

Construction and Characterization of a Table-Top Mode-Stirred Chamber

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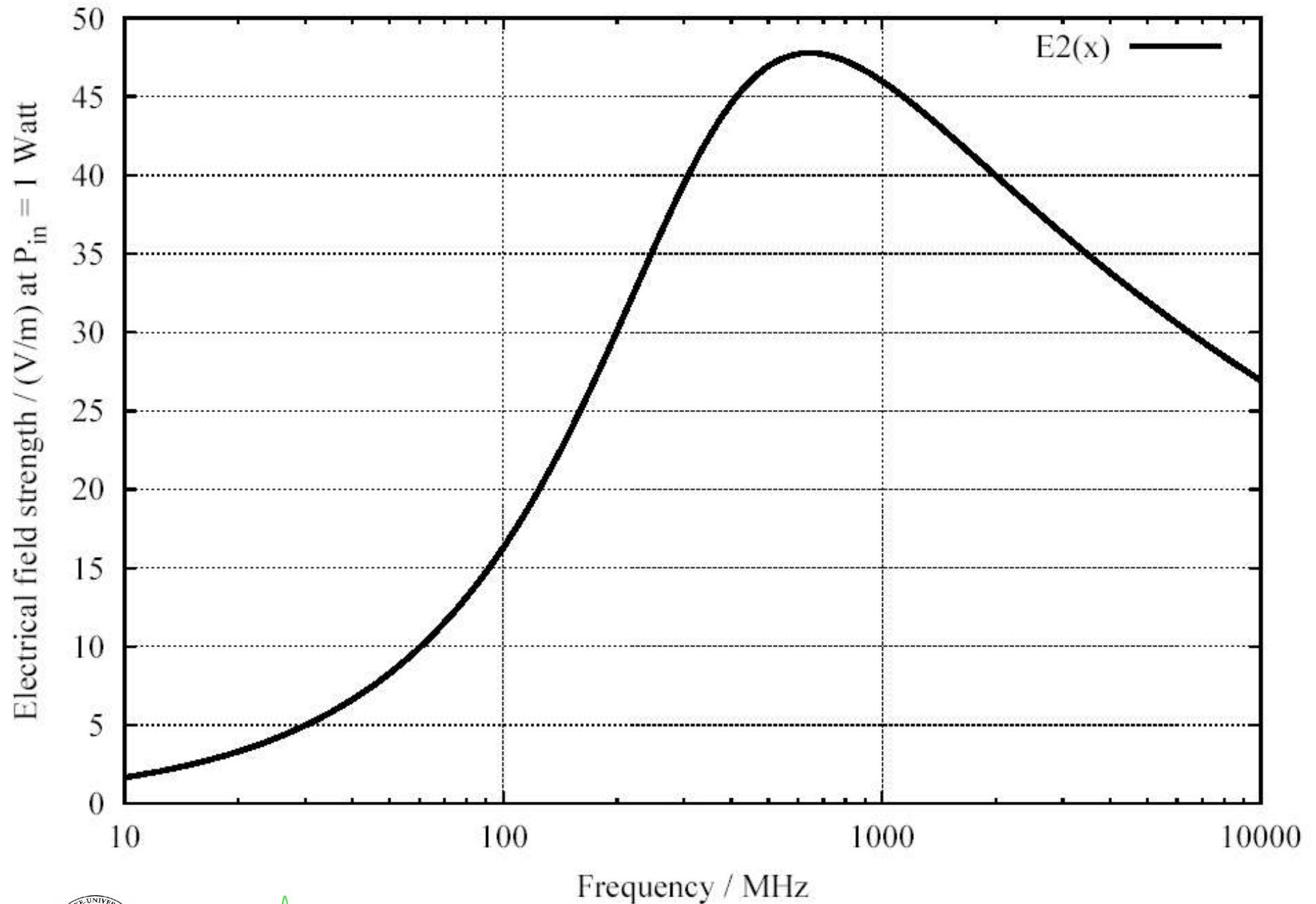
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Introduction



- large MSC:
 - 7.8m x 6.4m x 3.4m
 - $f_s = 200$ MHz
 - one stirrer
- drawback:
 - field strength decreases above 1 GHz
 - common feature of MSCs

Introduction



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Construction - Chamber



- dimensions:
 - width: 1.5 m
 - height: 1.2 m
 - depth: 0.9 m
 - surface: 8.45 m²
 - volume: 1.62 m³
- 1mm copper plates



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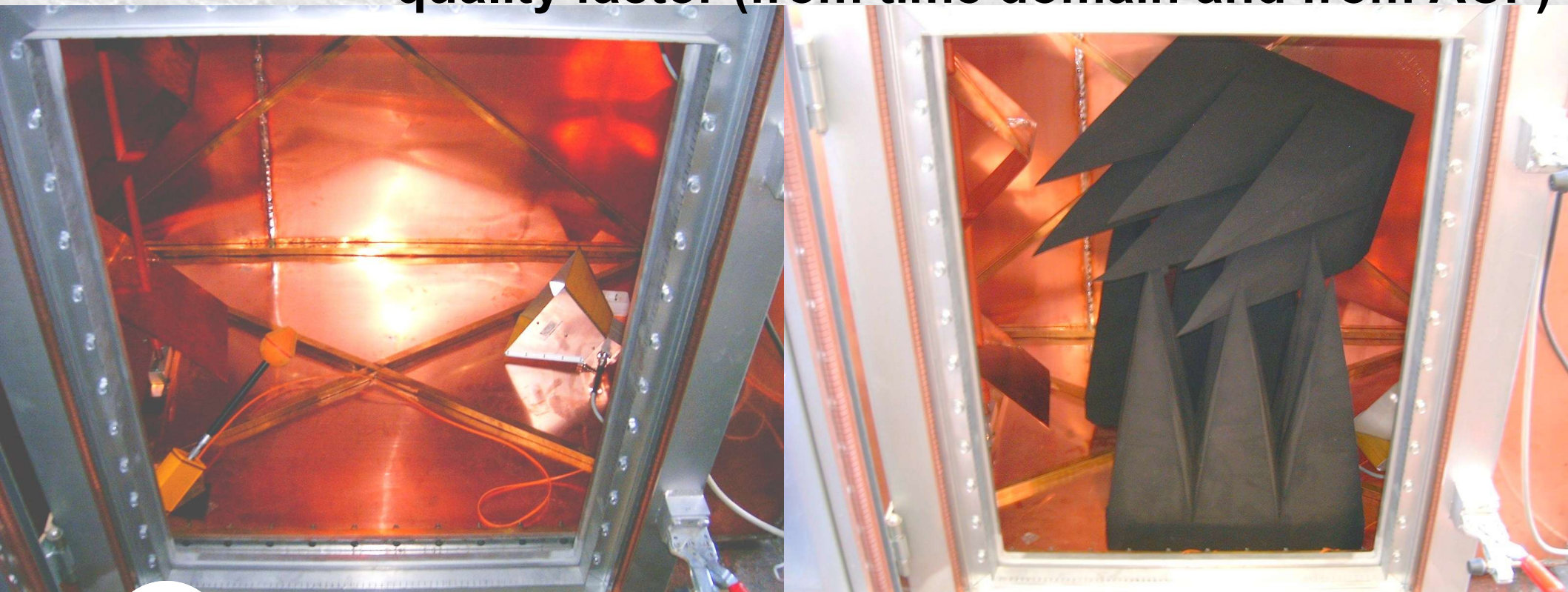
Construction - Stirrer



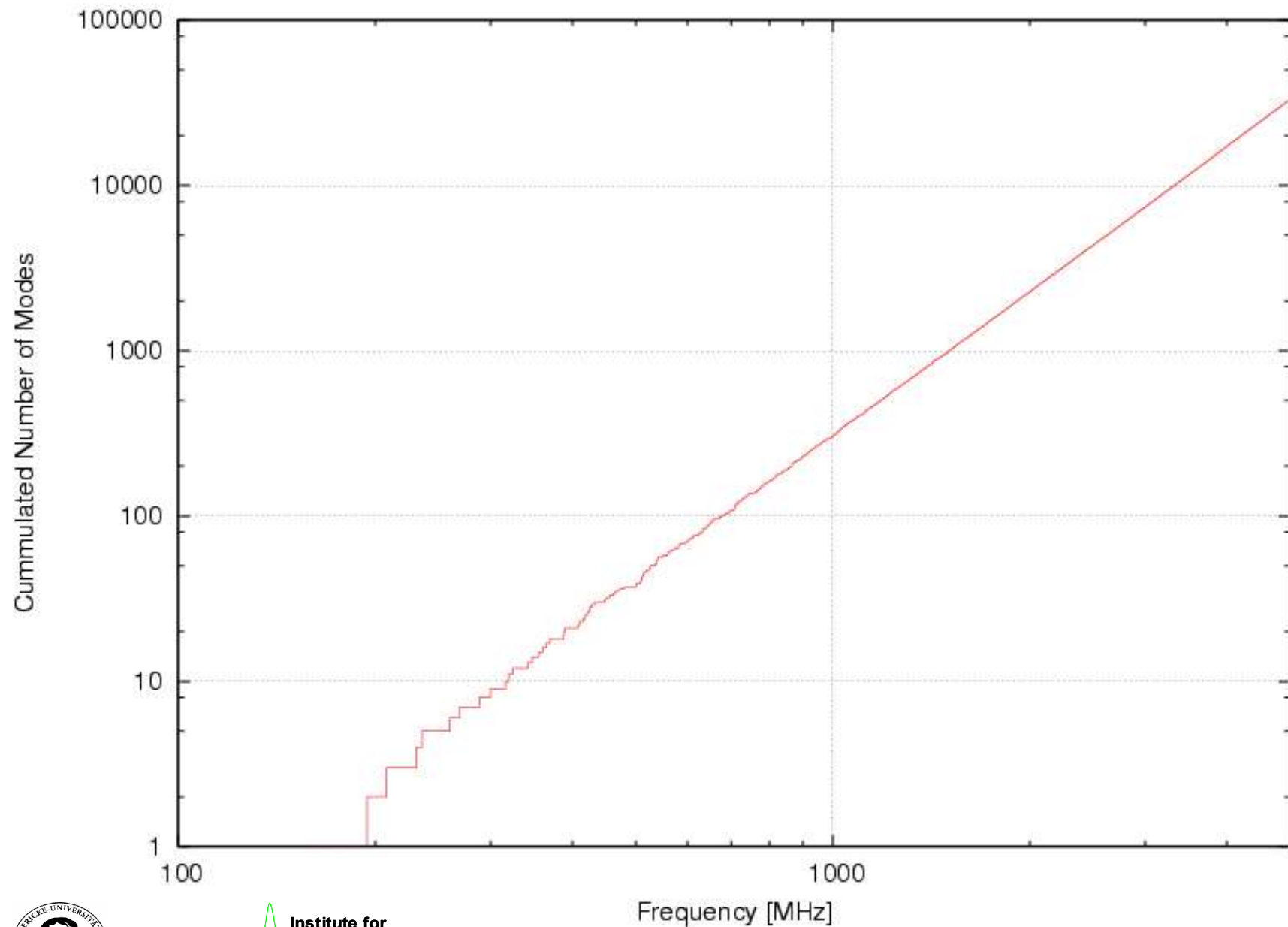
- dimensions:
 - width: 0.25 m
- 1mm copper plates

Characterization

- based on IEC 61000-4-21
- Lowest Usable Frequency: 1 GHz
- autocorrelation -> No. of independent tuner positions
- calibration -> normalized E-Field, standard deviation
-> quality factor (from time domain and from ACF)



Number of Modes

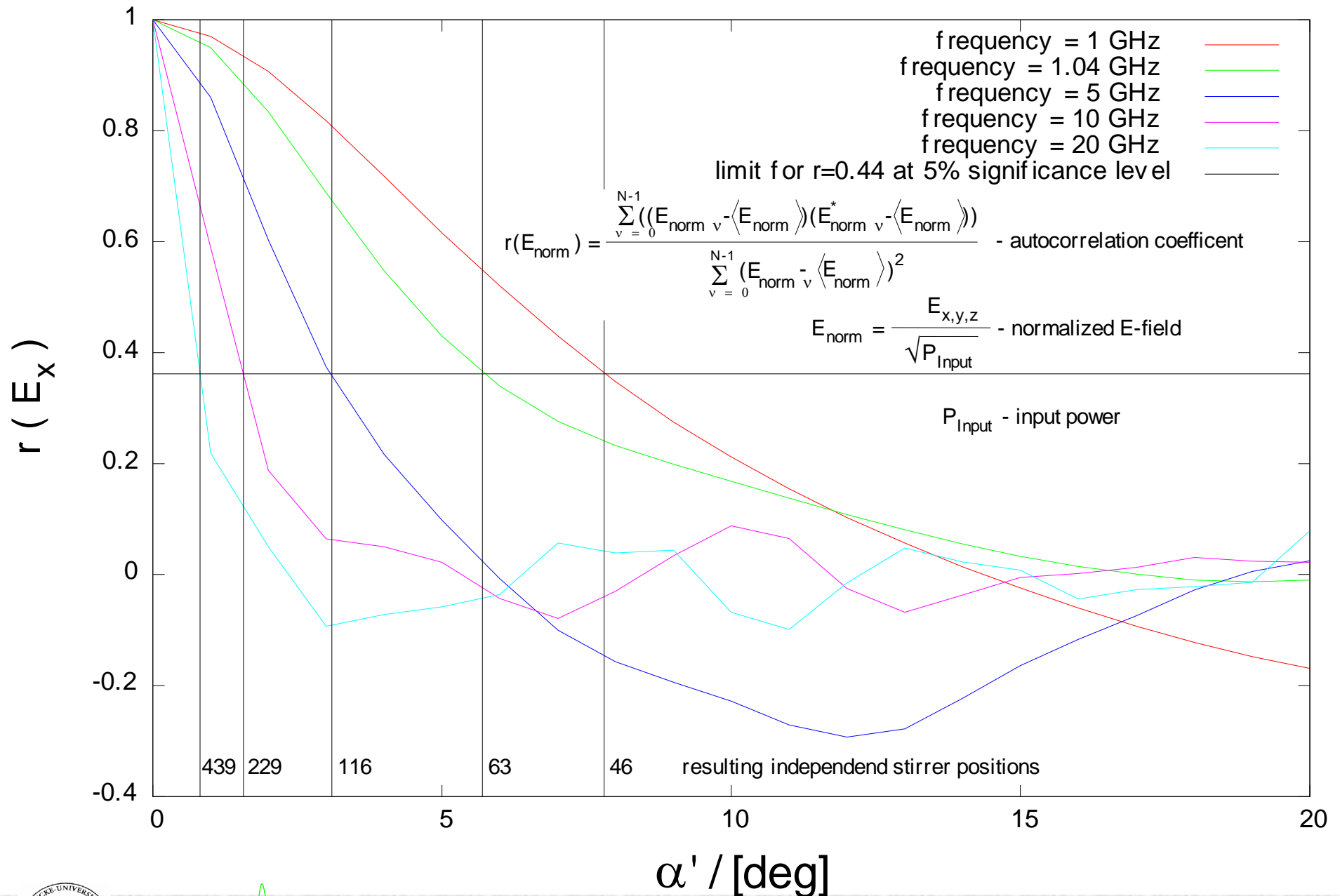


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Independent Stirrer Positions

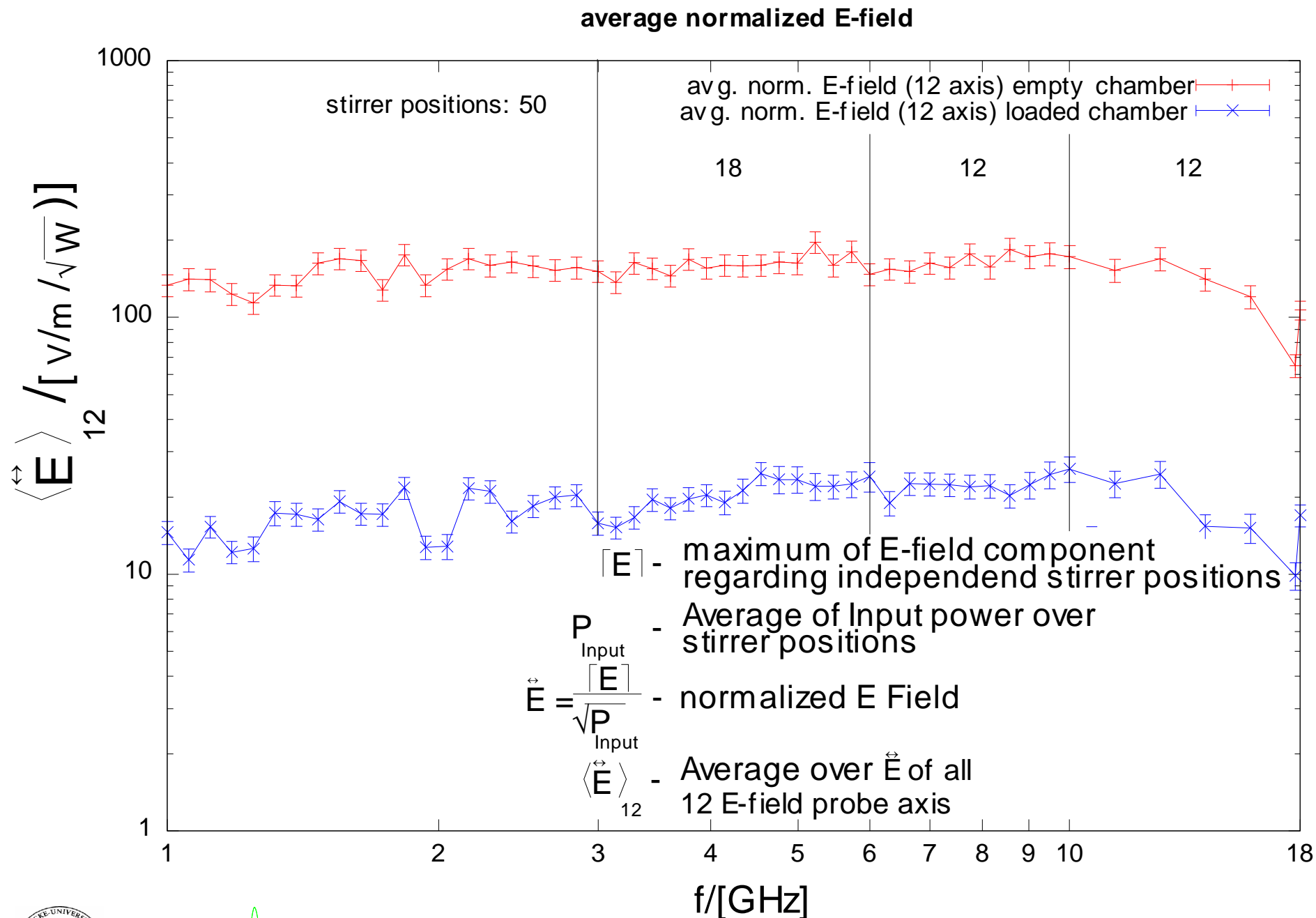
autocorrelation of normalized E-field



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Averaged Normalized E-Field

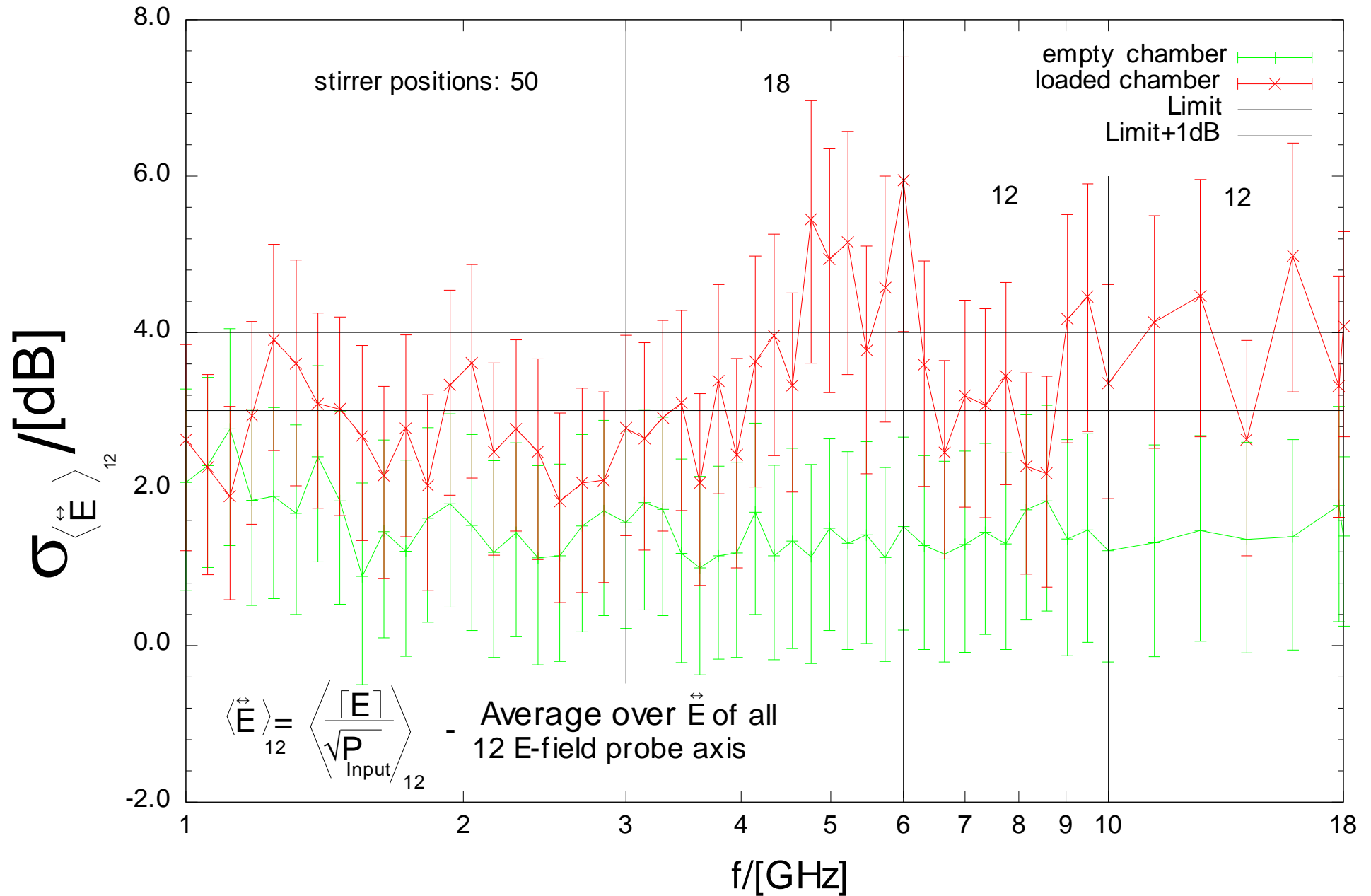


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standard deviation

standard deviation of average normalized E-field (12 axis)

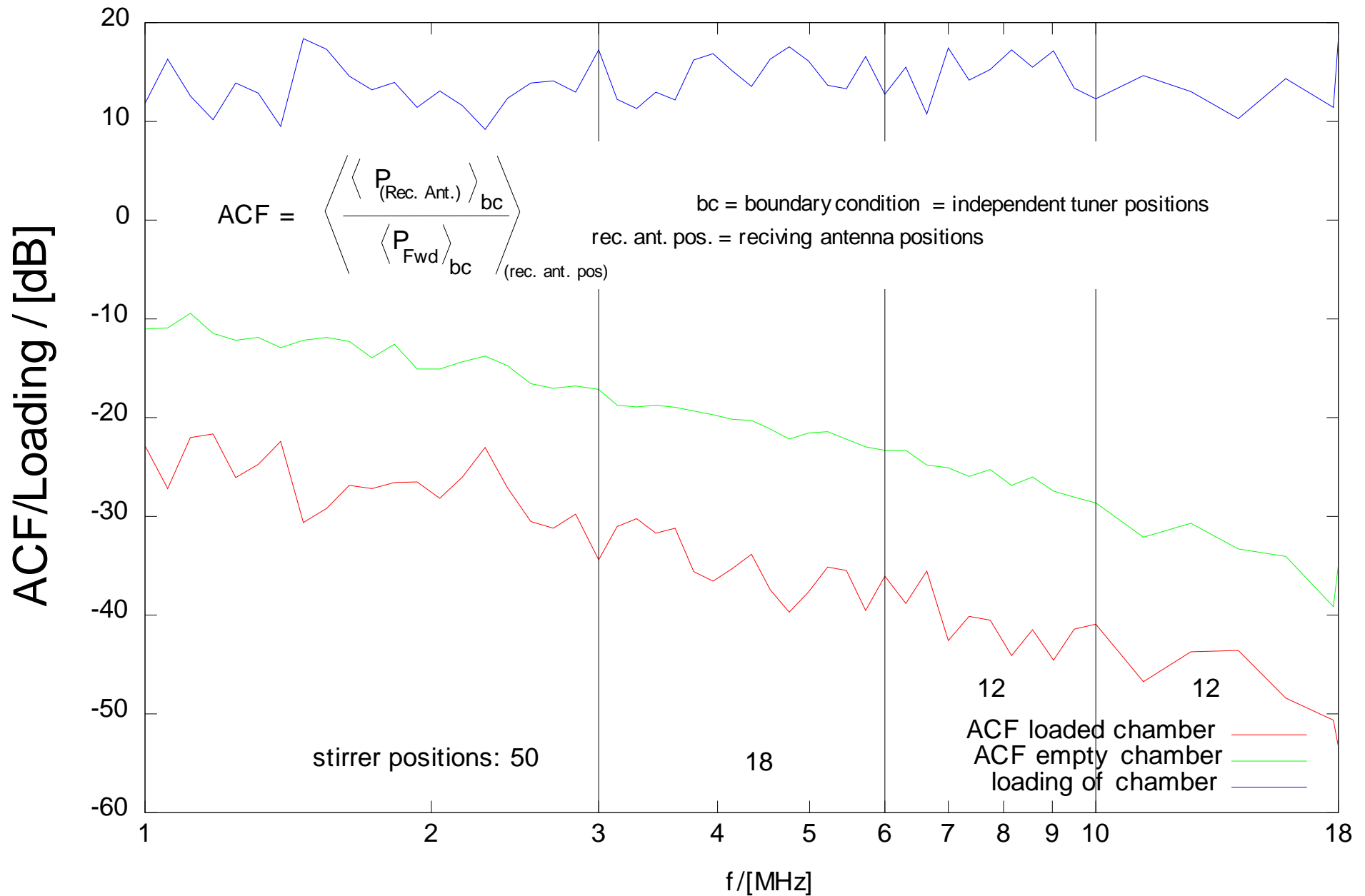


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ACF and Loading

ACF and loading of (small) mode stirred chamber Magdeburg

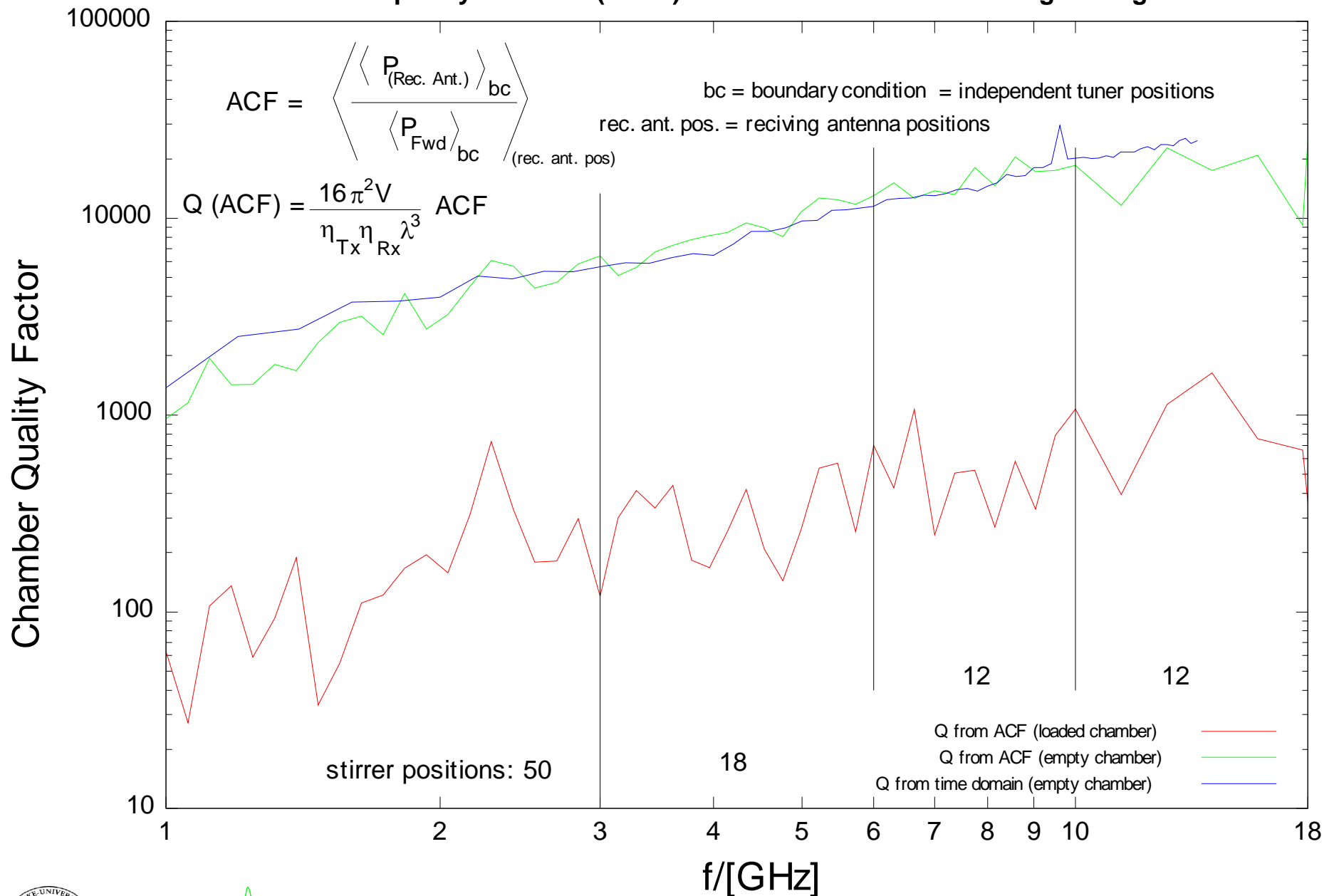


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Quality Factor

quality factor of (small) mode stirred chamber II Magdeburg



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Summary

- **achieved goals:**
 - **1000V/m per 100W at above 1GHz**
 - **simple construction**

