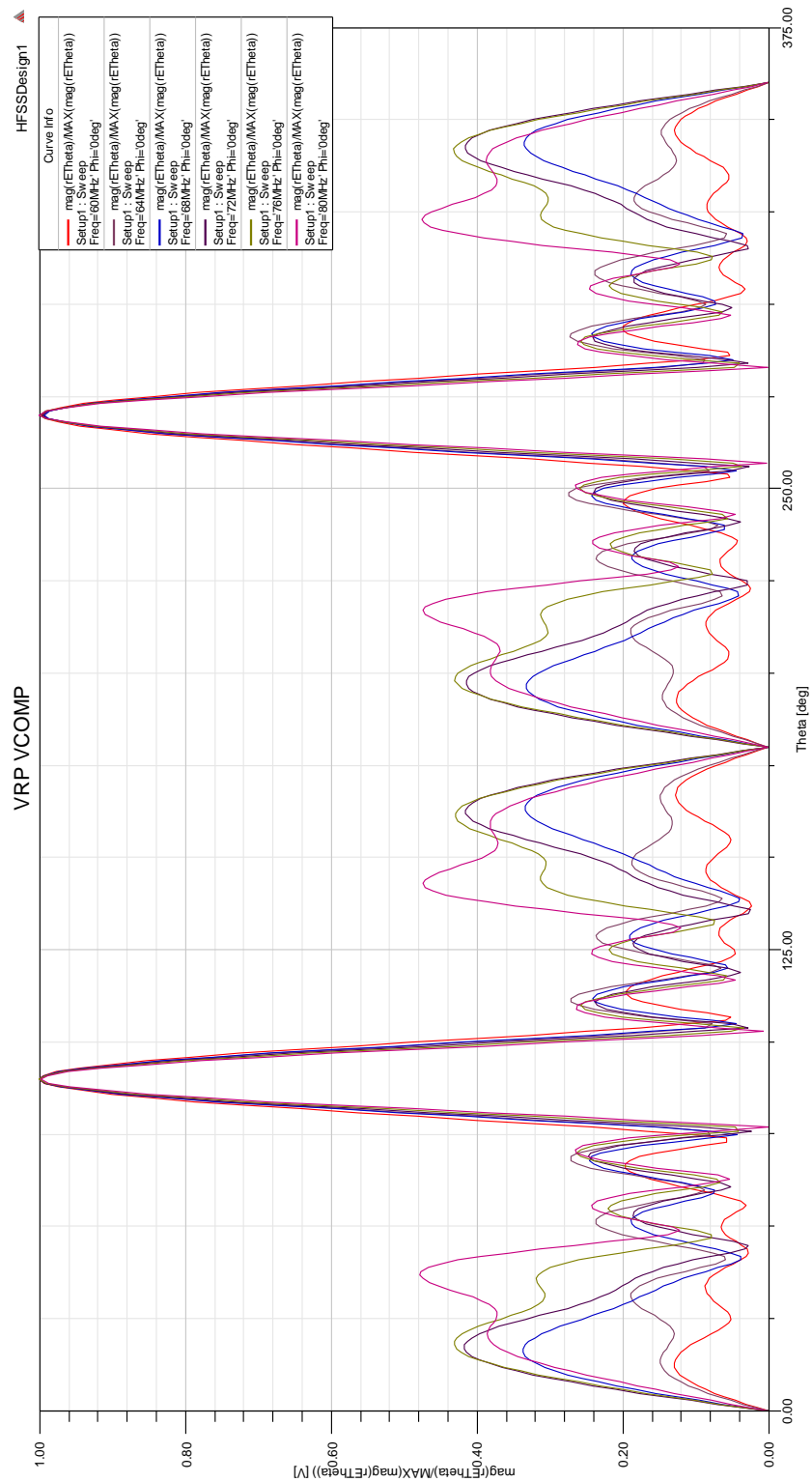
10.) Vertical Radiation Pattern Horizontal Component



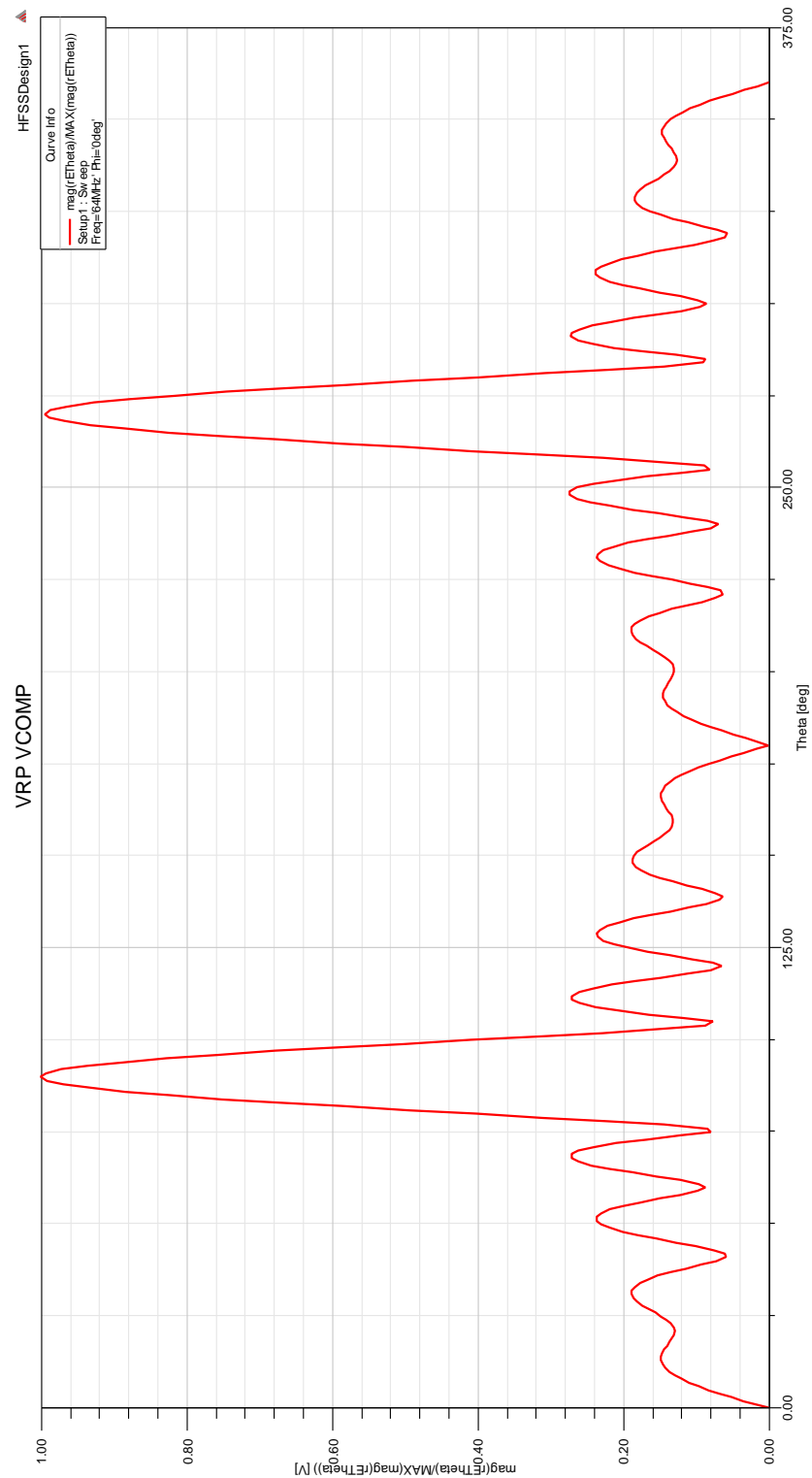
11.) Vertical Radiation Pattern Horizontal Component 64MHz



12.) Vertical Radiation Pattern Vertical Component

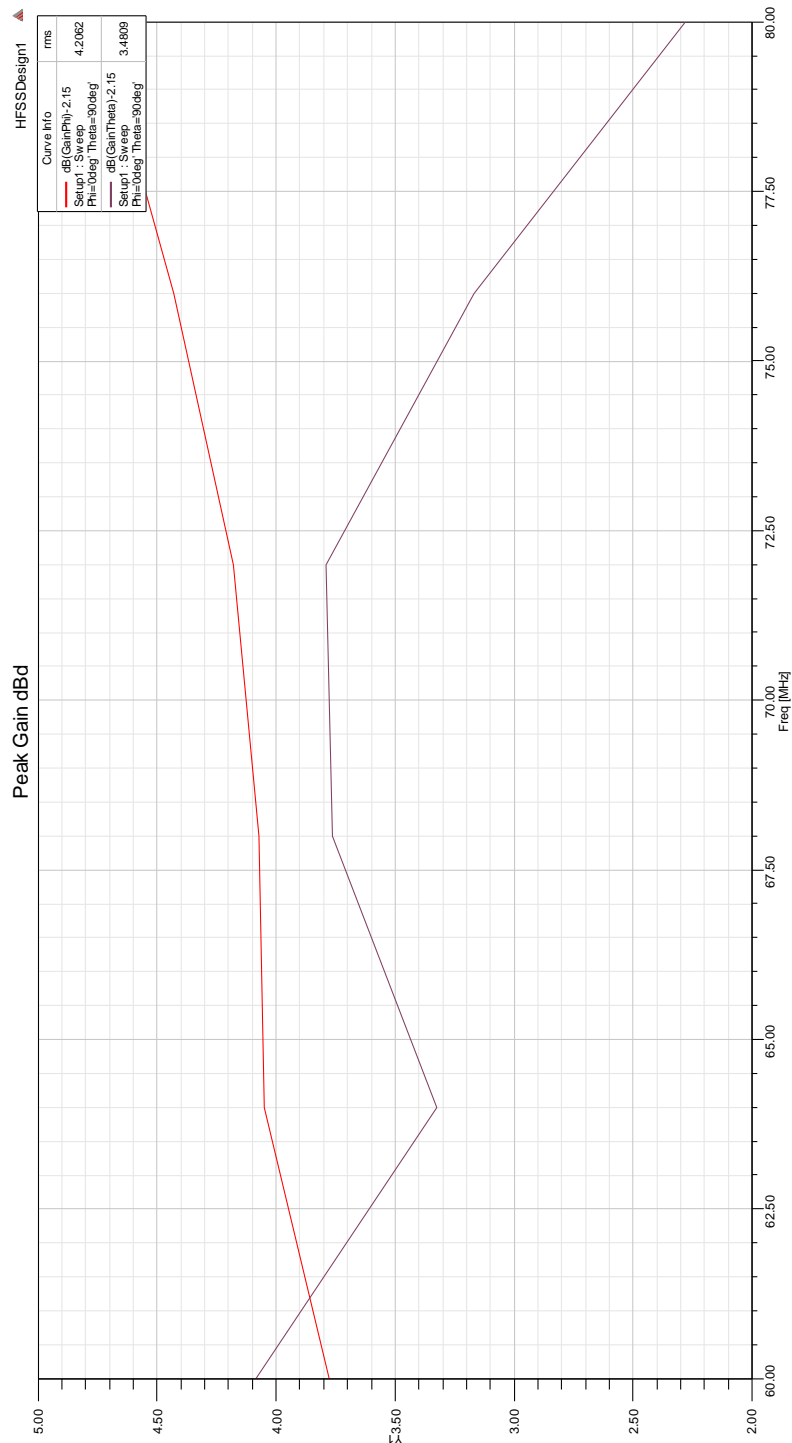


13.) Vertical Radiation Pattern Vertical Component 64MHz

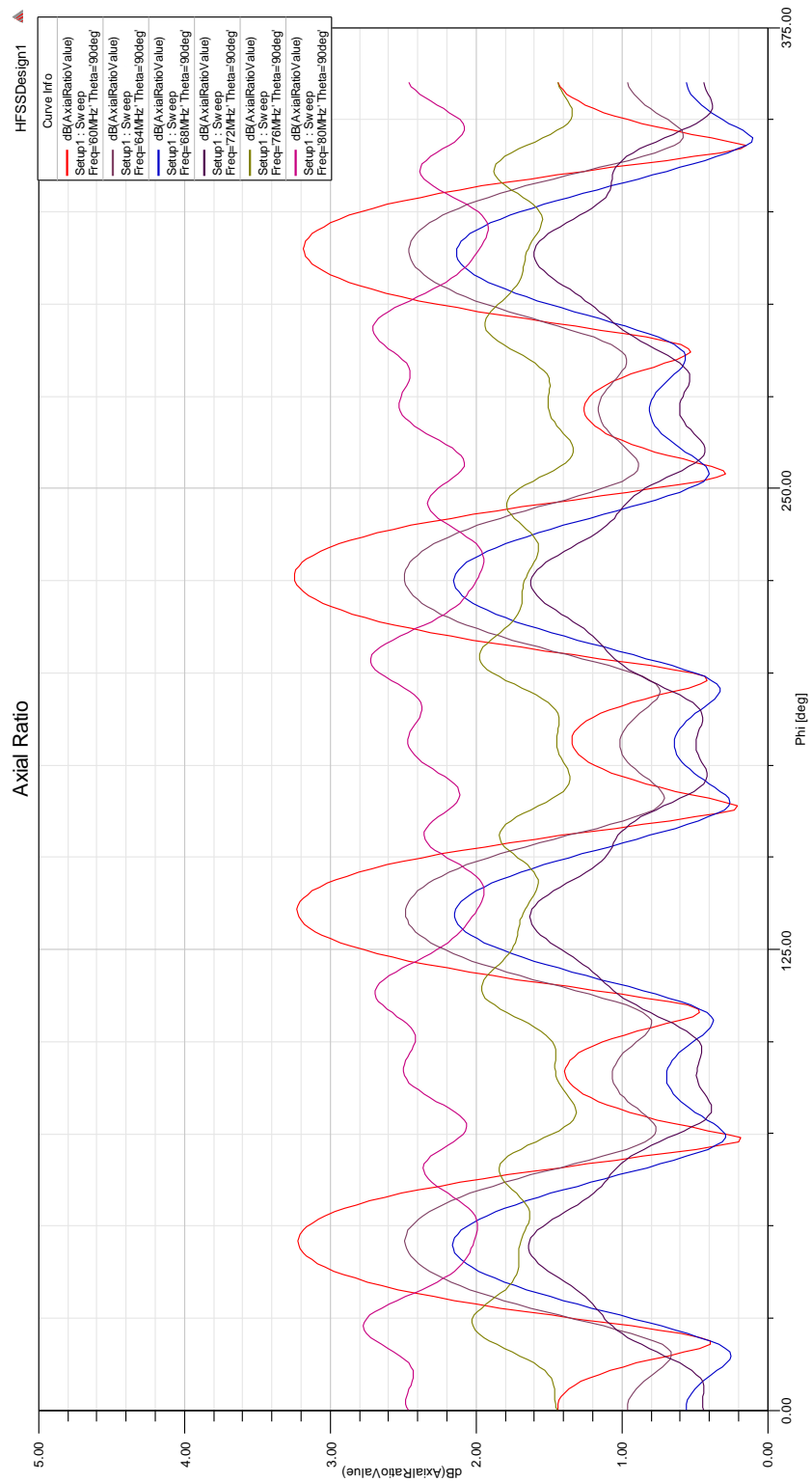


14.) Peak Gain Plot

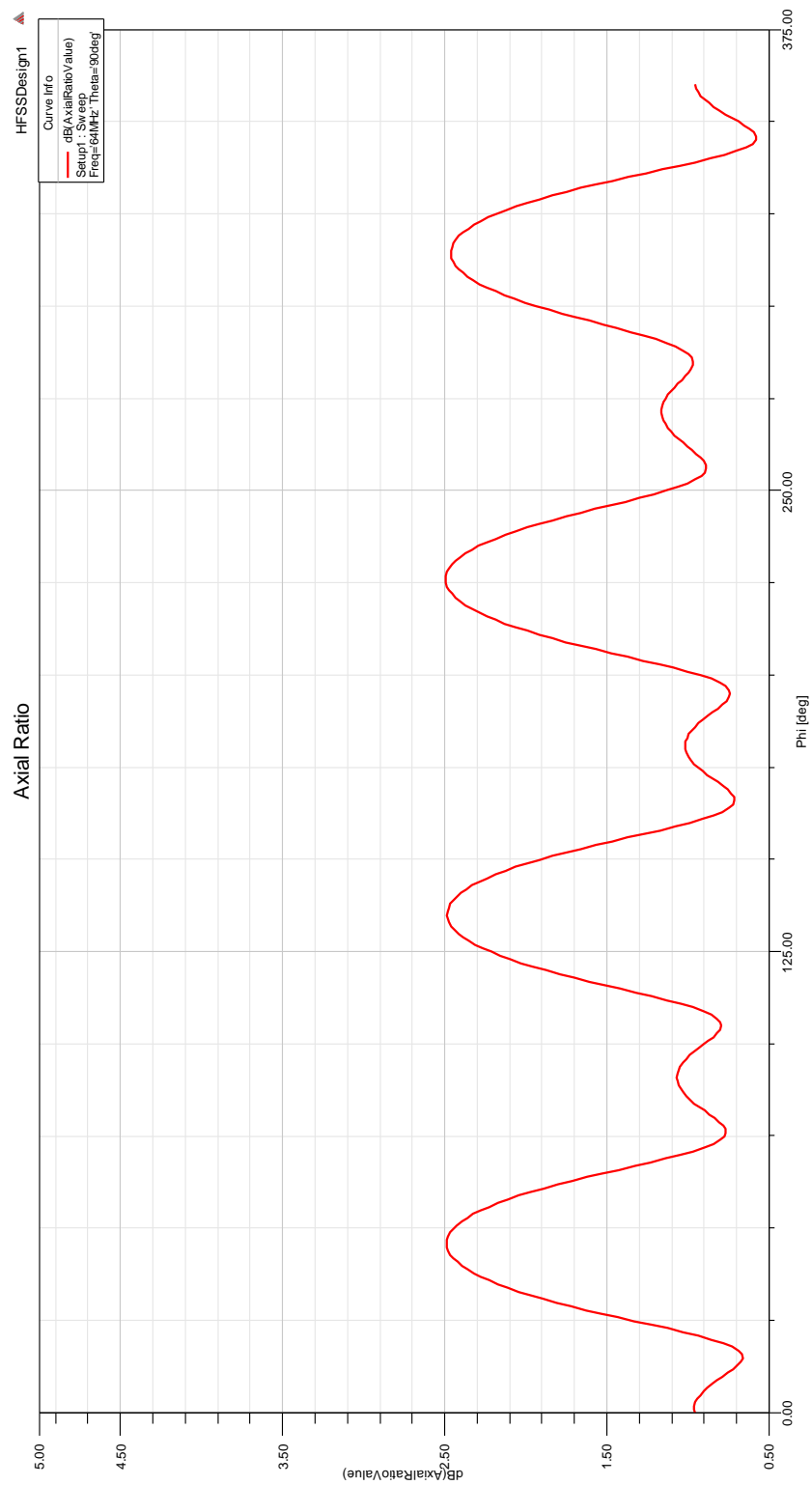
The Horizontal field peak gain is averaged at 3.9dB across channel 3. Another 0.5dB of loss should be considered for system losses and null fill. A resultant gain for the horizontal field component is 3.4dBd. (Main feeder/combiner losses are not considered).



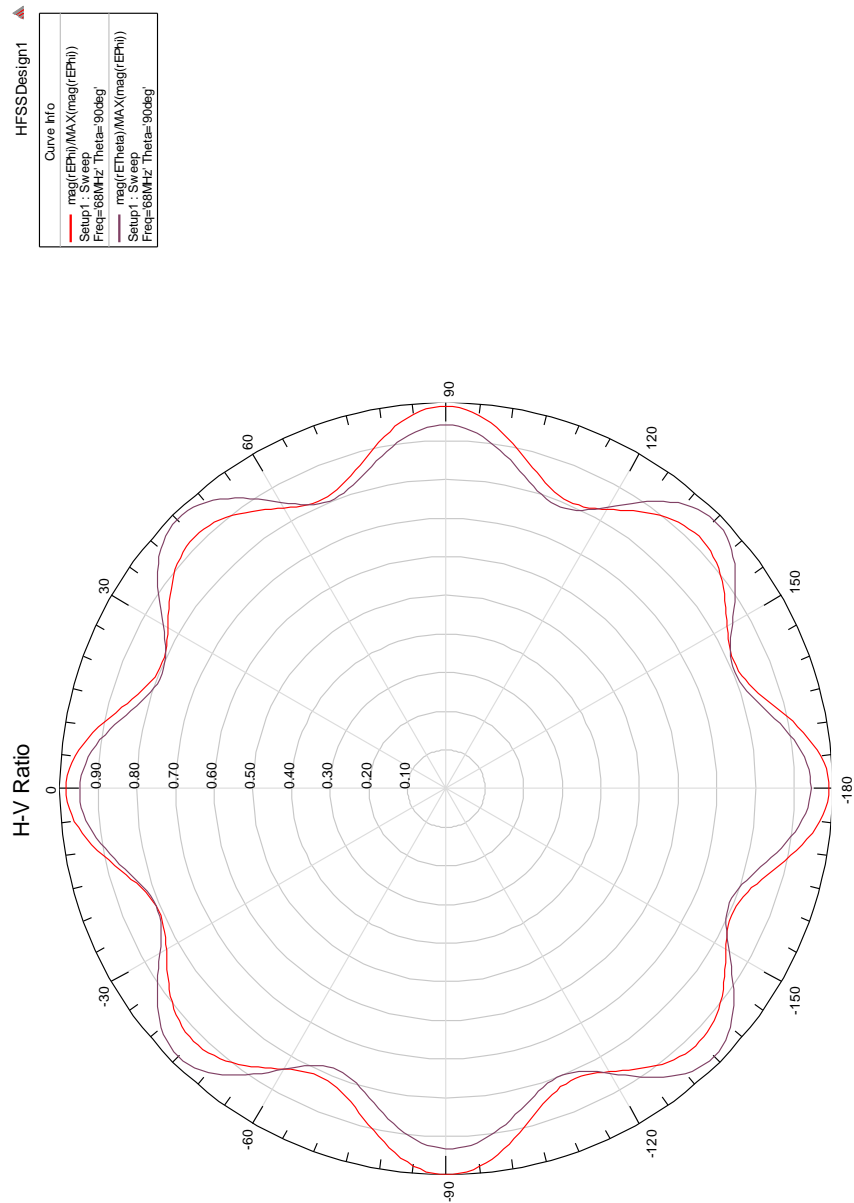
15.) Axial Ratio



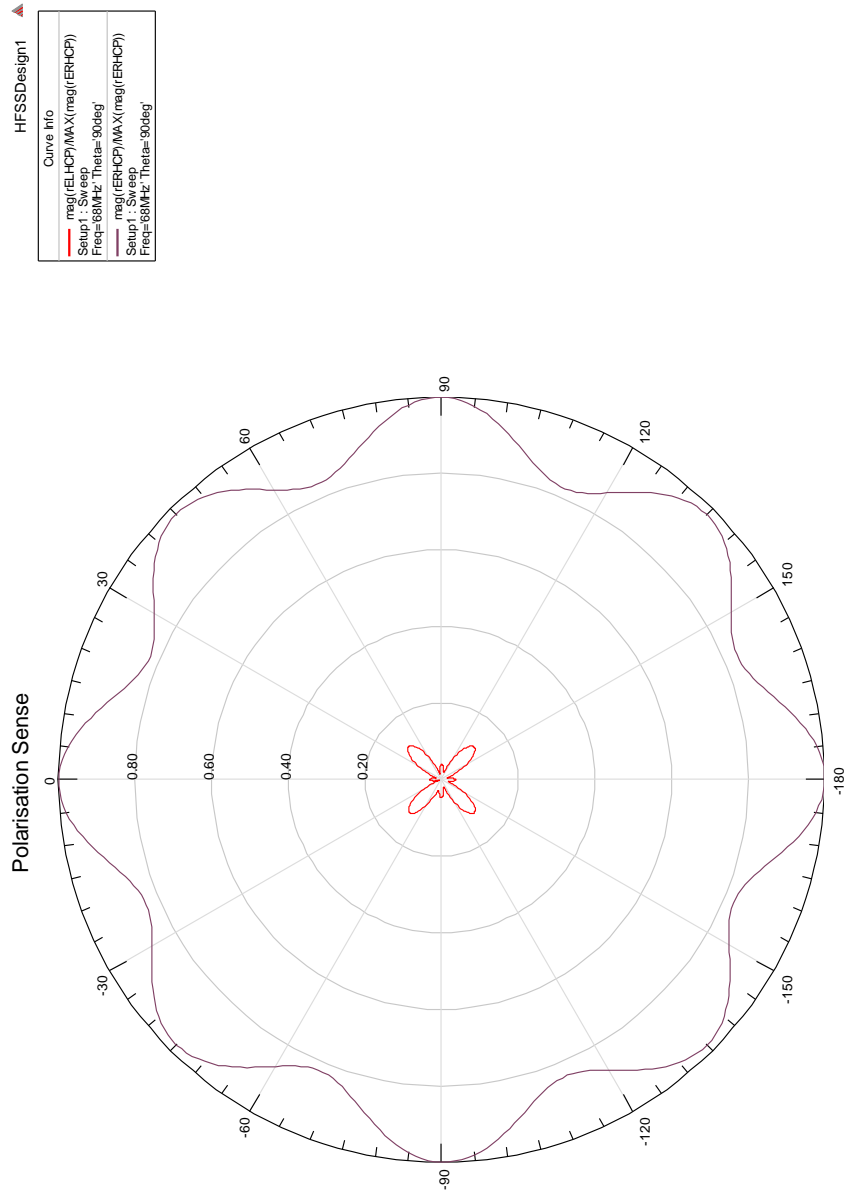
16.) Axial Ratio 64MHz



17.) Horizontal to Vertical Ratio



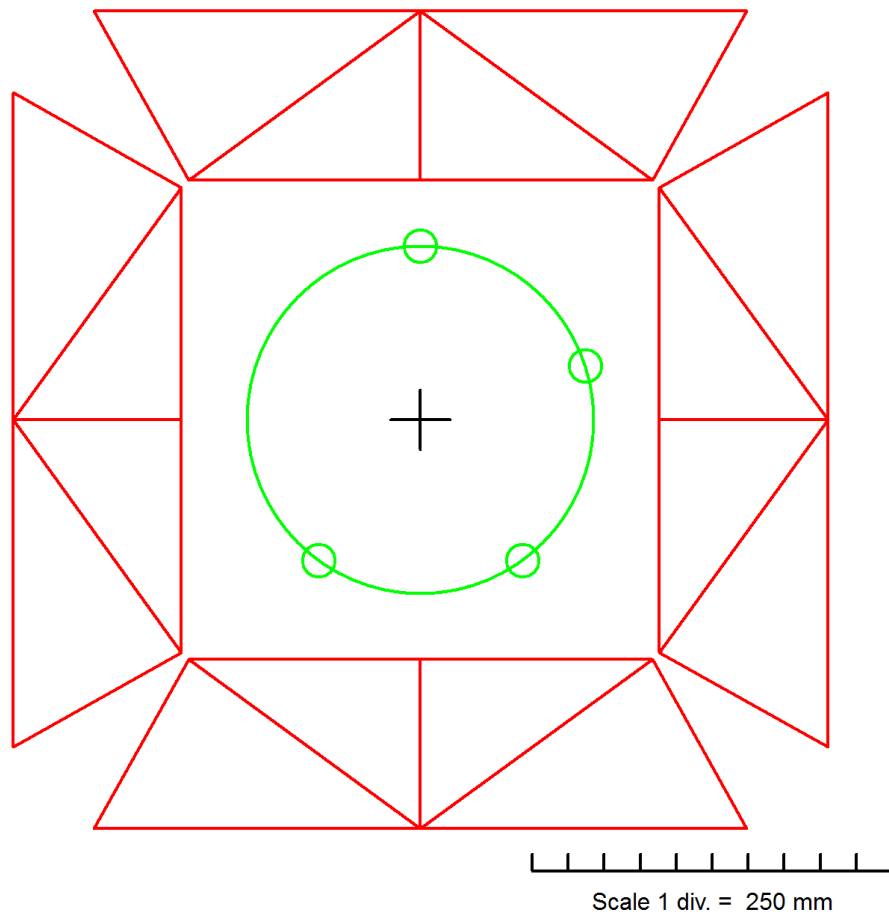
18.) Polarisation Sense



19.) Antenna Array Plan

ARRAY PLAN

Station ***Tower One***
Frequency ***70 MHz***
Type ***Band 1 Crossbow Antenna***



Antenna Radius 1660mm

Reflector Size 3220mm SQ

Parasitic Spacing 4530mm

Parasitic Height from Screen 1169mm

Engineer ***Chris R*** Date ***10 Mar 2017***

Pat. No. 48703107 Chris Randall v8.1.1