**EE307 assignment9 Homework**

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Question：

Design an optimum gain X-band (8.2–12.4 GHz) pyramidal horn so that its gain (above isotropic) at f = 11 GHz is 22.6 dB. The horn is fed by a WR 90 rectangular waveguide with inner dimensions of a = 0.9 in. (2.286 cm) and b = 0.4 in. (1.016 cm).

Answer:

1. Initial value of

which does not satisfy, so:

After few tries, a more accurate value is

2.

3.

4.