Antenna Parameters
- 4M0.035.507 –

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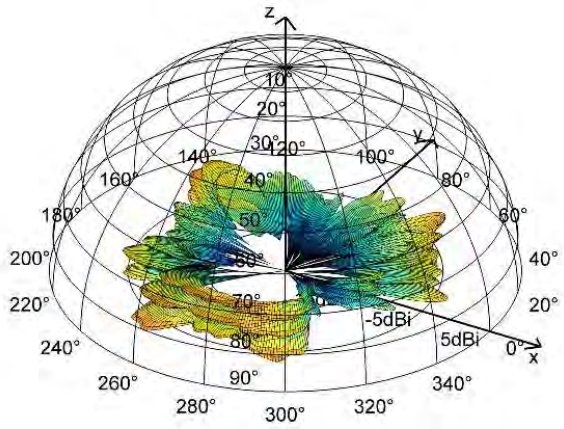
Calculation Formula of Partial Average Gain



$$\text{p.ave.gain} = 10\log\left(\frac{\sum_{iPhi=0°}^{360°}\sum_{iTheta=60°}^{90°} G(iTheta, iPhi)\sin(iTheta)}{nPhi\sum_{iTheta=60°}^{90°}\sin(iTheta)}\right) = x\,\text{dBi}$$

$nPhi \Rightarrow$ number of elevation cuts

$G \Rightarrow$ total gain $(G_{Theta} + G_{Phi})$

$p.ave.gain \Rightarrow$ partial average gain

- angular ranges according to LAH.8V0.035.L V06F
- frequency bands according to LAH.8V0.035.L V06F

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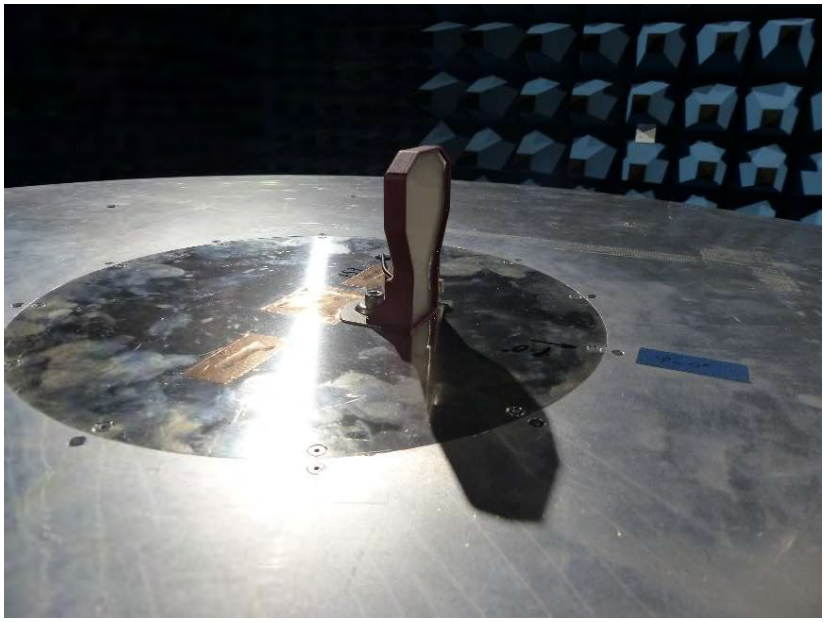
Monopole Antenna: 4M0.035.507
Measurement Setup



- measurement @ HCC anechoic chamber
- mounted on sirius ground plane

- monopole antenna screwed on ground plane

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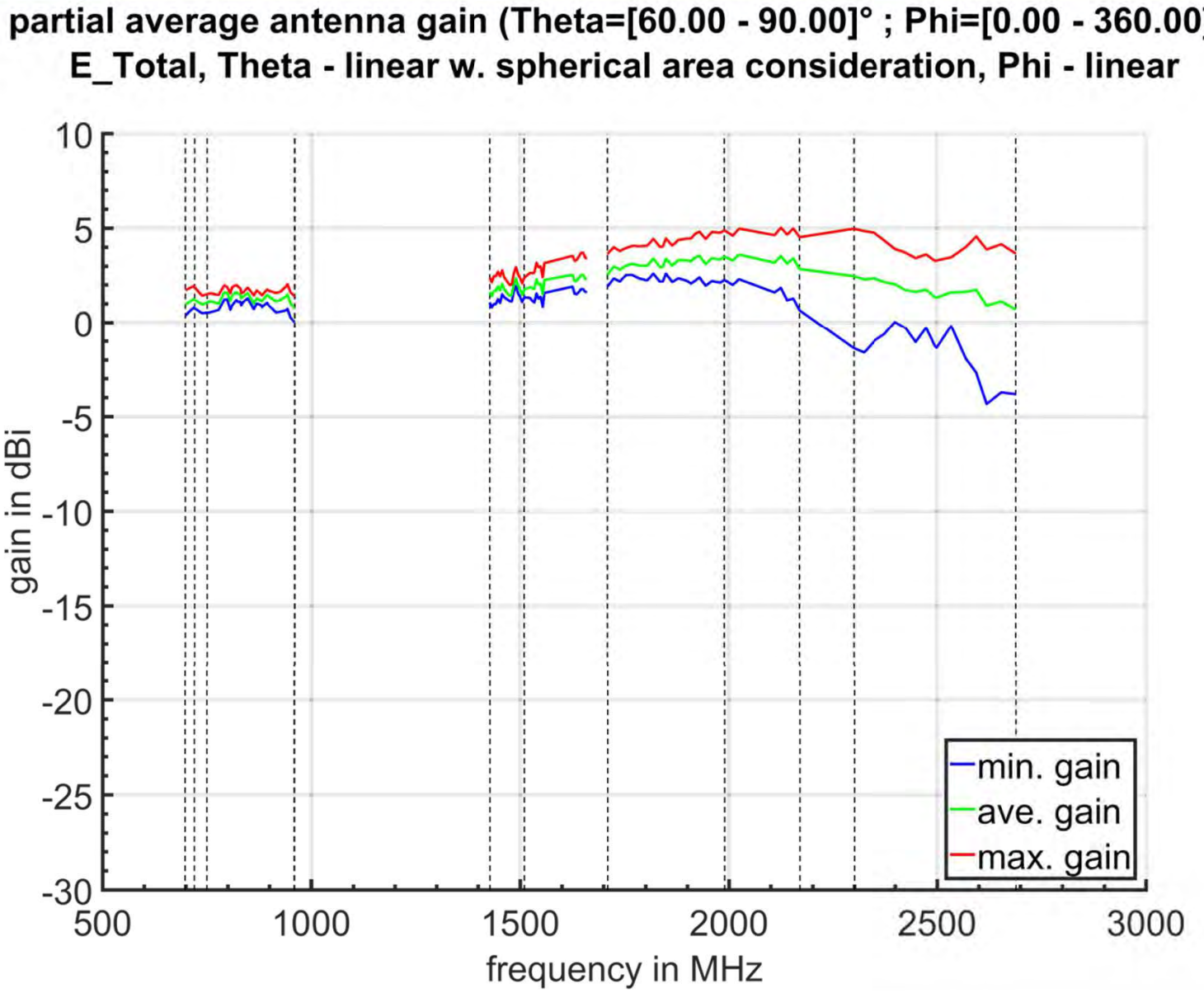
Monopole Antenna: 4M0.035.507
Partial Average Gain



- min./max. ➔ average over theta range
- ave. ➔ average over theta & phi range

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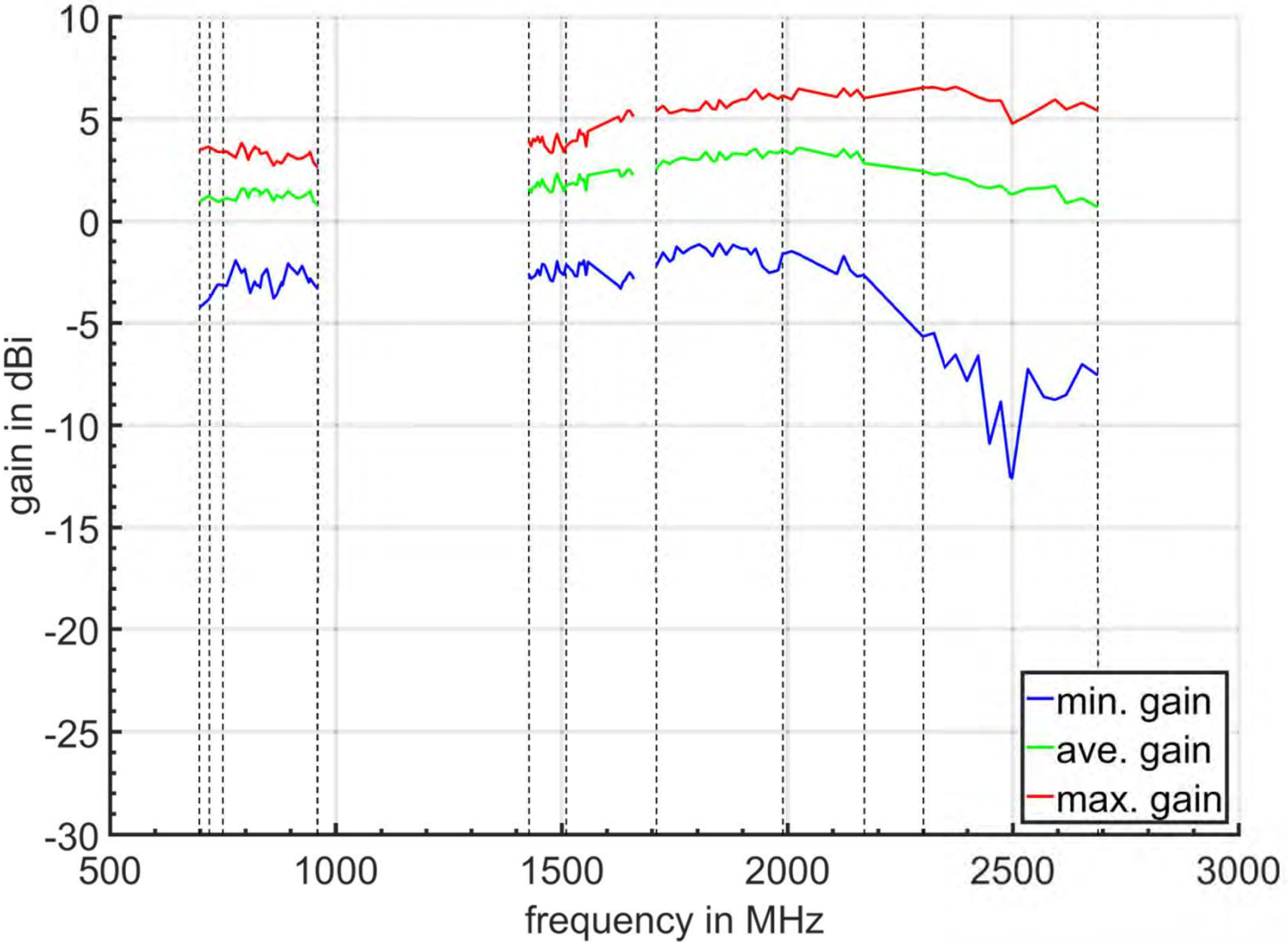
Monopole Antenna: 4M0.035.507
Partial Average Gain 2

partial average antenna gain (Theta=[60.00 - 90.00]° ; Phi=[0.00 - 360.00]°)
E_Total, Theta - linear w. spherical area consideration, Phi - linear



- min./max. ➔ absolute value in theta & phi range
- ave. ➔ average over theta & phi range

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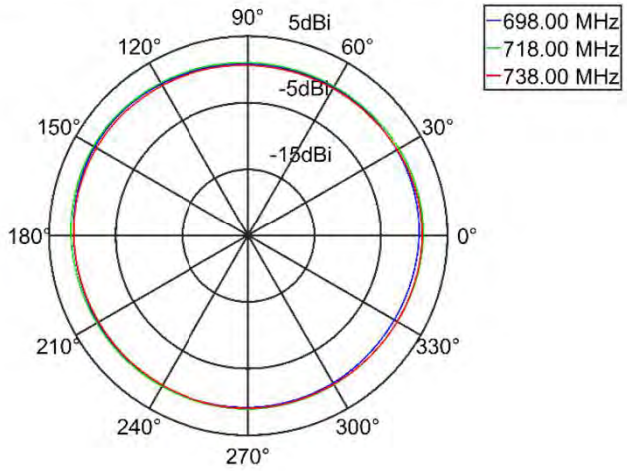
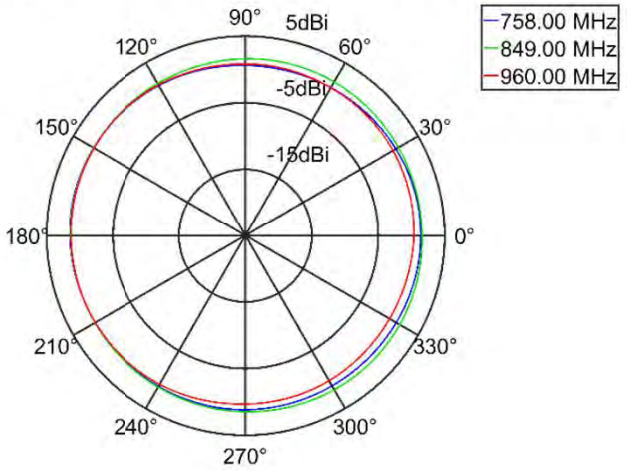
Monopole Antenna: 4M0.035.507
Partial Average Gain: Azimuth Plot

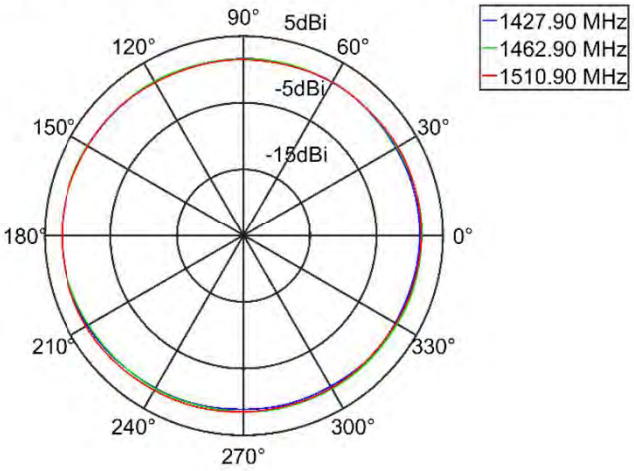
radiation pattern of the antenna
realized partial average gain (E_Total, Theta = [60.00 - 90.00]°)



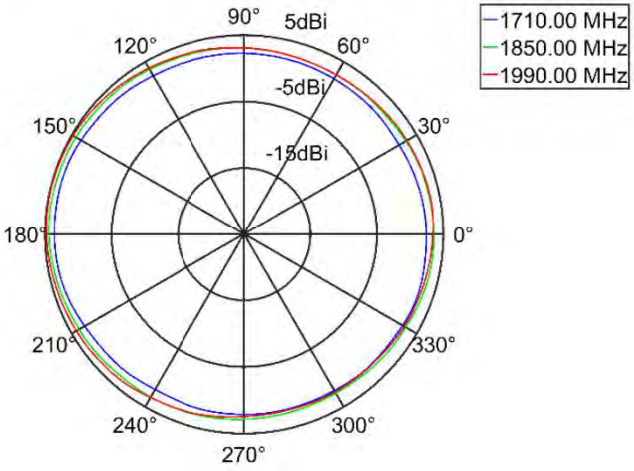
radiation pattern of the antenna
realized partial average gain (E_Total, Theta = [60.00 - 90.00]°)



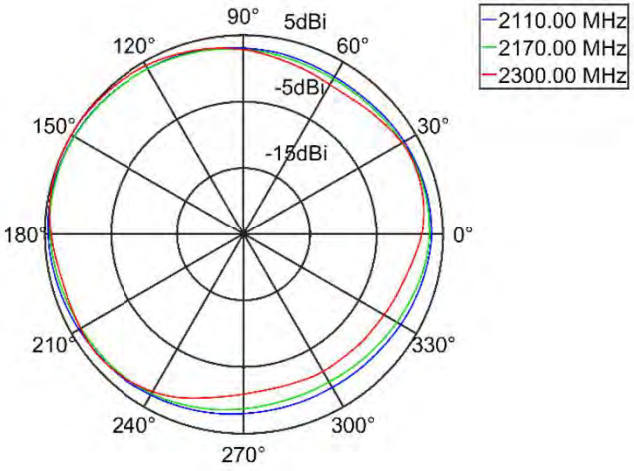
radiation pattern of the antenna
realized partial average gain (E_Total, Theta = [60.00 - 90.00]°)



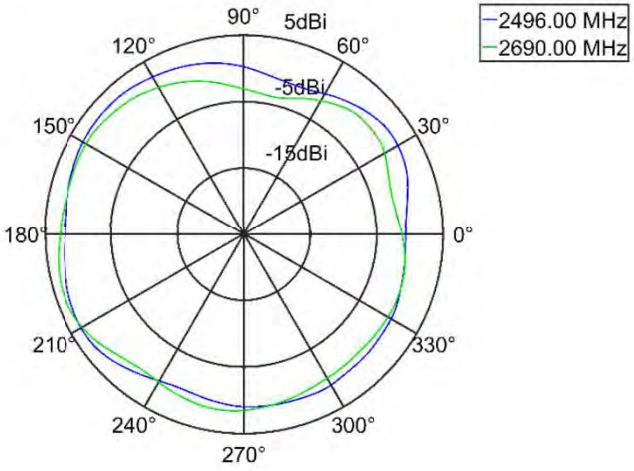
radiation pattern of the antenna
realized partial average gain (E_Total, Theta = [60.00 - 90.00]°)



radiation pattern of the antenna
realized partial average gain (E_Total, Theta = [60.00 - 90.00]°)



radiation pattern of the antenna
realized partial average gain (E_Total, Theta = [60.00 - 90.00]°)



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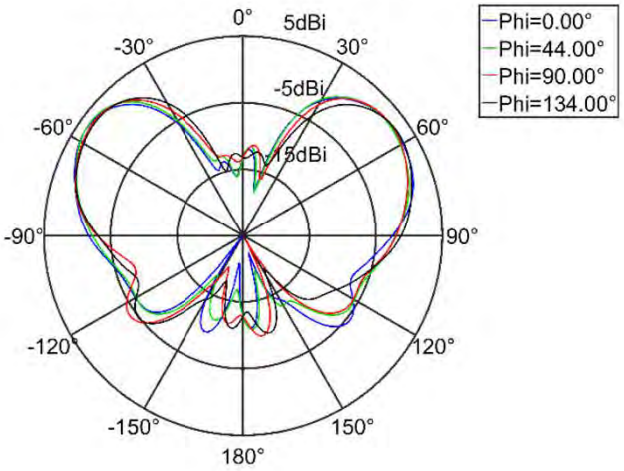
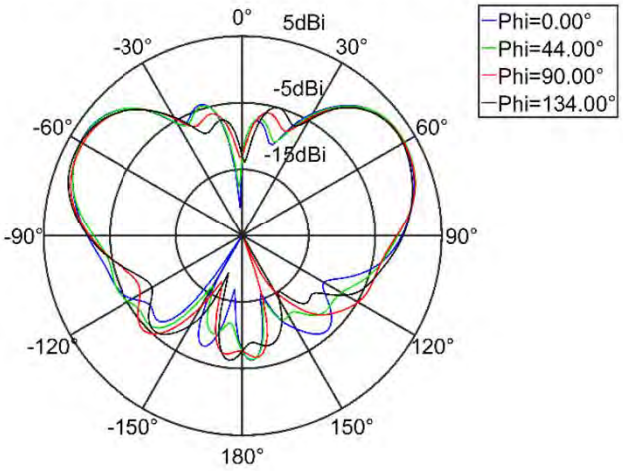
Monopole Antenna: 4M0.035.507
Antenna Gain: Elevation Plot

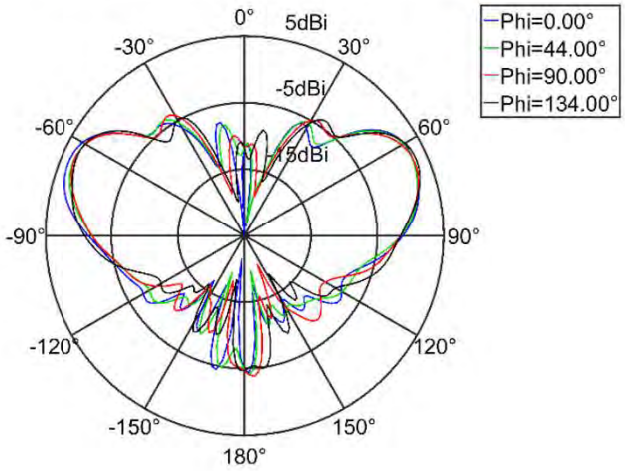
radiation pattern of the antenna
realized gain (E_Total, Freq = 738.00 MHz)



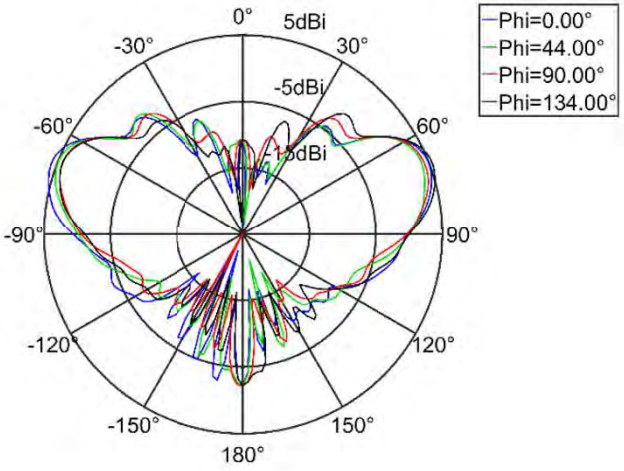
radiation pattern of the antenna
realized gain (E_Total, Freq = 849.00 MHz)



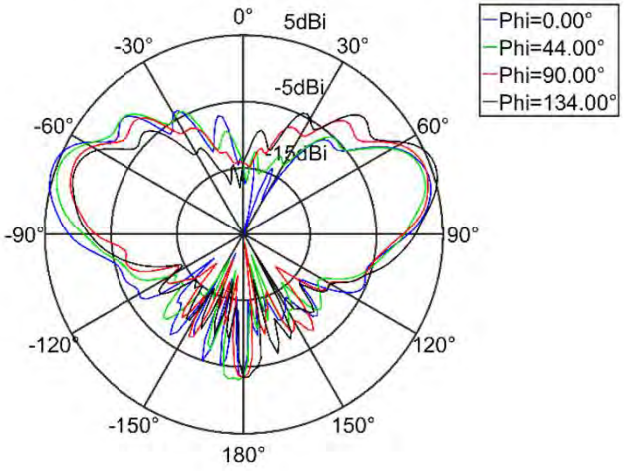
radiation pattern of the antenna
realized gain (E_Total, Freq = 1462.90 MHz)



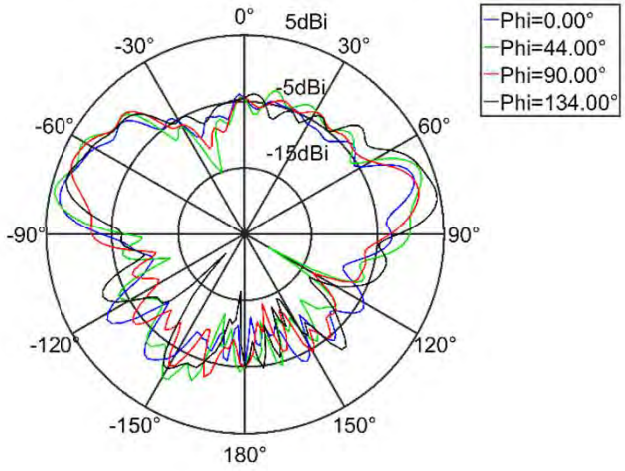
radiation pattern of the antenna
realized gain (E_Total, Freq = 1850.00 MHz)



radiation pattern of the antenna
realized gain (E_Total, Freq = 2170.00 MHz)



radiation pattern of the antenna
realized gain (E_Total, Freq = 2496.00 MHz)



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Monopole Antenna: 4M0.035.507
Antenna Parameters

Monopole Antenna with PU

4M0.035.507 Theta = [60-90]° Theta = [60-90]° Theta = [0-180]°

frequency band in MHz			partial average gain of freq. band in dBi		max. gain in partial area	absolut maximum gain
begin		end	average	maximum	in freq. band in dBi	in freq. band in dBi
698	-	718	1,12	1,26	3,67	3,82
718	-	758	1,14	1,26	3,67	3,82
758	-	960	1,35	1,64	3,85	3,97
1428	-	1510,9	1,78	2,35	4,29	4,29
1710	-	1990	3,18	3,56	6,45	6,45
1990	-	2170	3,33	3,62	6,51	6,51
2300	-	2690	1,72	2,48	6,60	6,60

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