

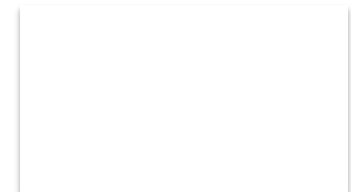
# Antenna Working Group: Videocon Summary

## Dish Antennas

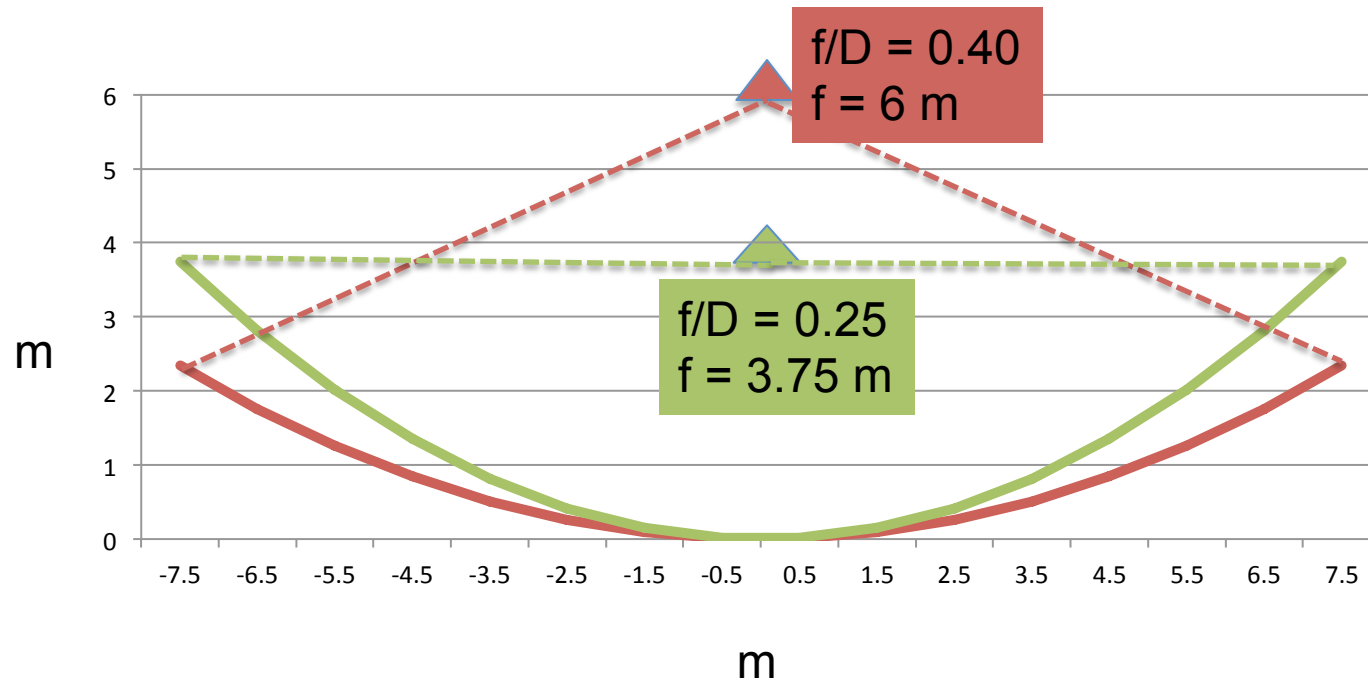
- design complete, dishes built
- open issues: we should compute Tspill

## Cylinder Antennas

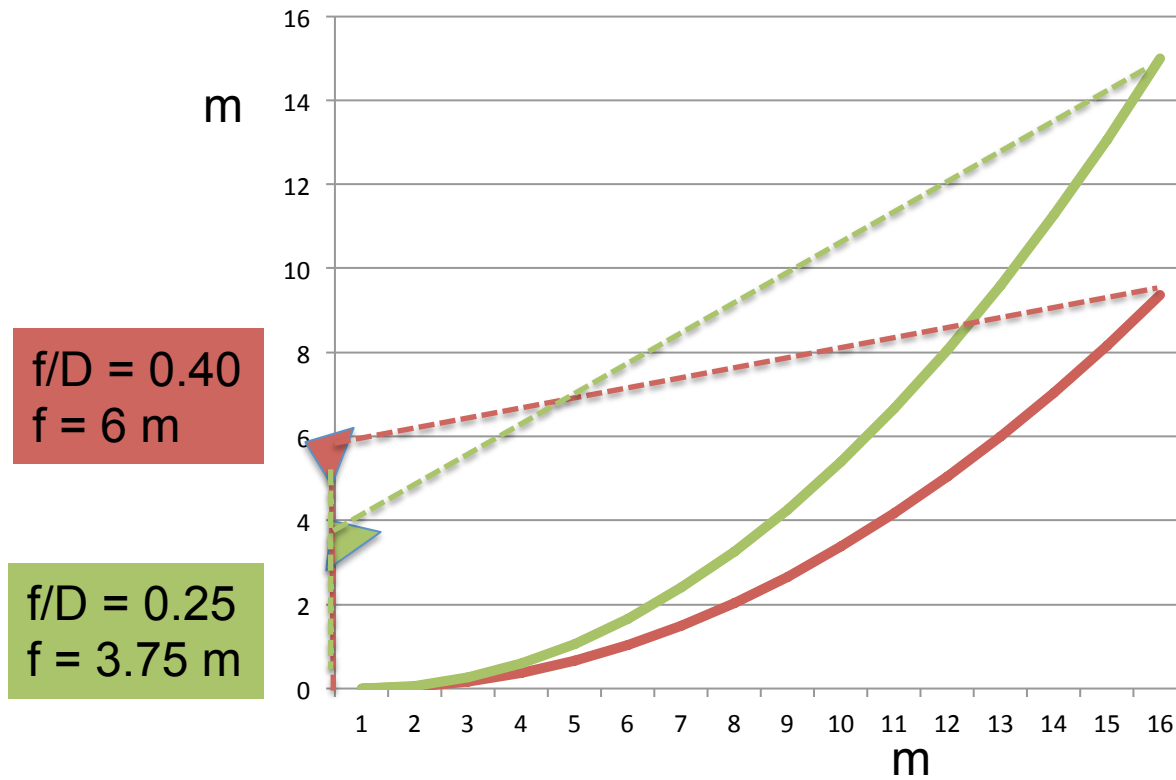
- on-axis vs off-axis – only on-axis designs now considered; off-axis is too high
- antenna size – still 15 m wide, 40 m long
- construction starts this summer
- f/D ratio near  $f/D \sim 0.25$  places feed below edge of reflector
- open issues:
  - optimize bandwidth of low f/D feeds
  - compute Tspill
  - simulate beams/grating lobes with 1.6 m feed spacing ( $\sim 4 \lambda$ )
  - simulate beams for 4-dipole sum
  - simulate feed x-talk



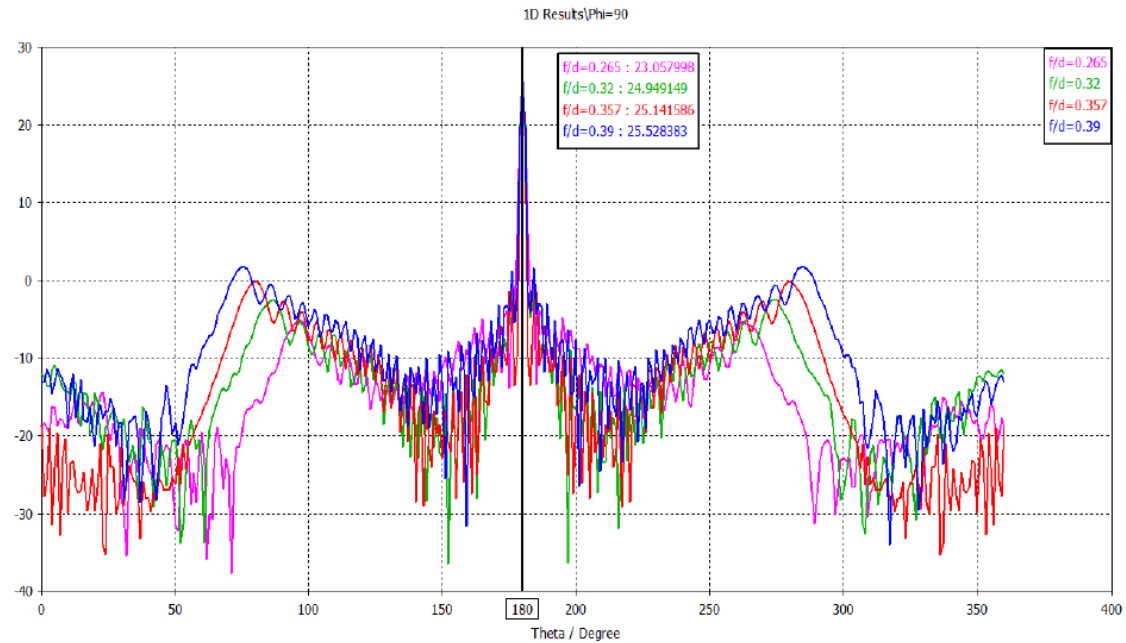
# On-axis cylinder f/D ratio



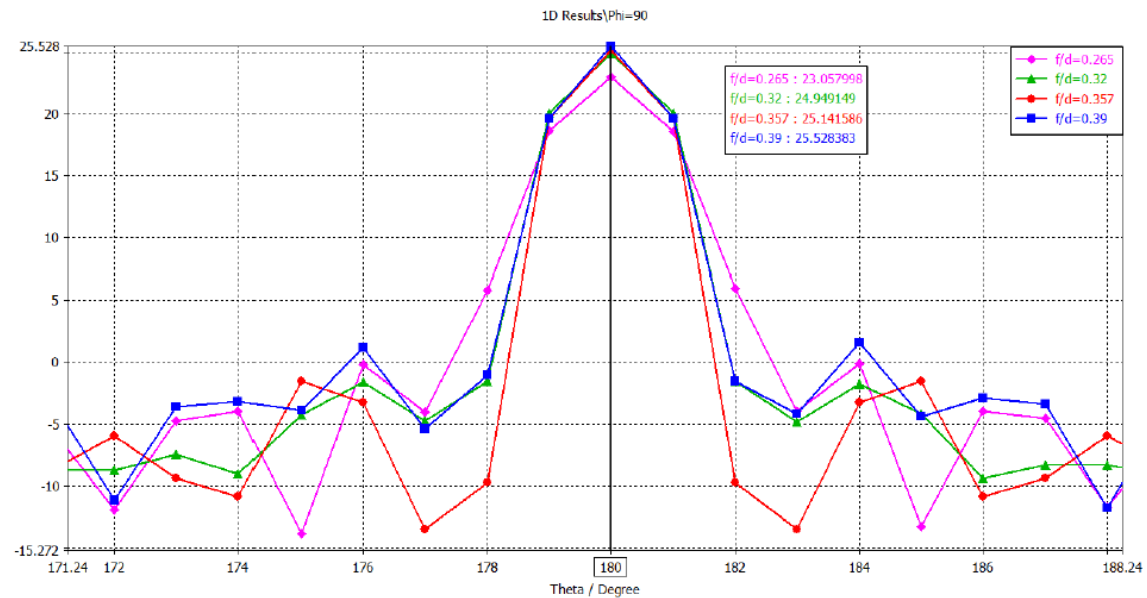
# Off-axis cylinder f/D ratio



**Tao Liu**  
**simulations**  
**of EW beam**  
**for different f/D.**  
**Four-square**  
**'coffee-can' feed**  
**modified for**  
**each case.**



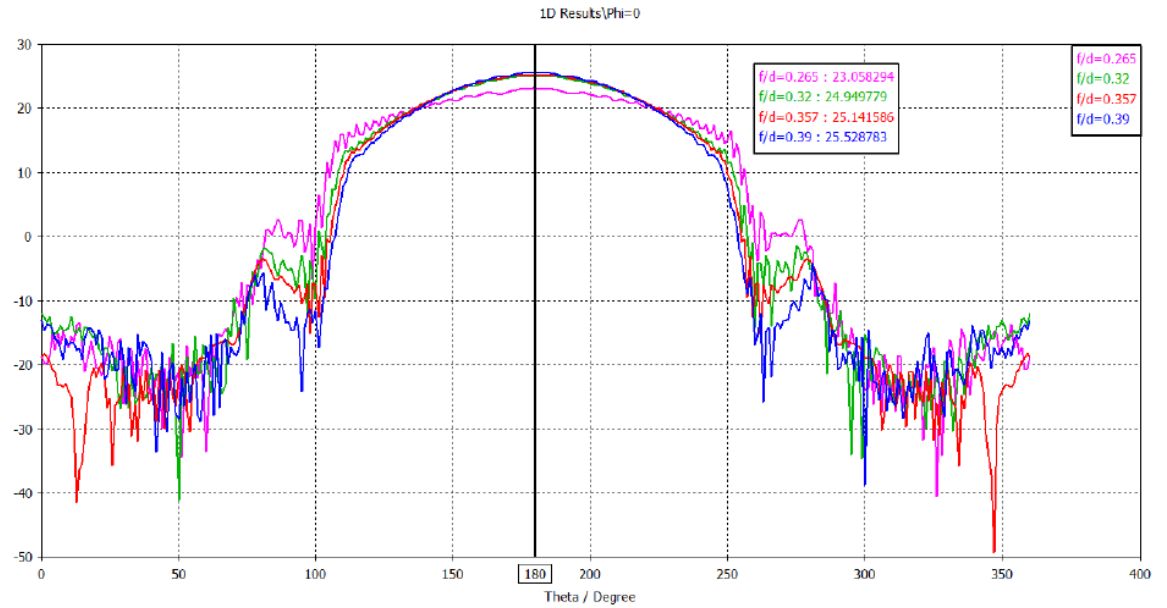
(a) Common view



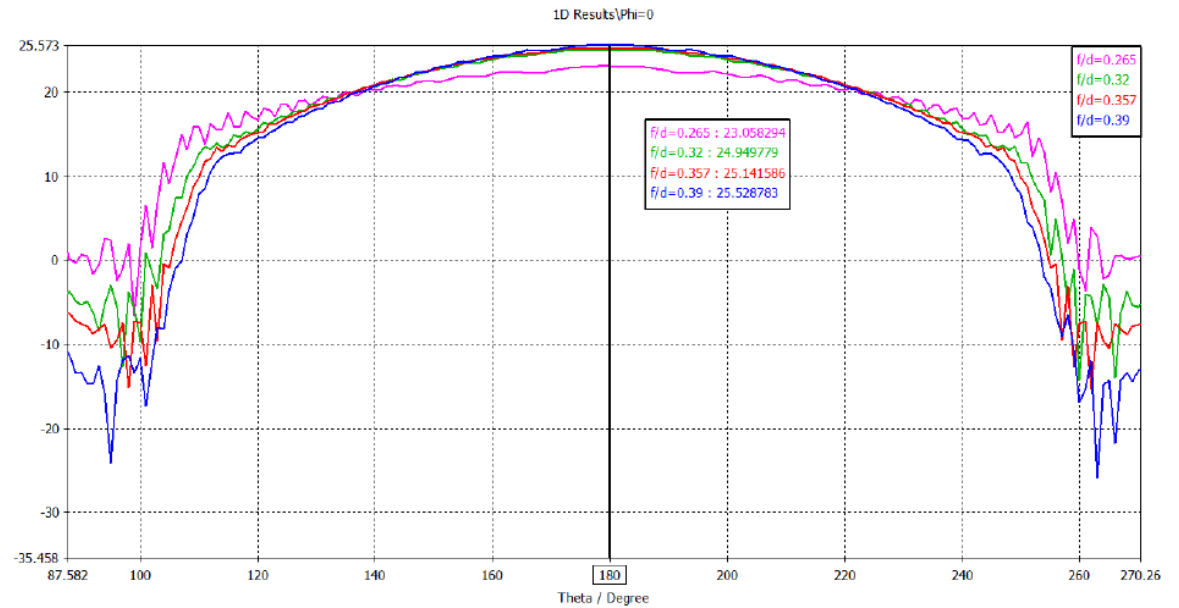
(b) Enlarged view

Figure 5.1 Theta scan(perpendicular to antenna length) for cylinder in different f/D values

# Tao Liu simulations of N/S beam



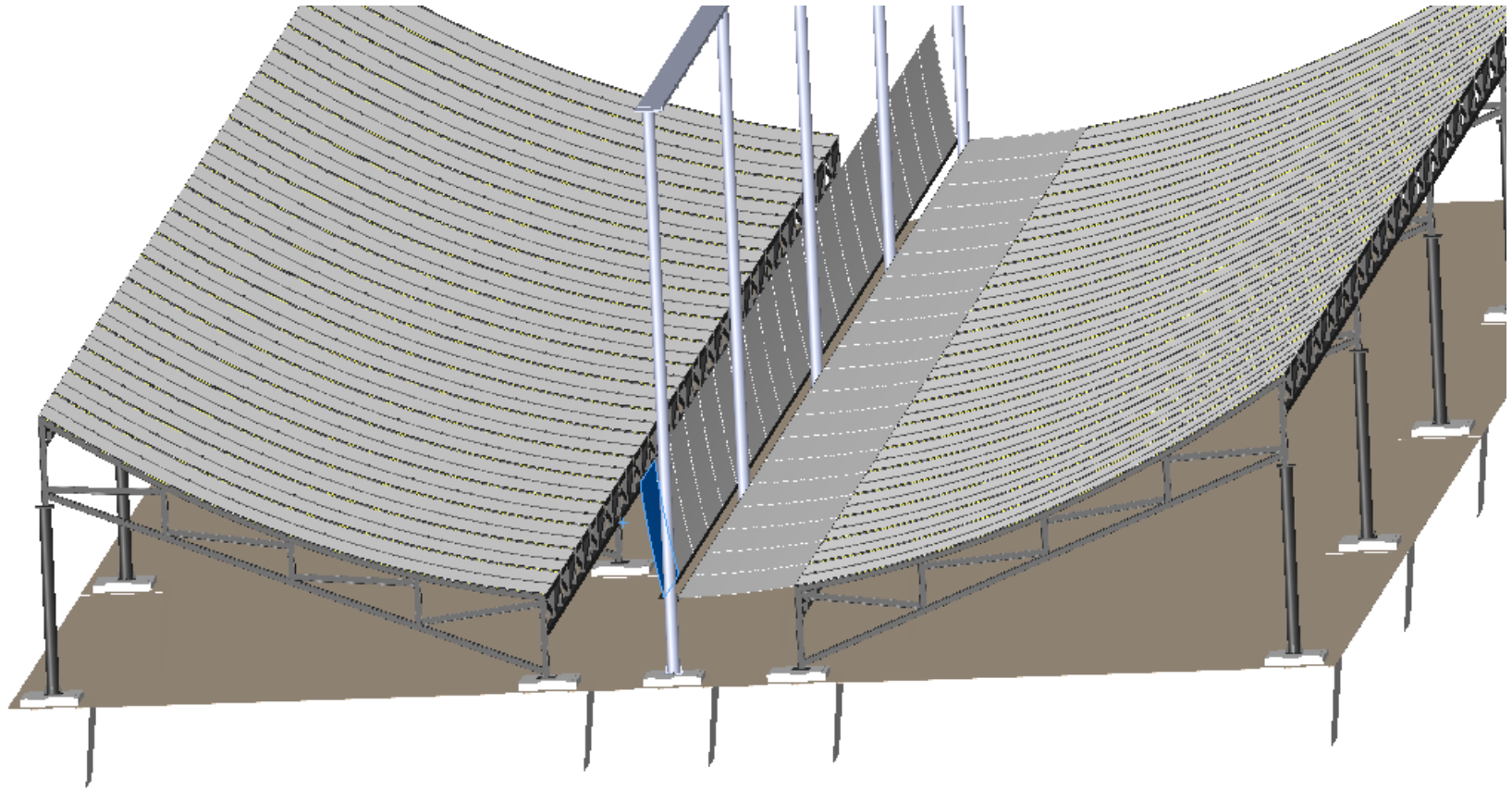
(a) Common view



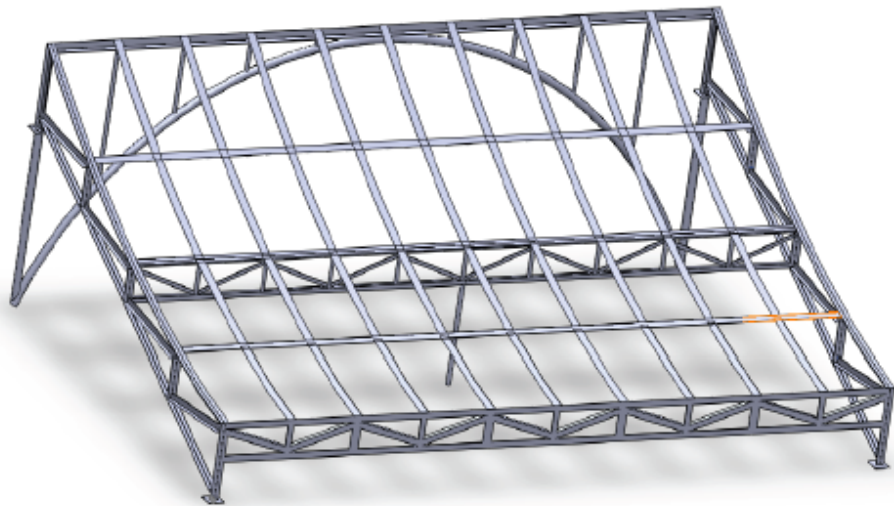
(b) Enlarged view

Figure 5.2 Phi scan (parallel to antenna length) for cylinder in different f/D values

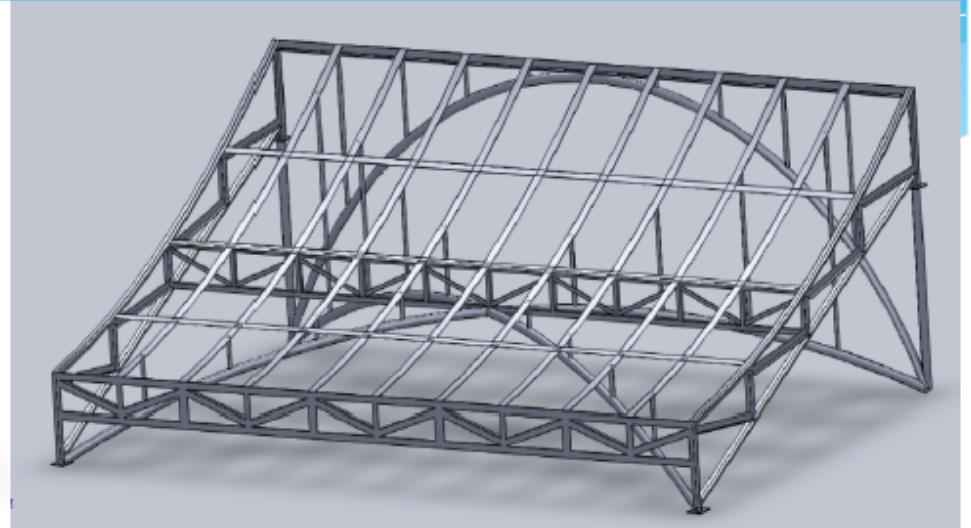
Z



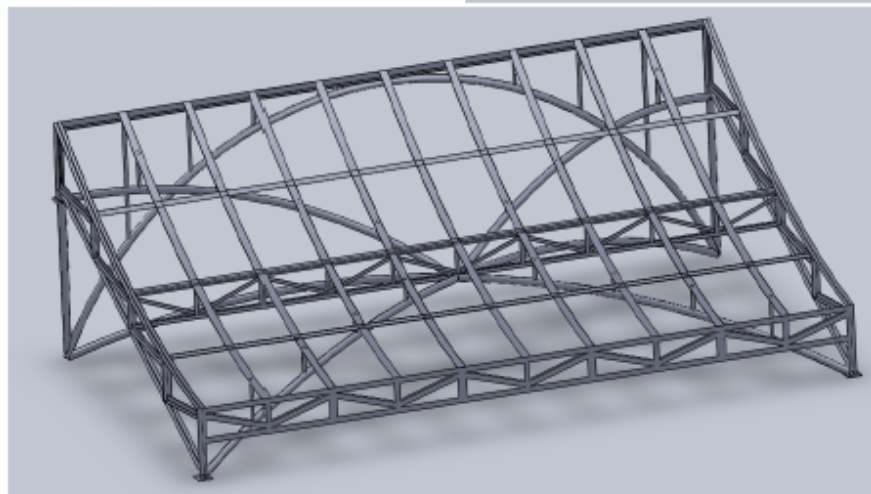
# 拱形方案设计



方案一



方案二

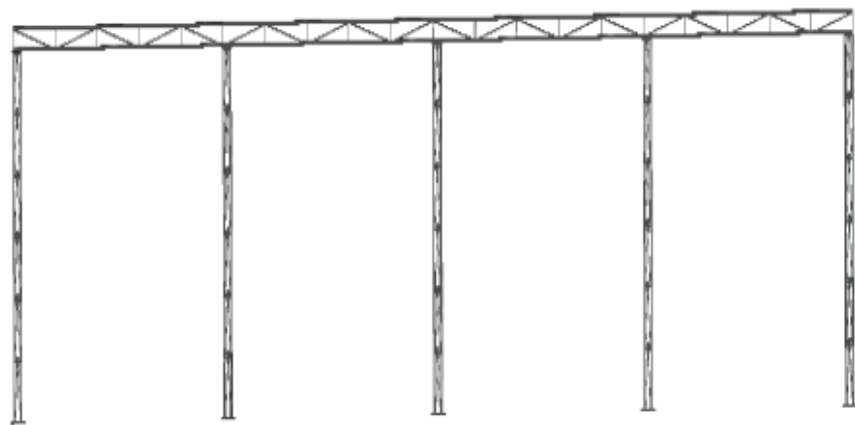


方案三

# 馈源支架结构设计

方案一：

采用镂空桁架结构



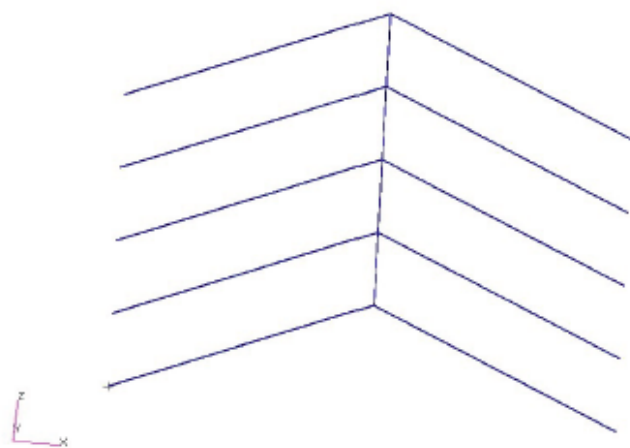
杆件选择:

- (1) 顶部的桁架用80\*80\*8角钢;
- (2) 支脚的4根主杆用60\*60\*6角钢;
- (3) 其余用30\*30\*3角钢。

桁架质量: (2.782吨)

方案二：

采用二撑杆结构



杆件选择:

- (1) 材料采用30×60×4mm薄壁矩形管;
- (2) 直径为50mm壁厚为5mm圆管。