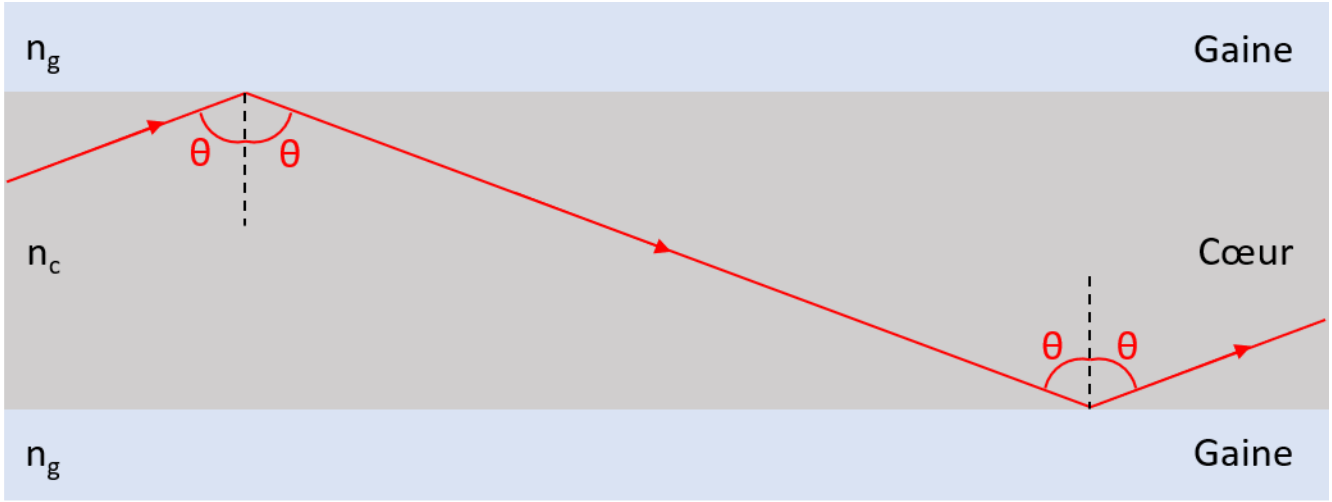
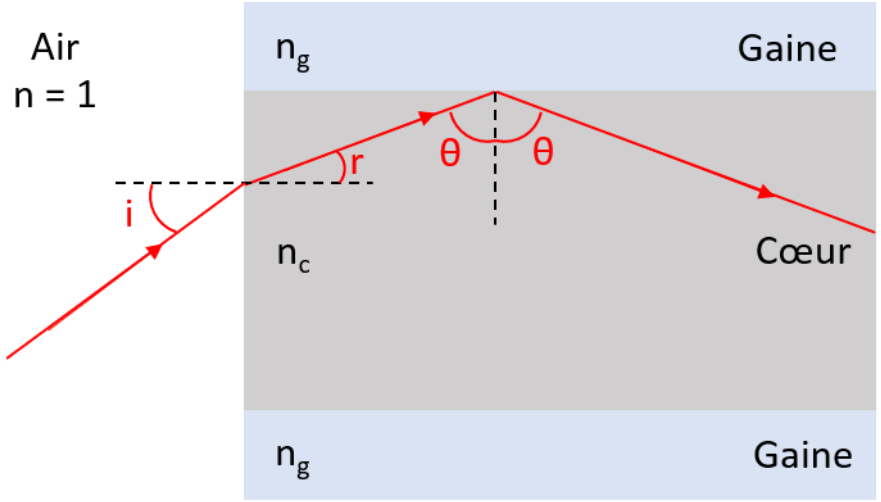
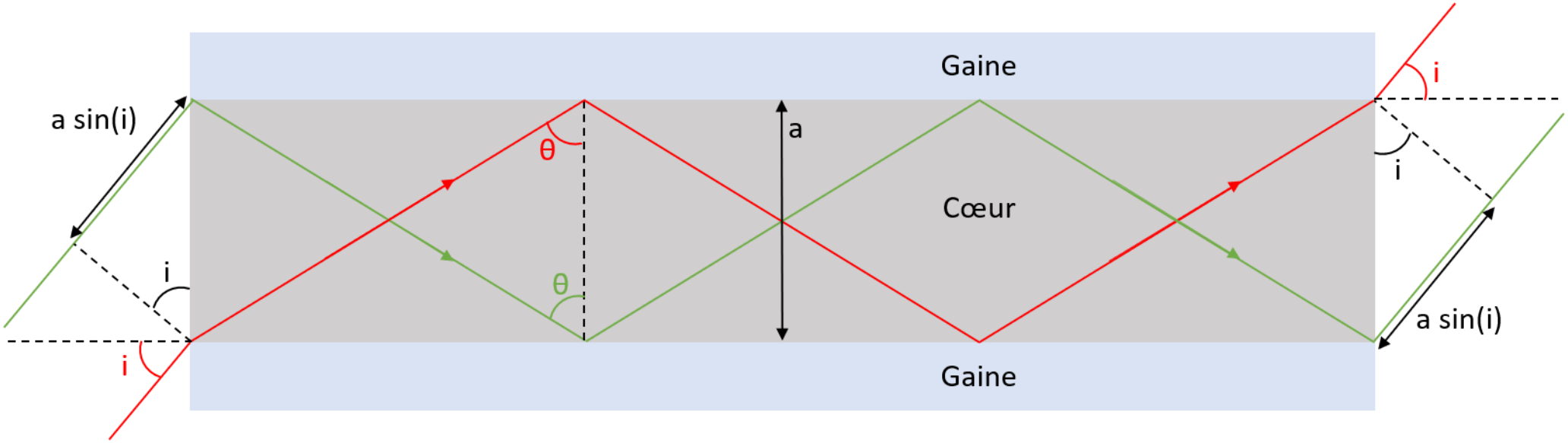
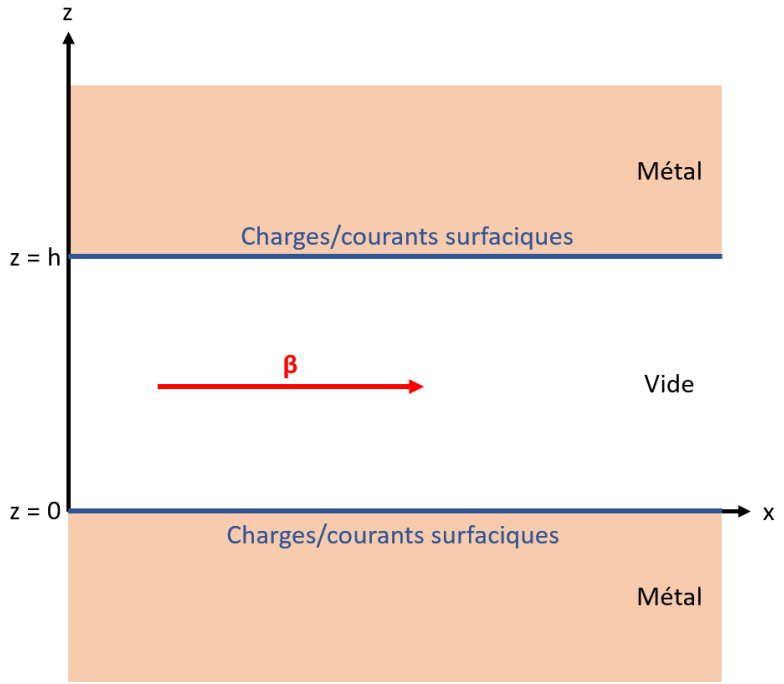
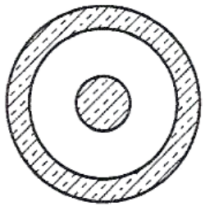
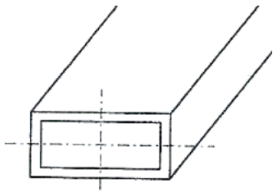
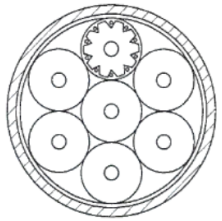

n_g
Gaine
θ
θ
n_c
Cœur
θ
θ
n_g
Gaine


Air
n = 1
n_g
Gaine
r
θ
θ
i
n_c
Cœur
n_g
Gaine


Gaine
a sin(i)
θ
a
i
Cœur
θ
i
i
a sin(i)
Gaine


z
Métal
Charges/courants surfaciques
z = h
β
Vide
z = 0
x
Charges/courants surfaciques
Métal

	Ligne bifilaire	Ligne coaxiale	Guide d'ondes	Fibre optique
Vue en coupe				
Fréquence d'utilisation	10^9 Hz	10^{10} GHz	3 - 90 GHz	10^{14} Hz
Bande passante	Très faible	12 - 60 MHz	10 GHz	1 GHz
Modes	-	TE, TM, TEM	TE, TM	-
Atténuation	-	-	-0.1 dB/m	-0.01 dB/m
Débit de données	1 communication téléphonique par ligne	Plusieurs centaines de communications	-	10^{10} bits/s