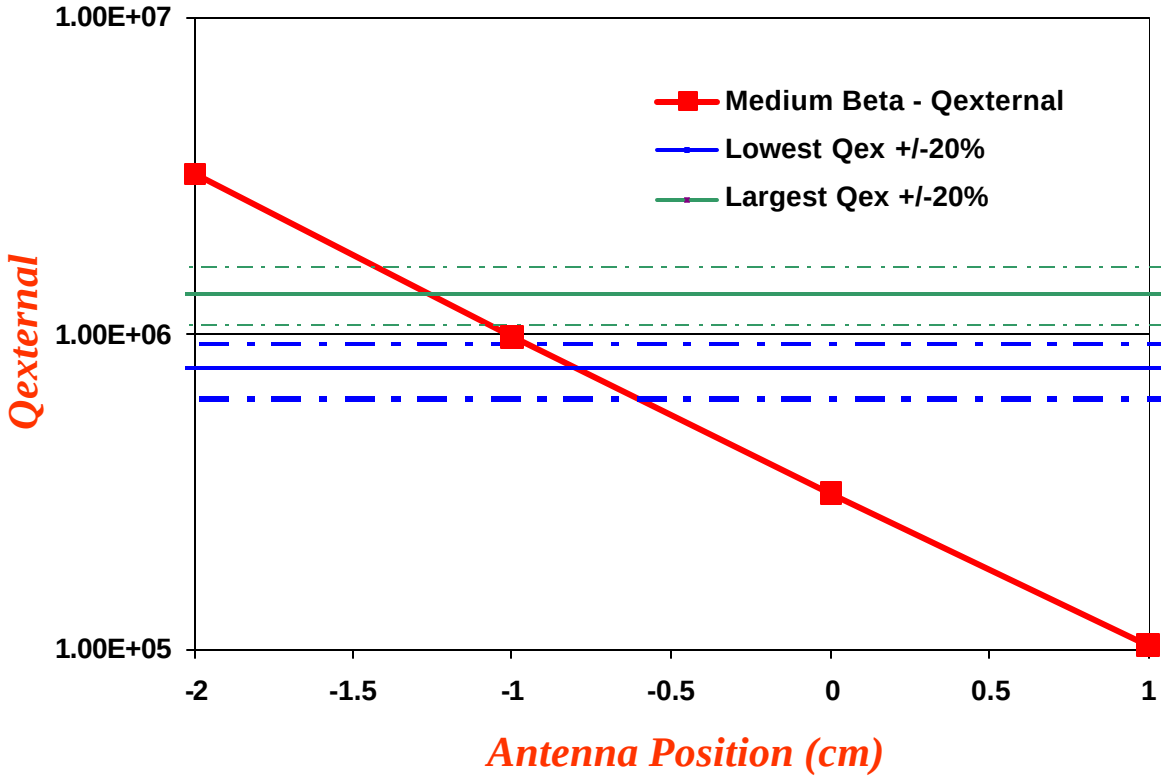
# Qex Calculation - Antenna Penetration dependency

***SNS Medium Beta :***




| Tip position | Qex |
|---|---|
| -2cm | 3.19E+06 |
| -1 cm | 9.83E+05 |
| 0 cm | 3.14E+05 |
| +1cm | 1.03E+05 |

| Lowest Qex | +20% | - 20% |
|---|---|---|
| *-0.79cm* | *-1.6mm* | *+2mm* |

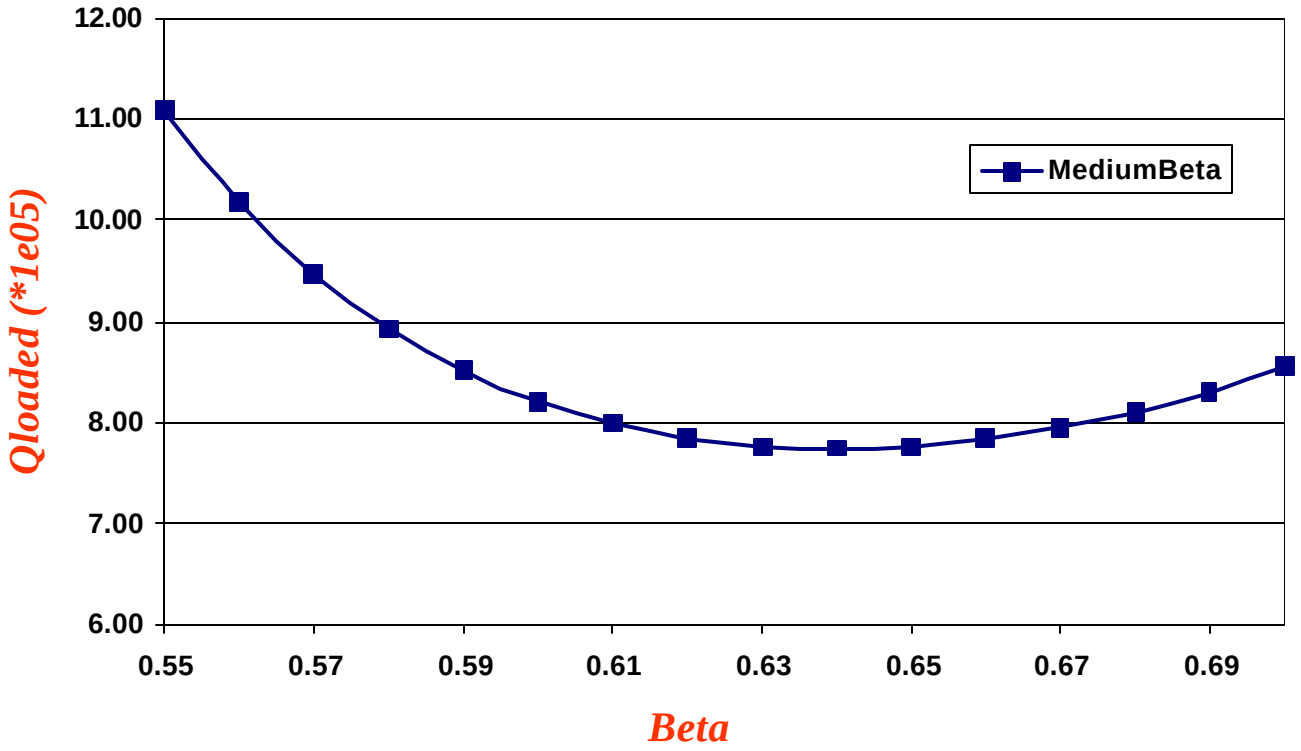
| Highest Qex | +20% | - 20% |
|---|---|---|
| *-1.27cm* | *-1.6mm* | *+2mm* |

- GOC (Geometry of Coupler); Inner Radius 1.645cm, Outer radius 3.787cm
- DCC (Distance between Cavity and Coupler); Fixed at 7 cm

3) AP (Antenna Position); x-axis

# Qloaded Calculation - Beta dependency

***SNS Medium Beta :***



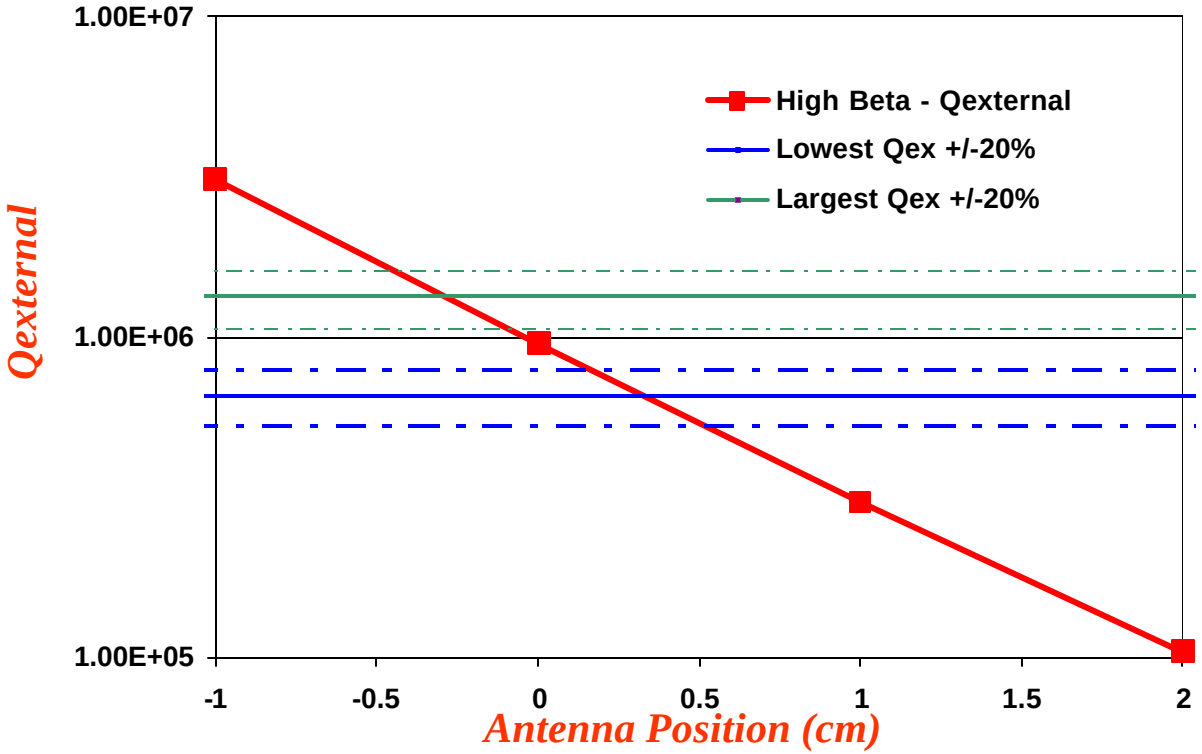

| Beta | Ql (*1e05) |
|---|---|
| 0.55 | 11.10 |
| 0.56 | 10.18 |
| 0.57 | 9.46 |
| 0.58 | 8.92 |
| 0.59 | 8.51 |
| 0.6 | 8.21 |
| 0.61 | 7.99 |
| 0.62 | 7.83 |
| 0.63 | 7.75 |
| 0.64 | 7.73 |
| 0.65 | 7.76 |
| 0.66 | 7.84 |
| 0.67 | 7.95 |
| 0.68 | 8.10 |
| 0.69 | 8.30 |
| 0.7 | 8.55 |

-Phases values from Parmila (LANL).

-Other parameters from Superfish.

# Qex Calculation - Antenna Penetration dependency

***SNS High Beta cavity :***




| Tip position | Qex |
|---|---|
| -2cm | 3.13E+06 |
| -1 cm | 9.58E+05 |
| 0 cm | 3.05E+05 |
| +1cm | 1.04E+05 |

| Lowest Qex | +20% | - 20% |
|---|---|---|
| *-0.67cm* | *-1.6mm* | *+2mm* |

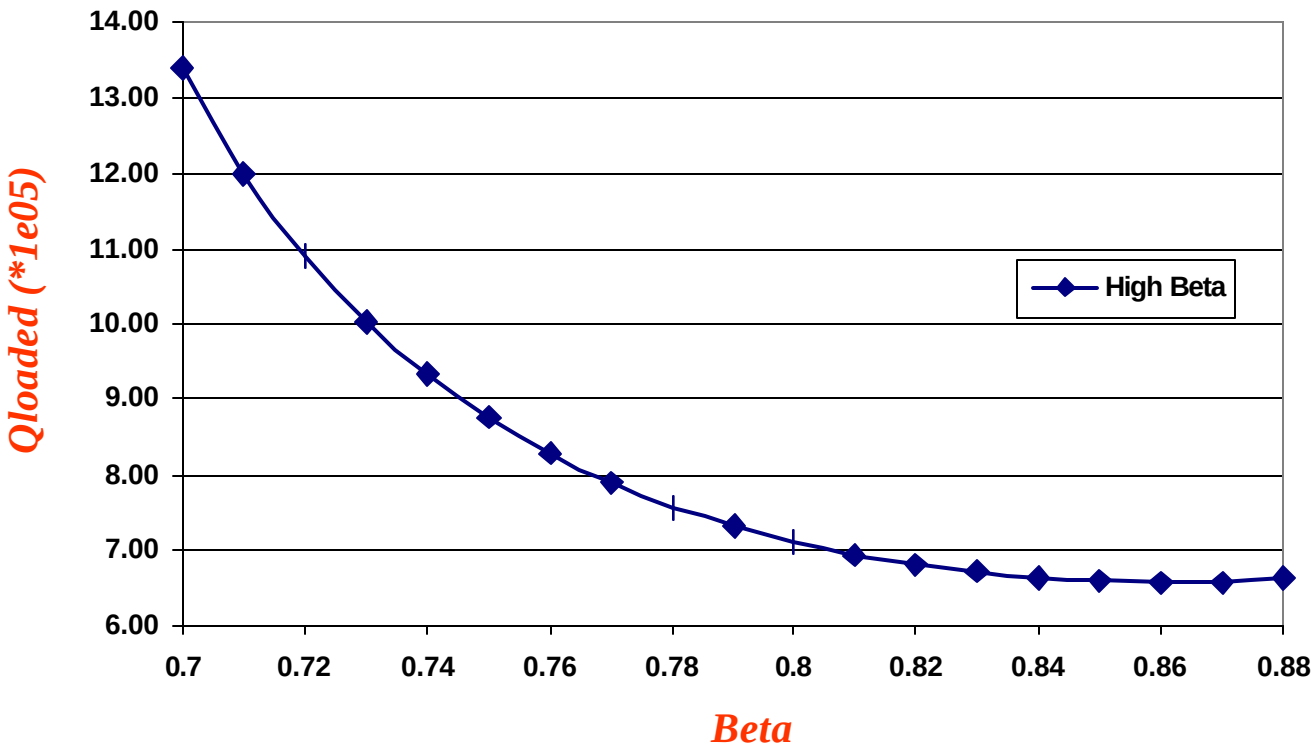
| Highest Qex | +20% | - 20% |
|---|---|---|
| *-1.29cm* | *-1.6mm* | *+2mm* |

- GOC (Geometry of Coupler); Inner Radius 1.645cm, Outer radius 3.787cm
- DCC (Distance between Cavity and Coupler); Fixed at 7 cm

3) AP (Antenna Position); x-axis

# Qloaded Calculation - Beta dependency

***SNS High Beta :***




| Beta | Ql (*1e05) |
|---|---|
| 0.7 | 13.38 |
| 0.71 | 12 |
| 0.72 | 10.9 |
| 0.73 | 10.02 |
| 0.74 | 9.33 |
| 0.75 | 8.75 |
| 0.76 | 8.28 |
| 0.77 | 7.89 |
| 0.78 | 7.58 |
| 0.79 | 7.32 |
| 0.8 | 7.11 |
| 0.81 | 6.95 |
| 0.82 | 6.81 |
| 0.83 | 6.71 |
| 0.84 | 6.64 |
| 0.85 | 6.6 |
| 0.86 | 6.58 |
| 0.87 | 6.58 |
| 0.88 | 6.64 |

-Phases values from Parmila (LANL).

-Other parameters from Superfish.