



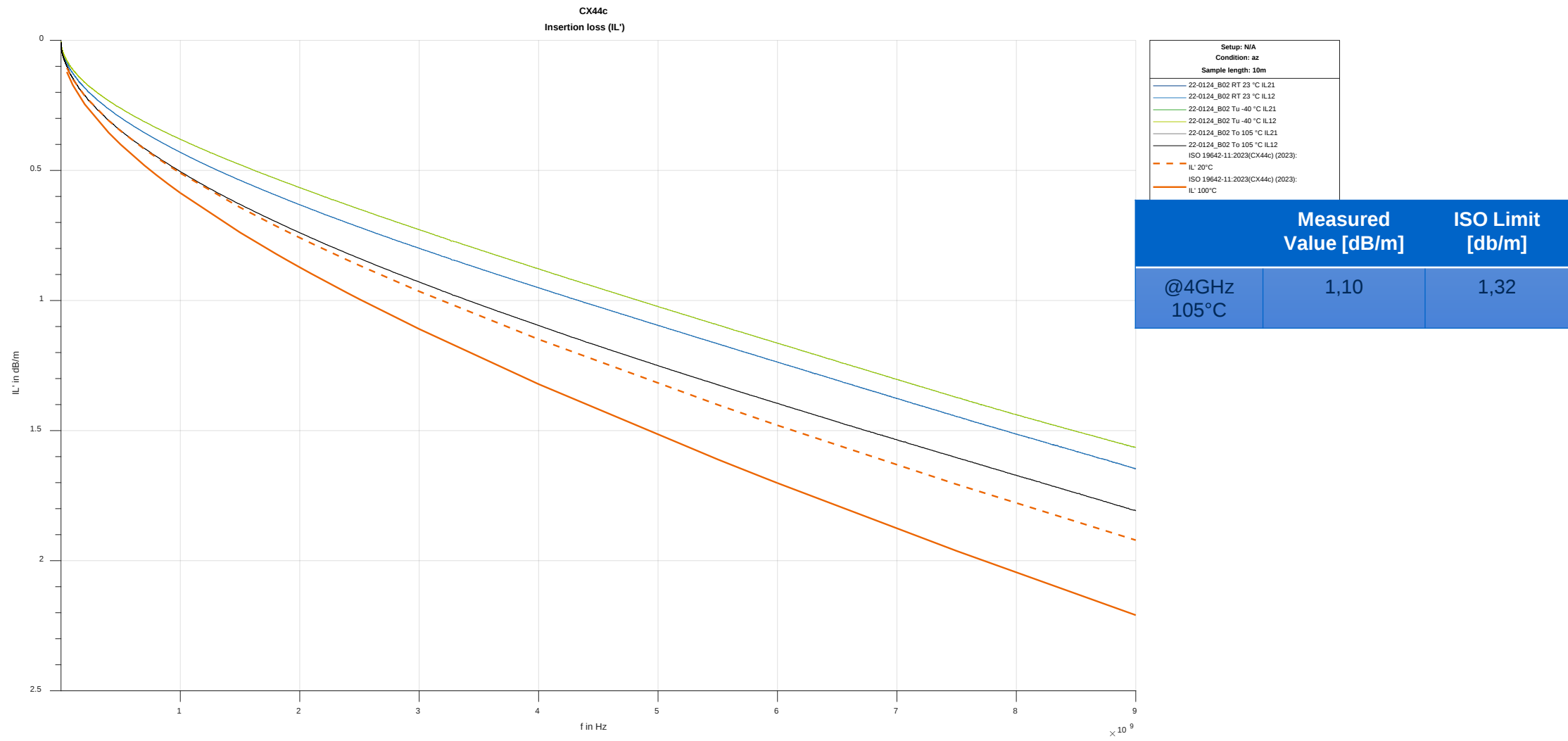
New condition vs aged condition Cable CX44c

Erwin Köppendorfer
affiliated with LEONI

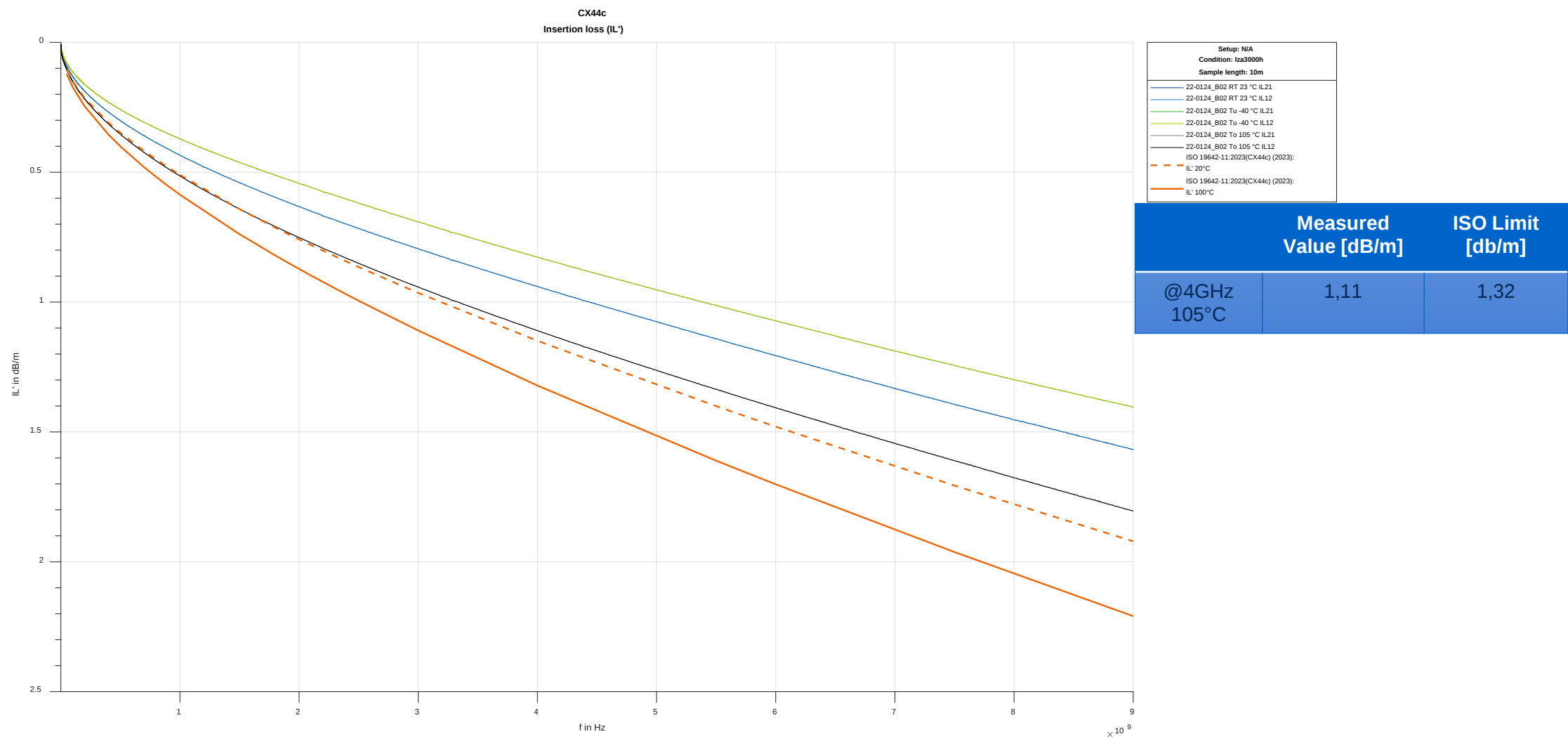
Parameter & Measurement Procedure

- The presentation is intended to provide an insight into how cables change after normative aging.
- The cable type used is defined in ISO 19642-11 (2023-05) as CX44c in section 8.2.11.
- On the following pages, IL and RL are presented in new condition and after 3000h aging
- All tests were carried out as described in the ISO 19642 series of standards
- The measurements were carried out at three temperatures: -40°C, 23°C and +105°C.
- The worst case for this study is +105°C after long term aging
- 105°C is a special temperature in the European market. ISO 19642-11 (2023-05) requested only 100°C
- The measurements are carried out between 1MHz up to 9GHz (like defined for CX44c)
- Sample length 10m. No gating used

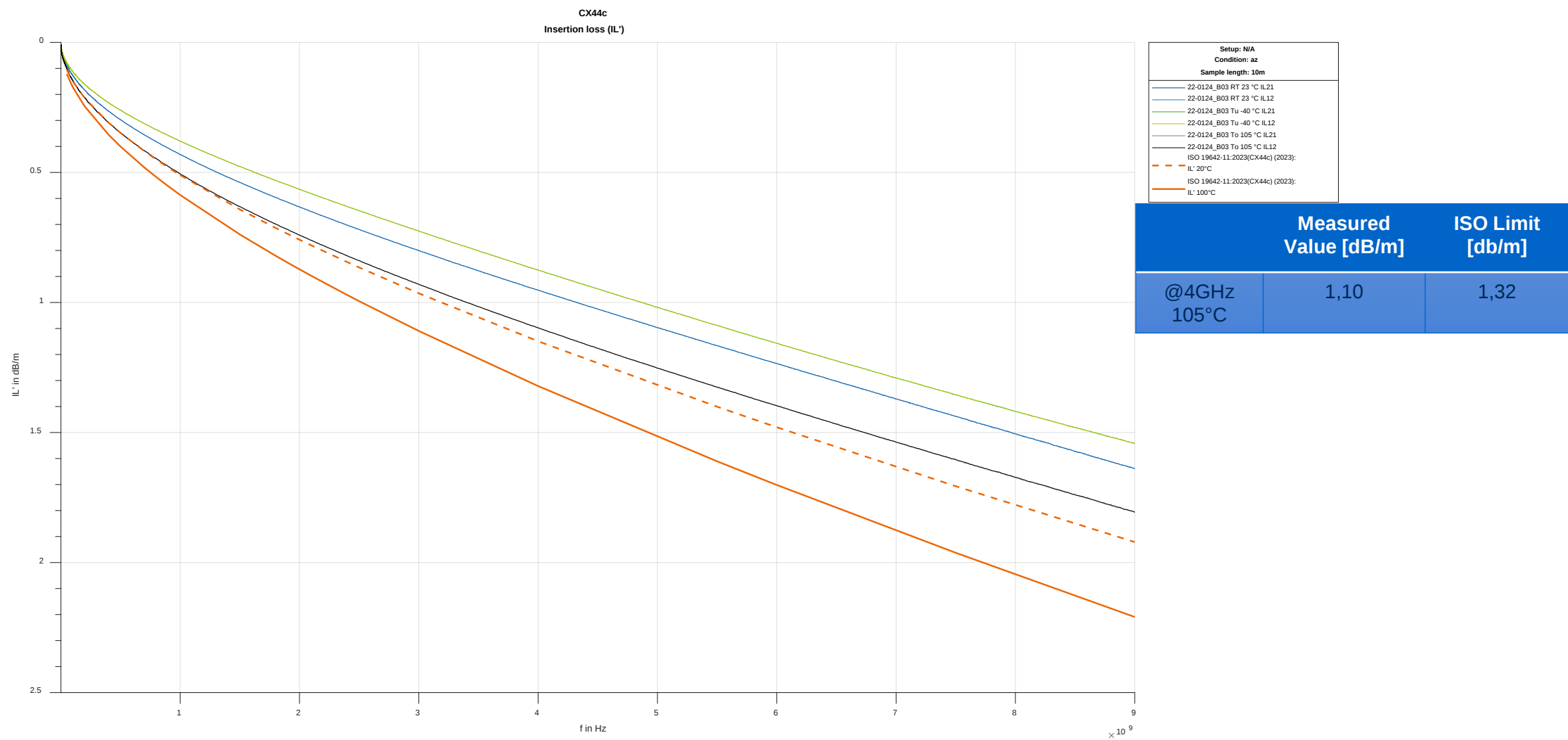
Results sample 1 - new condition



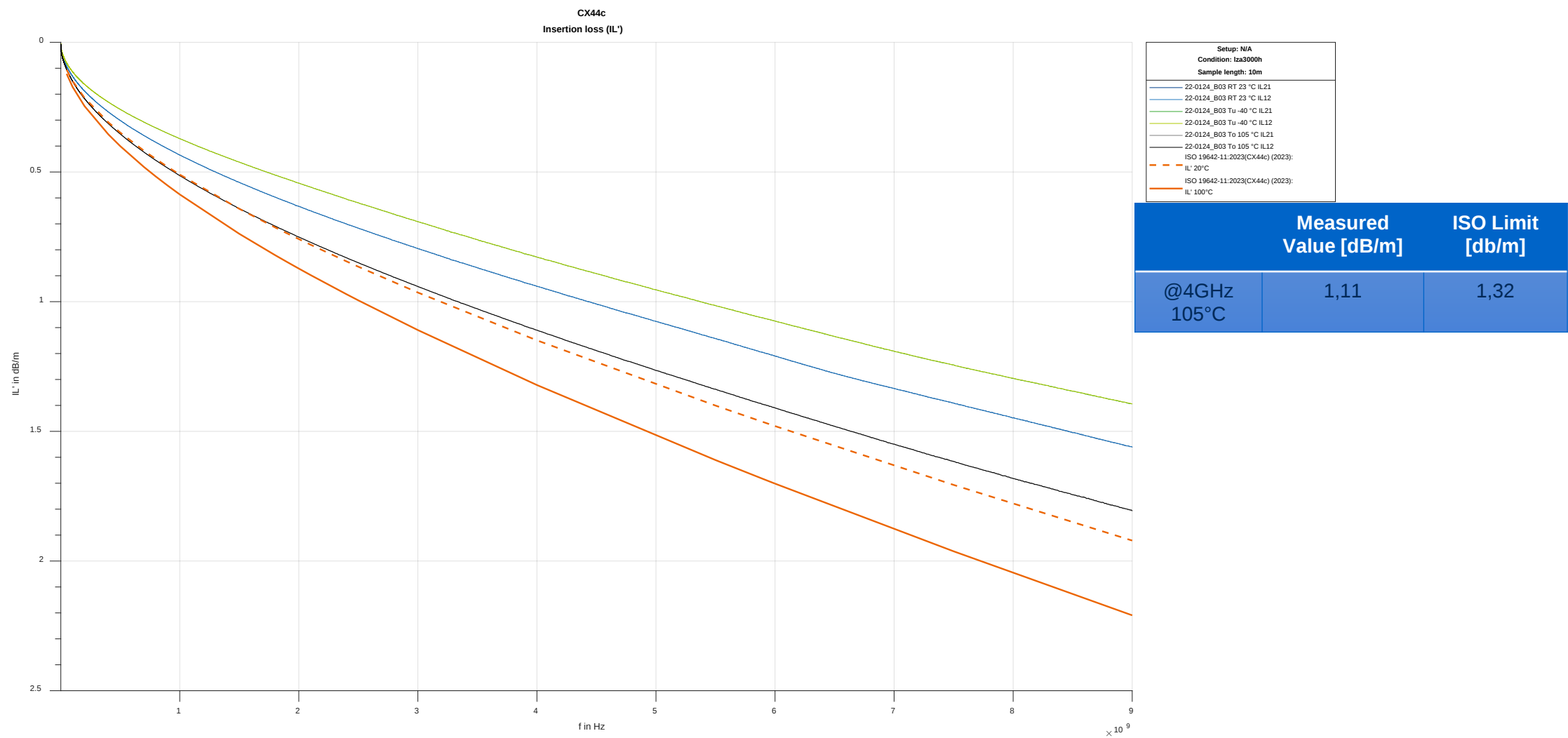
Results sample 1 – after 3000h aging@105°C



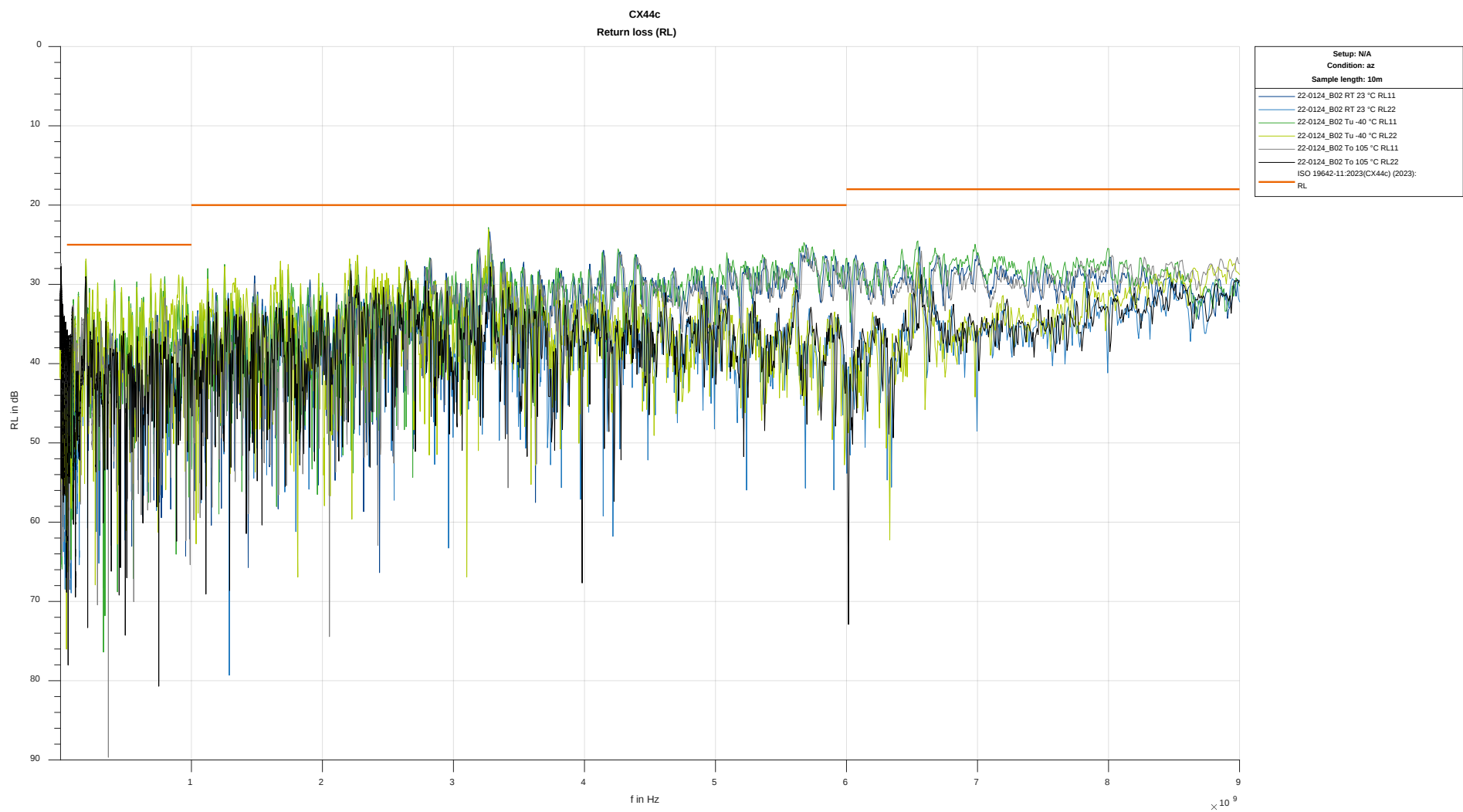
Results sample 2 – new condition



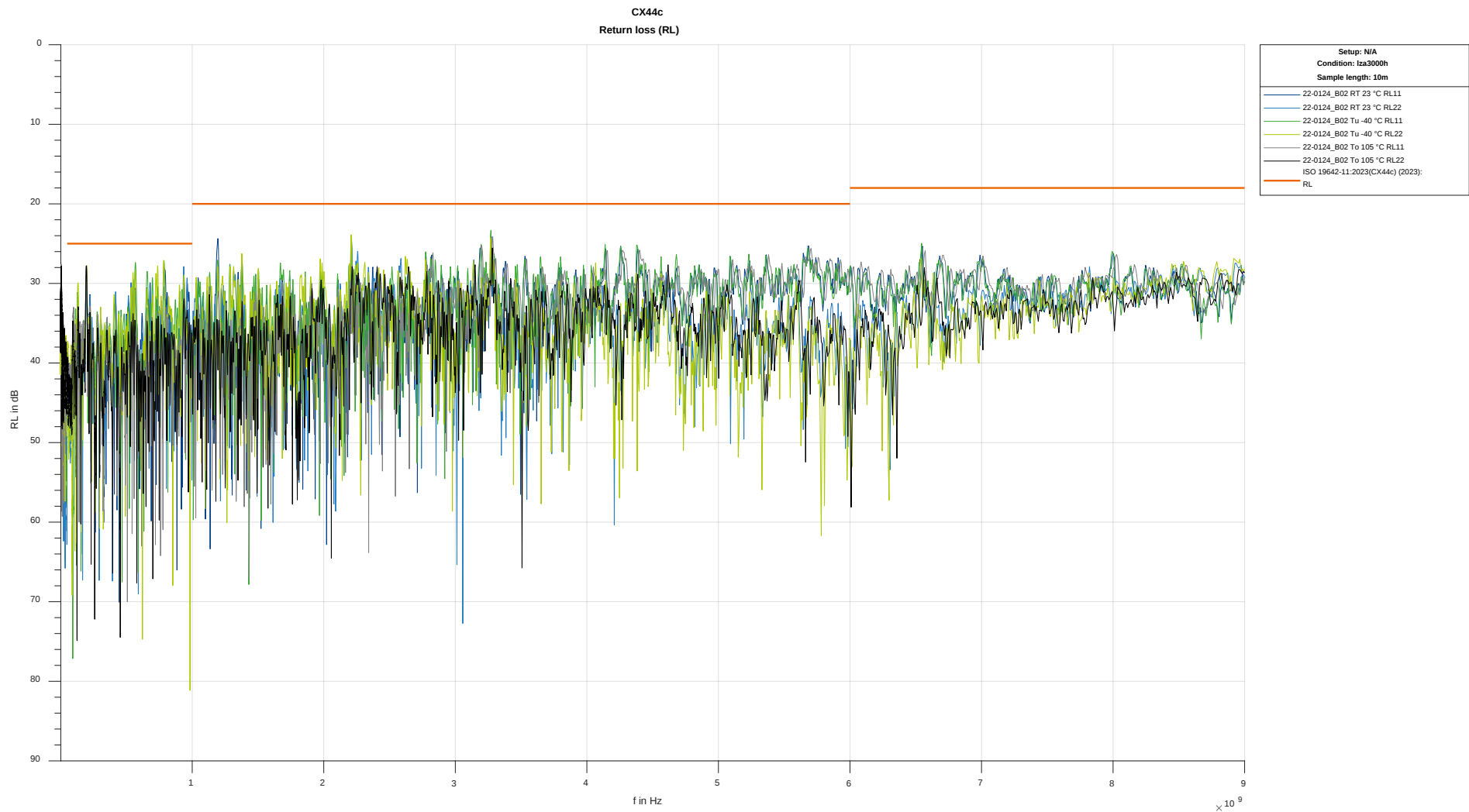
Results sample 2 – after 3000h aging@105°C



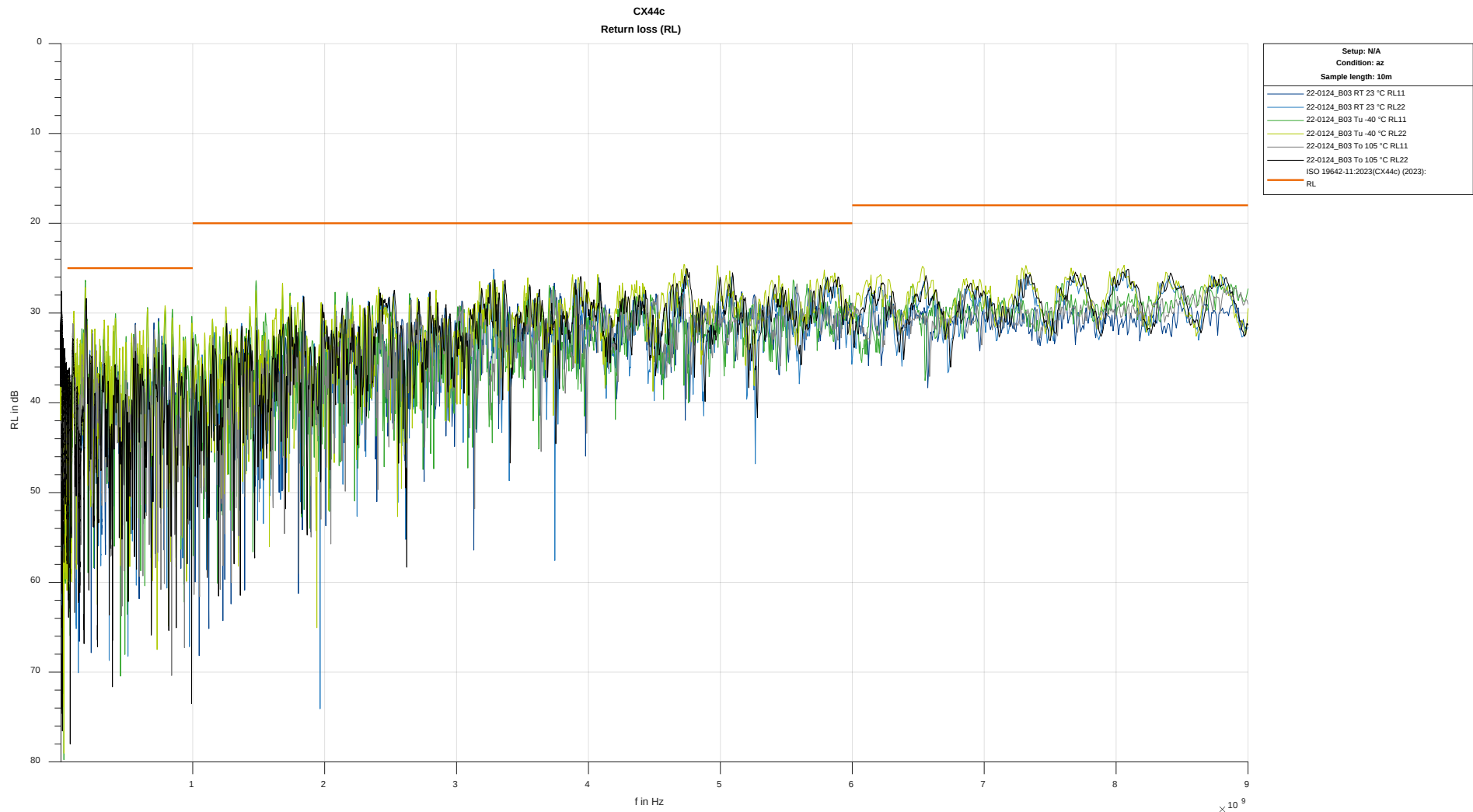
Results sample 1 – new condition



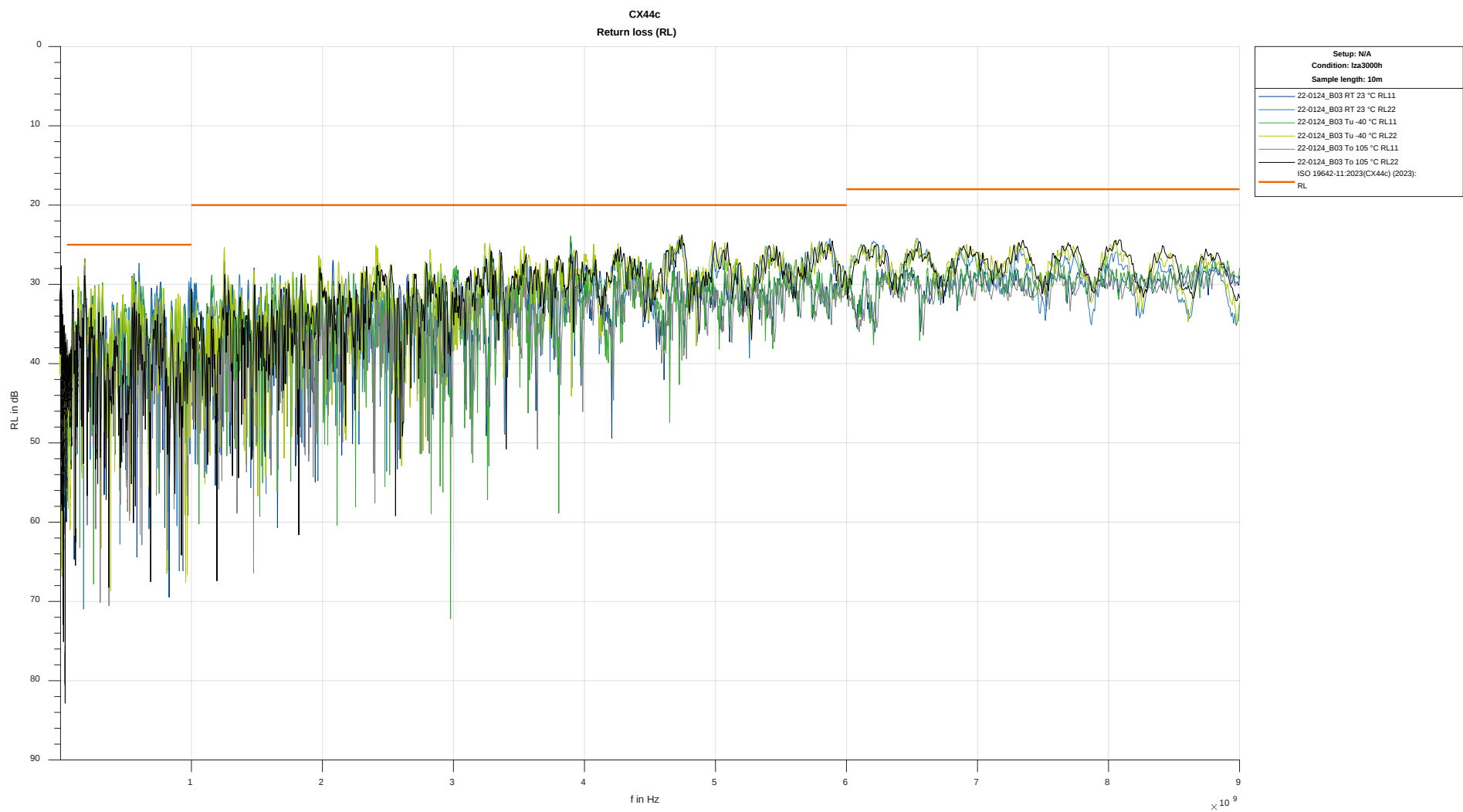
Results sample 1 – after 3000h aging@105°C



Results sample 2 – new condition



Results sample 2 – after 3000h aging@105°C



Conclusion

- The normative aging for 3000h by the highest using temperature have very small influence on the performance.
- The from ISO defined limit curves are designed for all normative needed tests. The margin is for the aging more than enough.
- Margin between ISO IL-Limit and measured values is ~ 15% (@4GHz). This covers unexpected effects
- Return loss and Insertion Loss shows almost no aging influence
- Margin for the measured return loss to the ISO RL-Limit is more than 1dB at any point.

Thanks for your attention!

Contact

Erwin Koeppendoerfer
Senior Expert

E-Mail: erwin.koeppendoerfer@leoni.com

www.leoni.com