Specification: Model R86 3 inch and 4 inch horns

Antenna model

R86 3 inch Horn

R86 4 inch Horn

Antenna description

Magnetrol's 3 inch and 4 inch horn antennas are designed for the Model R86 Level Probing Radar in tank (TLPR) and out of tank (LPR) applications. The antennas are integrated with the Model R86 transmitter to send and receive the K band signal. Typical performance data are listed in the Table 1.

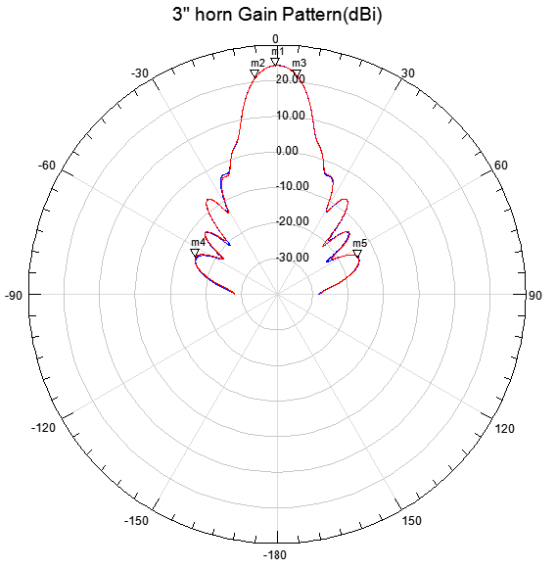
Table 1. Antenna Parameters

Model	Frequency (GHz)	Gain(dBi)	3dB beam width (degree)	Maximum side lobe above 60 degree Elevation (dBi)	Maximum side lobe gain relative to main beam gain (dB)
R86 3 inch horn	25.67GHz	24.3	11	-14.8	-39.1
R86 4 inch horn	25.67GHz	25.8	9	-17.5	-43.3

Gain pattern for R86 3 inch horn

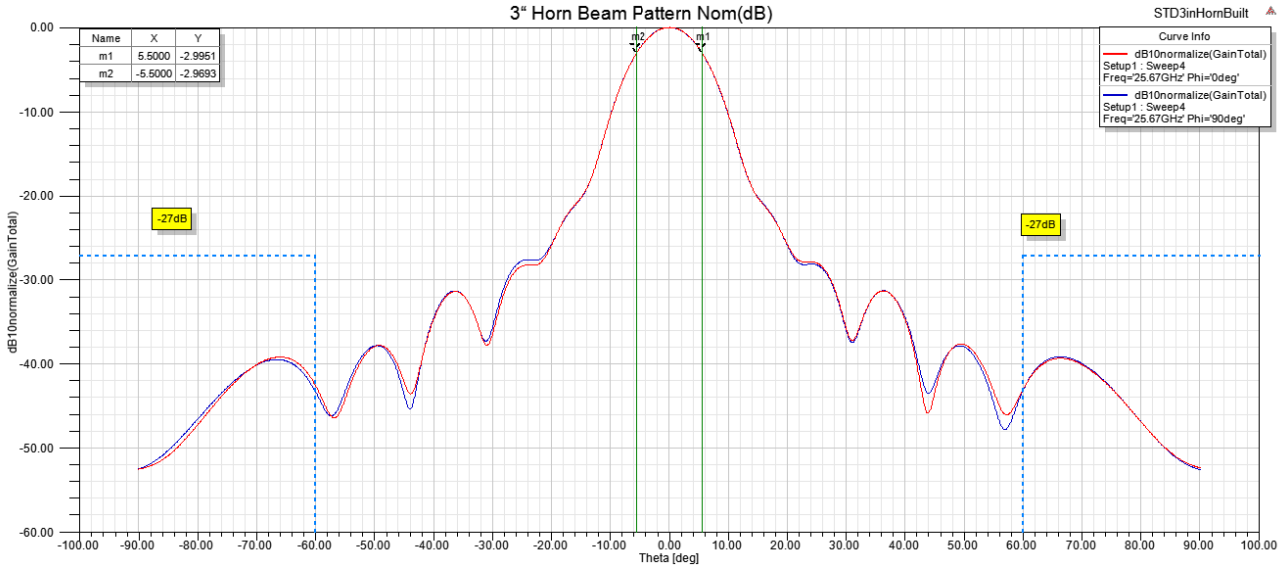
Red plot for H_plane; Blue plot for V_plane

Name	Theta	Ang	Mag
m1	0.0000	0.0000	24.3097
m2	-5.5000	-5.5000	21.3404
m3	5.5000	5.5000	21.3146
m4	-64.6000	-64.6000	-14.9658
m5	65.8000	65.8000	-14.8030



Normalized beam pattern for R86 3 inch horn

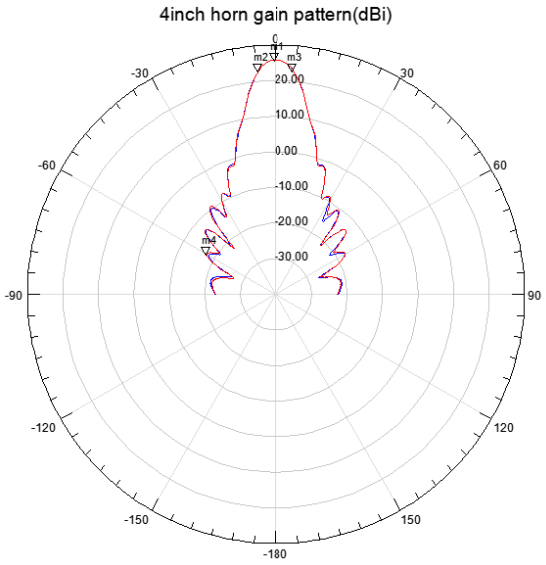
Red plot for H_plane; Blue plot for V_plane



Gain pattern for R86 4 inch horn

Red plot for H_plane; Blue plot for V_plane

Name	Theta	Ang	Mag
m1	0.0000	0.0000	25.8681
m2	-4.5000	-4.5000	22.9418
m3	4.5000	4.5000	22.9497
m4	-59.5000	-59.5000	-17.5671

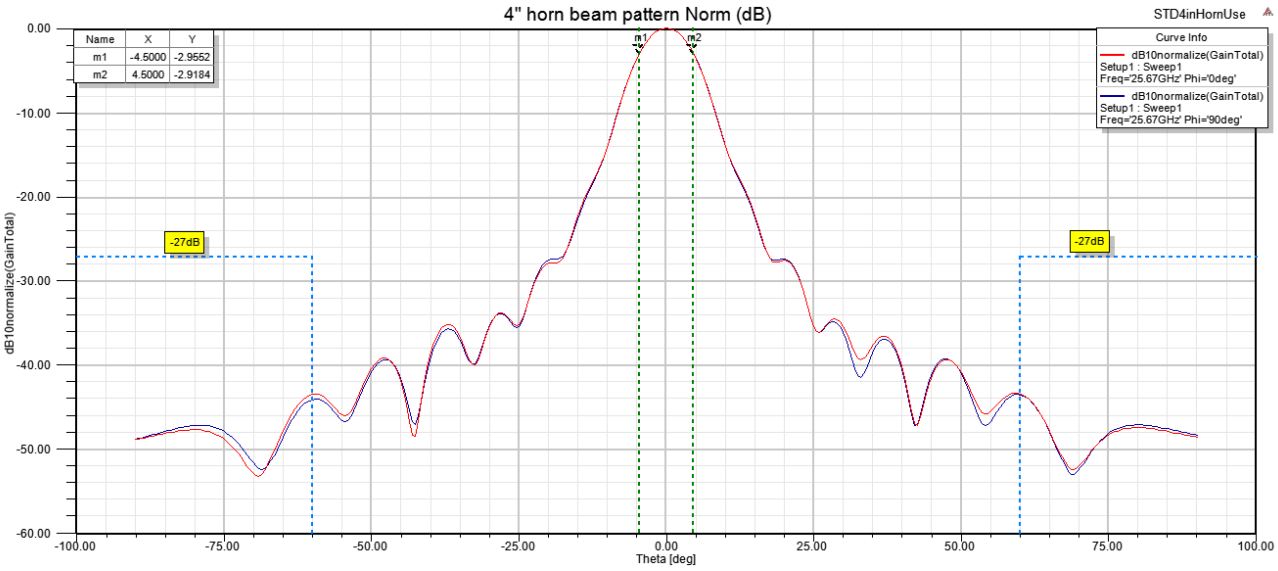


STD4inHornUse

Curve Info
dB(GainTotal)
Setup1 : Sweep1
Freq='25.67GHz' Phi='0deg'
dB(GainTotal)
Setup1 : Sweep1
Freq='25.67GHz' Phi='90deg'

Normalized beam pattern for R86 4 inch horn

Red plot for H_plane; Blue plot for V_plane



Antenna Pictures

3 inch horn

Dimension: Length from flange to end of the horn 8.52 inch, diameter 2.95 inch at the end of the horn

4 inch horn

Dimension: Length from flange to end of the horn 11.54 inch , diameter 3.74 inch at the end of the horn

Summary

Model	3dB beam width (degree) <12	Maximum side lobe > +/-60° (dBi) <-10dBi	Side lobe gain limit (>+/-60°) relative to main beam gain (dB) <27
R86 3 inch horn	OK	OK	OK
R86 4 inch horn	OK	OK	OK