ISO 16254 / SAE J 2889-1 Development Status

Doug Moore
Convener ISO WG42
Task Force 3 Lead, SAE VSP
QRTV #4, Washington DC, July 16-18 2013

Overview

- Action since last QRTV
- Review of text
- Review of technical findings
- Comments from QRTV IG members
- Forecast of future work

Action since last QRTV

- ISO WG42 meeting in Warsaw, Poland – April 2013
  - Review of text to address all issues identified in ballot comments as well as all issues identified in SAE comments to NHTSA NPRM.

- Joint SAE/ISO meeting at SAE HQ, Troy, Michigan – June 2013
  - Review of testing work conducted for the purpose of evaluating the draft text for technical accuracy, practability, and clarity.

Current draft test procedure

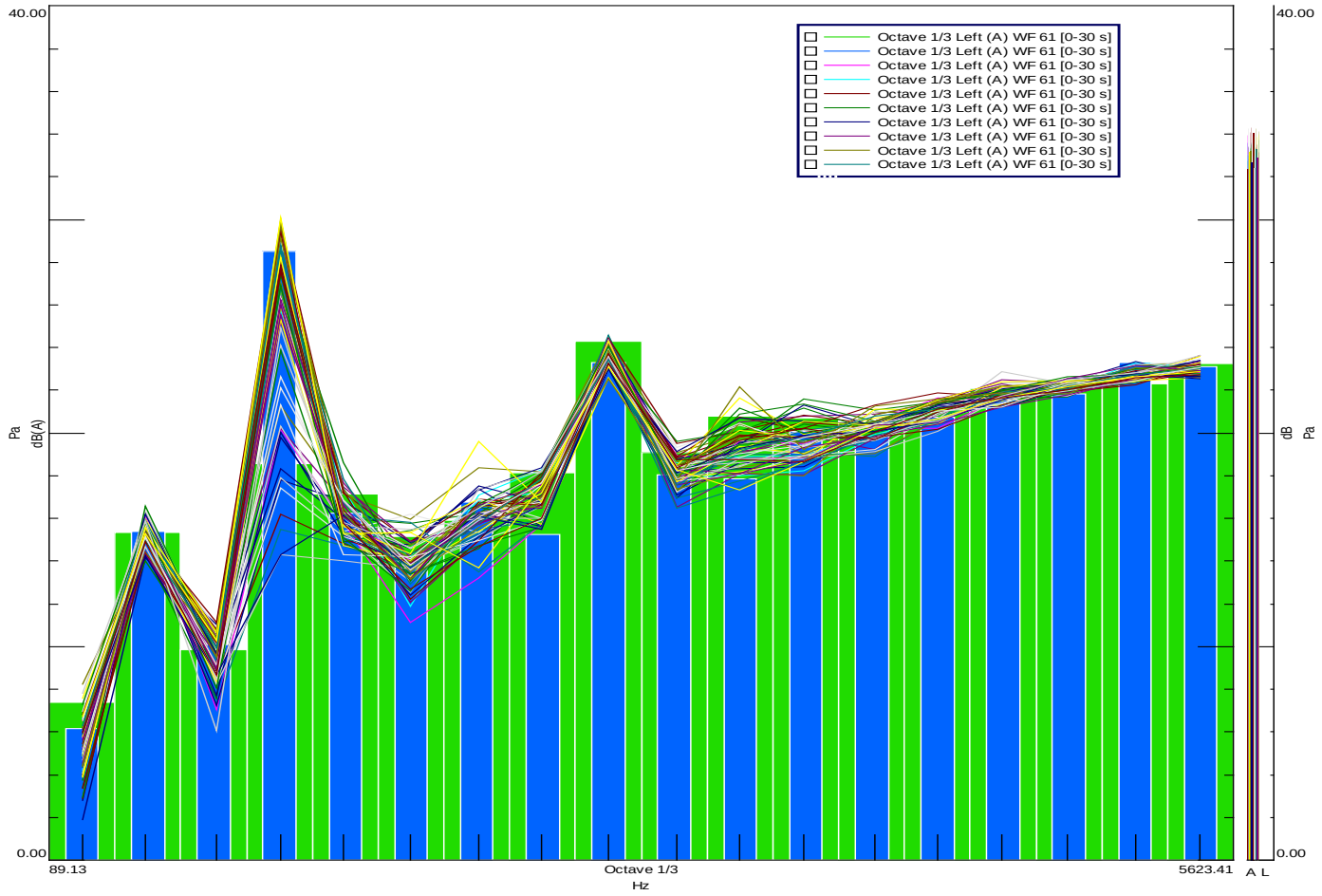
- ISO 16254 editorial version. SAE J2889-1 is technically identical.

ISO 16254 Draft
JUly 2013

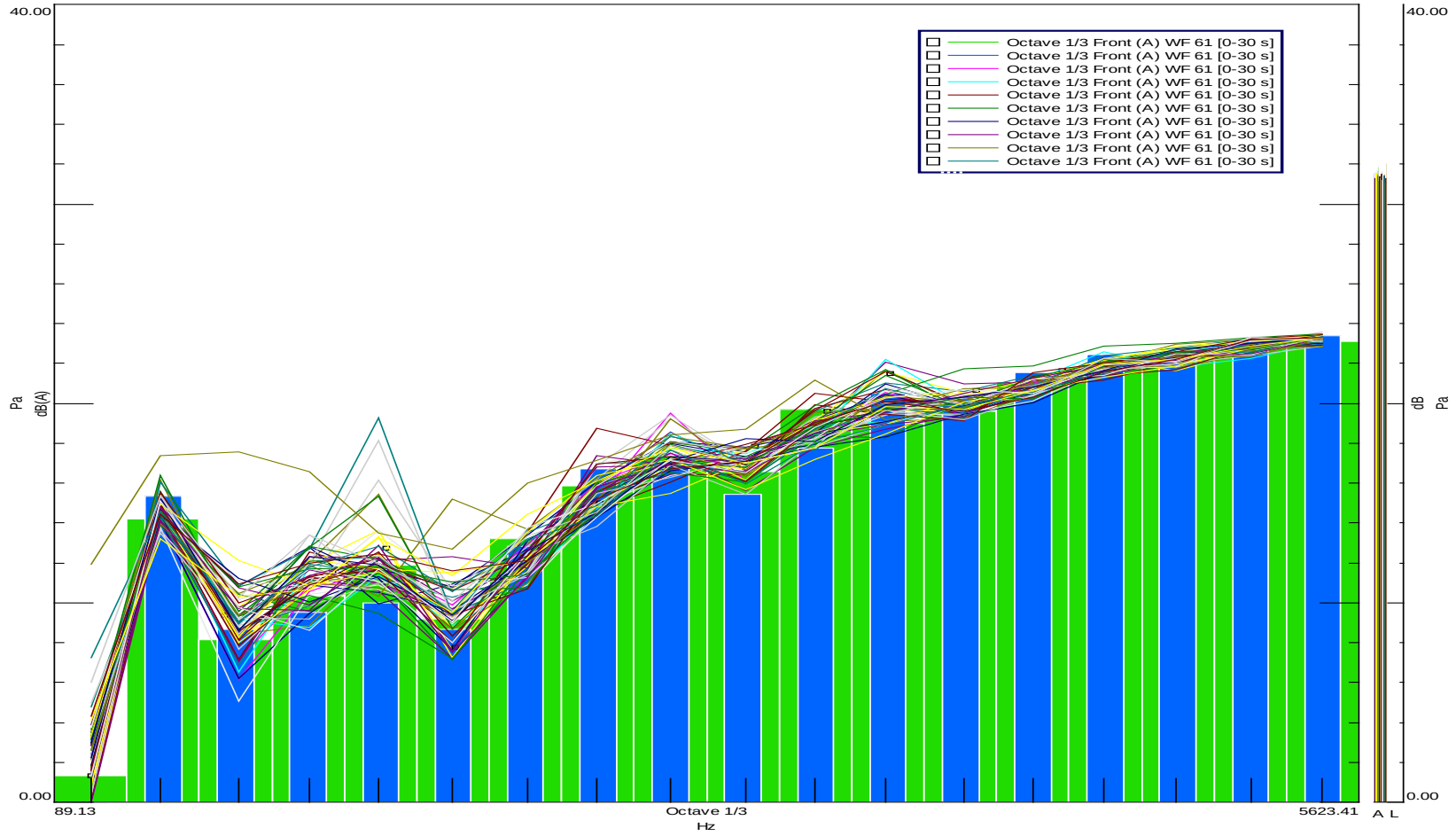
Technical Findings

- Both overall SPL and 1/3 octave results can be measured and reported with sufficient precision.
  - Treatment of background noise for 1/3 octave analysis established.
  - Proper treatment of modulated signals remains as an outstanding topic.
- Pitch shift can be measured and reported with sufficient precision.

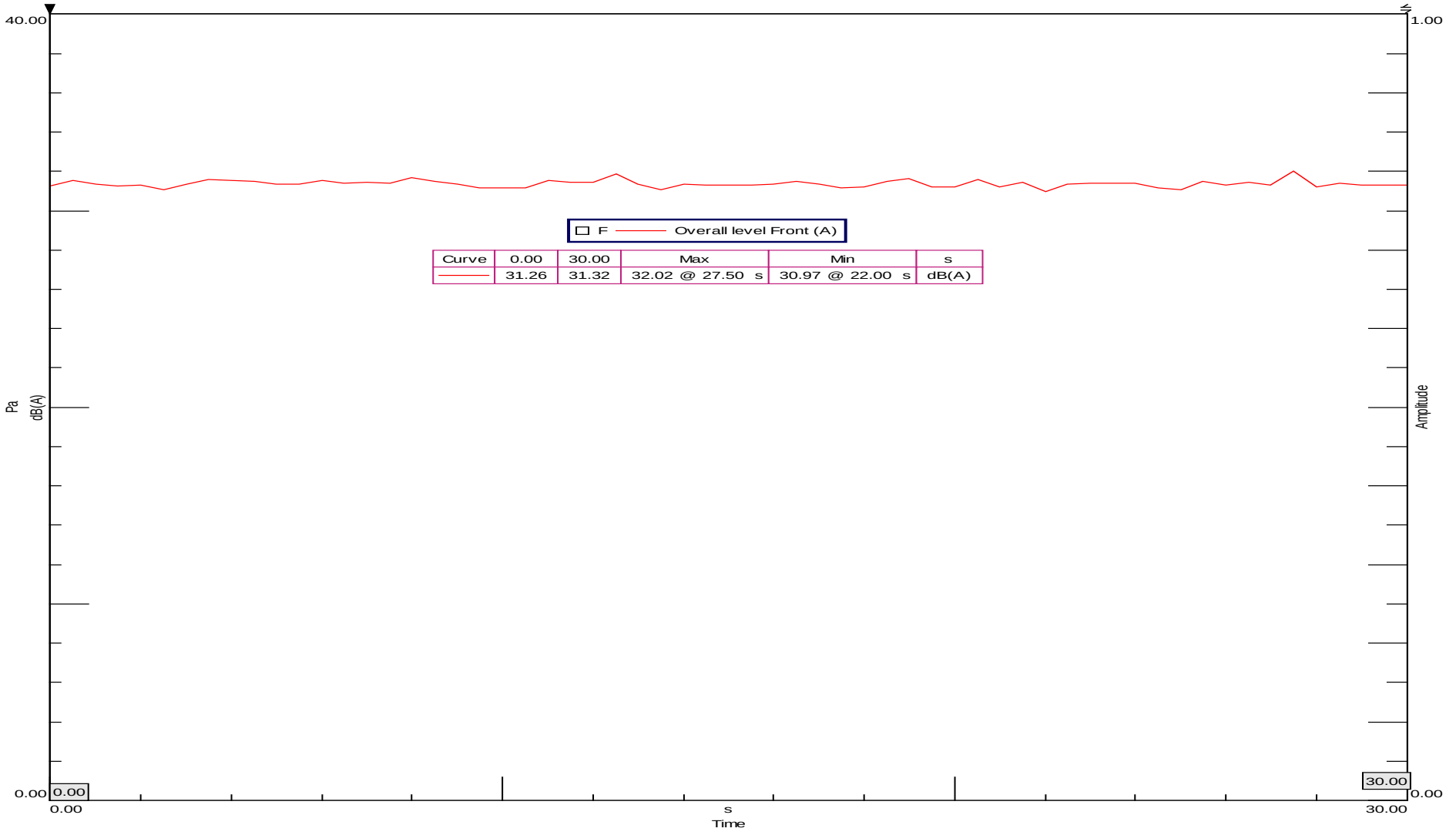
Indoor 1/3 Octave Measured Data – Equipment On



Indoor 1/3 Octave Measured data – Equipment OFF



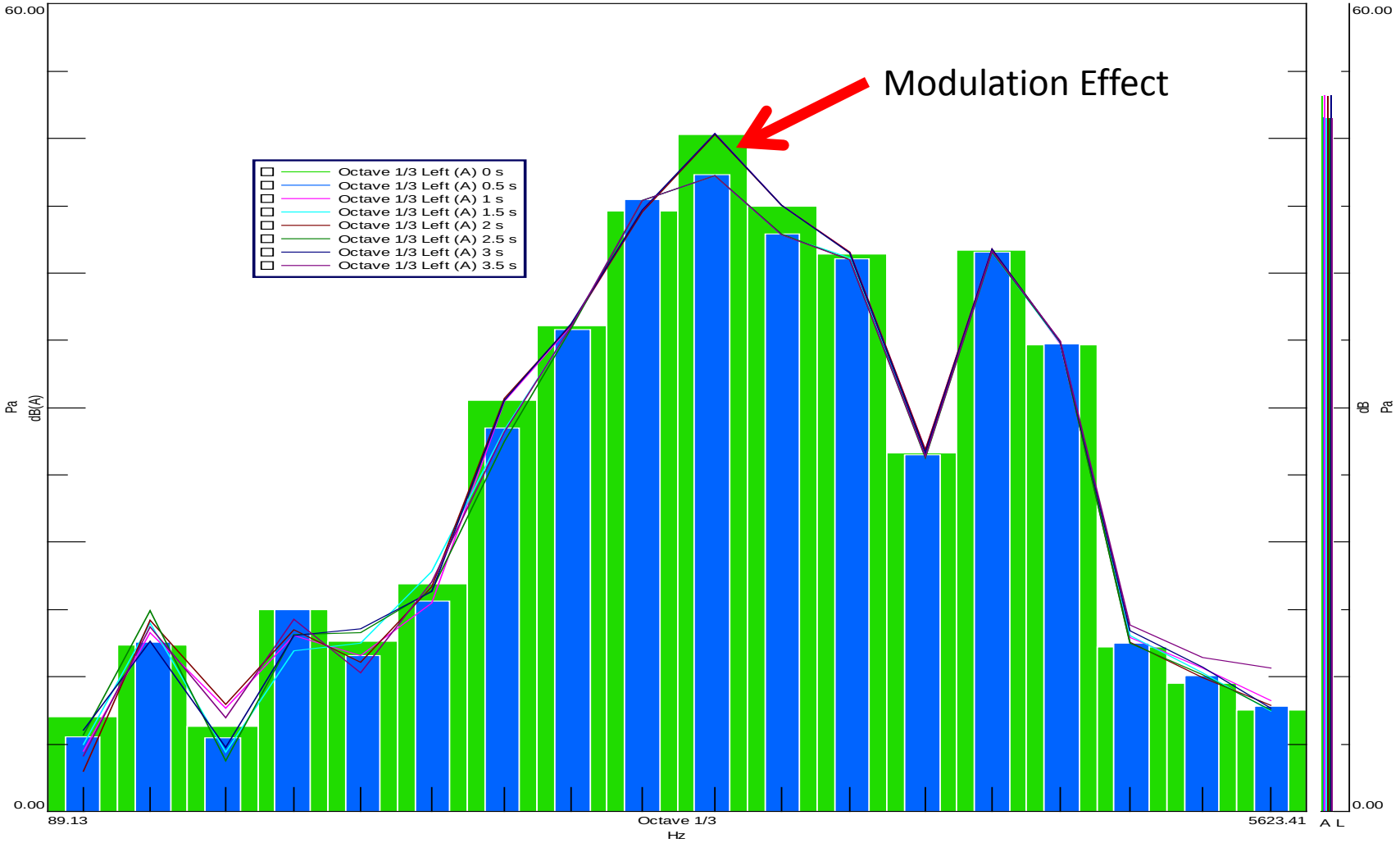
Background Ambient Fluctuation – Overall SPL: Equipment OFF



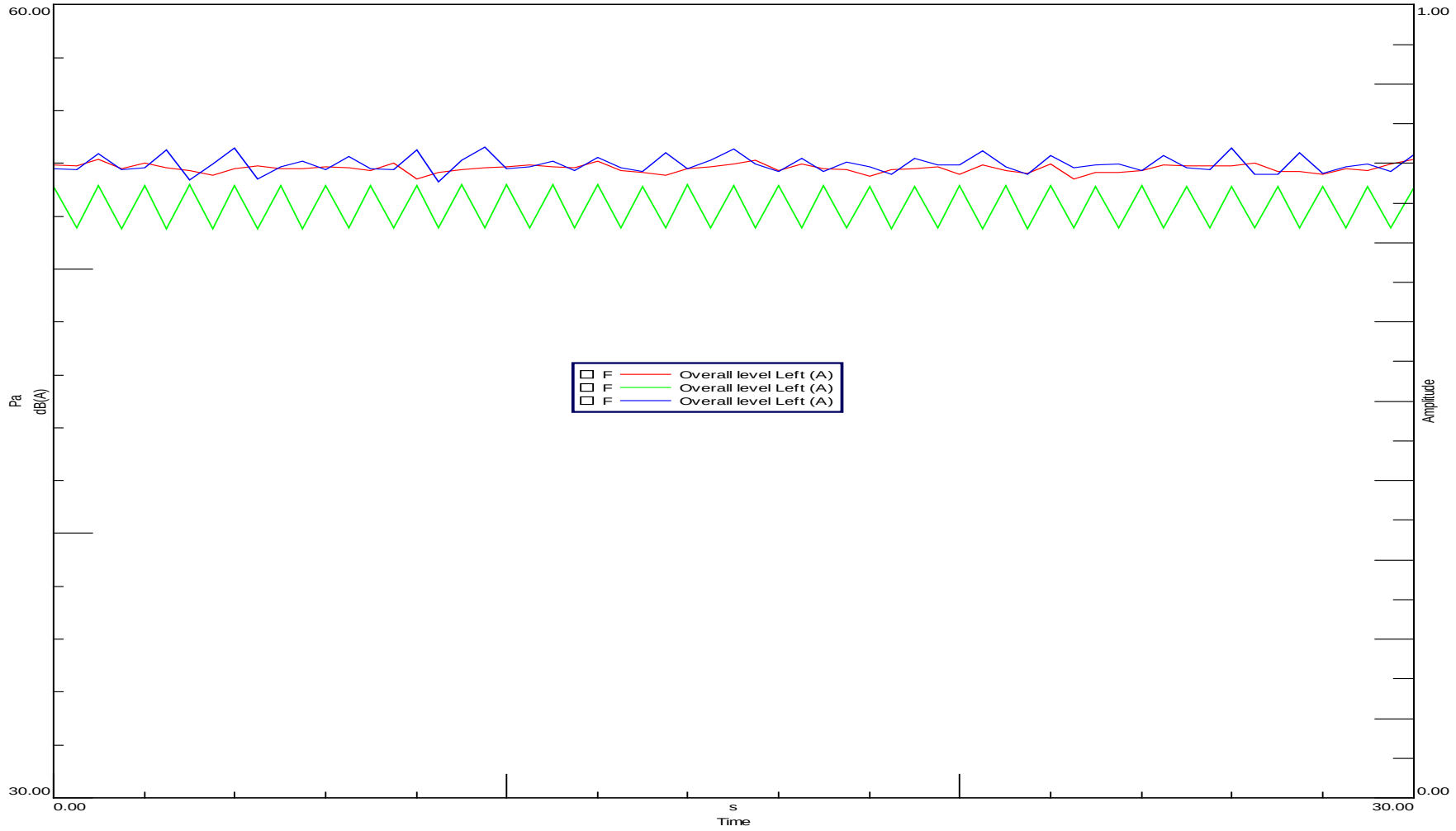
Background Ambient Comments

- Measurement using IEC/ANSI 1/3 octave specifications successfully performed.
- Resulting fluctuation, while low, is still potentially significant.
- **Conclusion**: Using the maximum in each 1/3 octave band, and the overall SPL, as the basis for determining if the facility is acceptable is a practical and feasible specification.

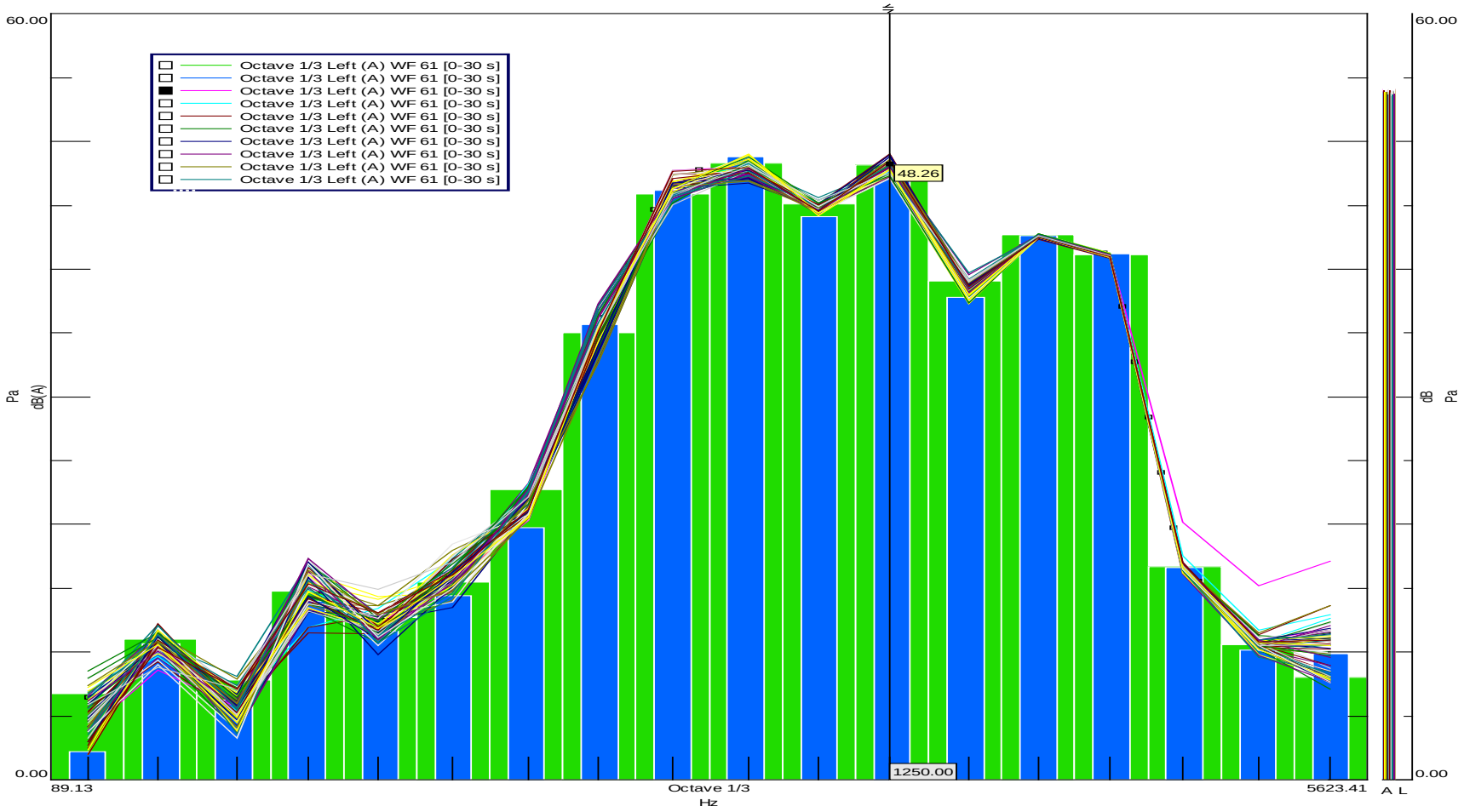
Indoor Measurement of 1/3 octaves – 0 km/hr



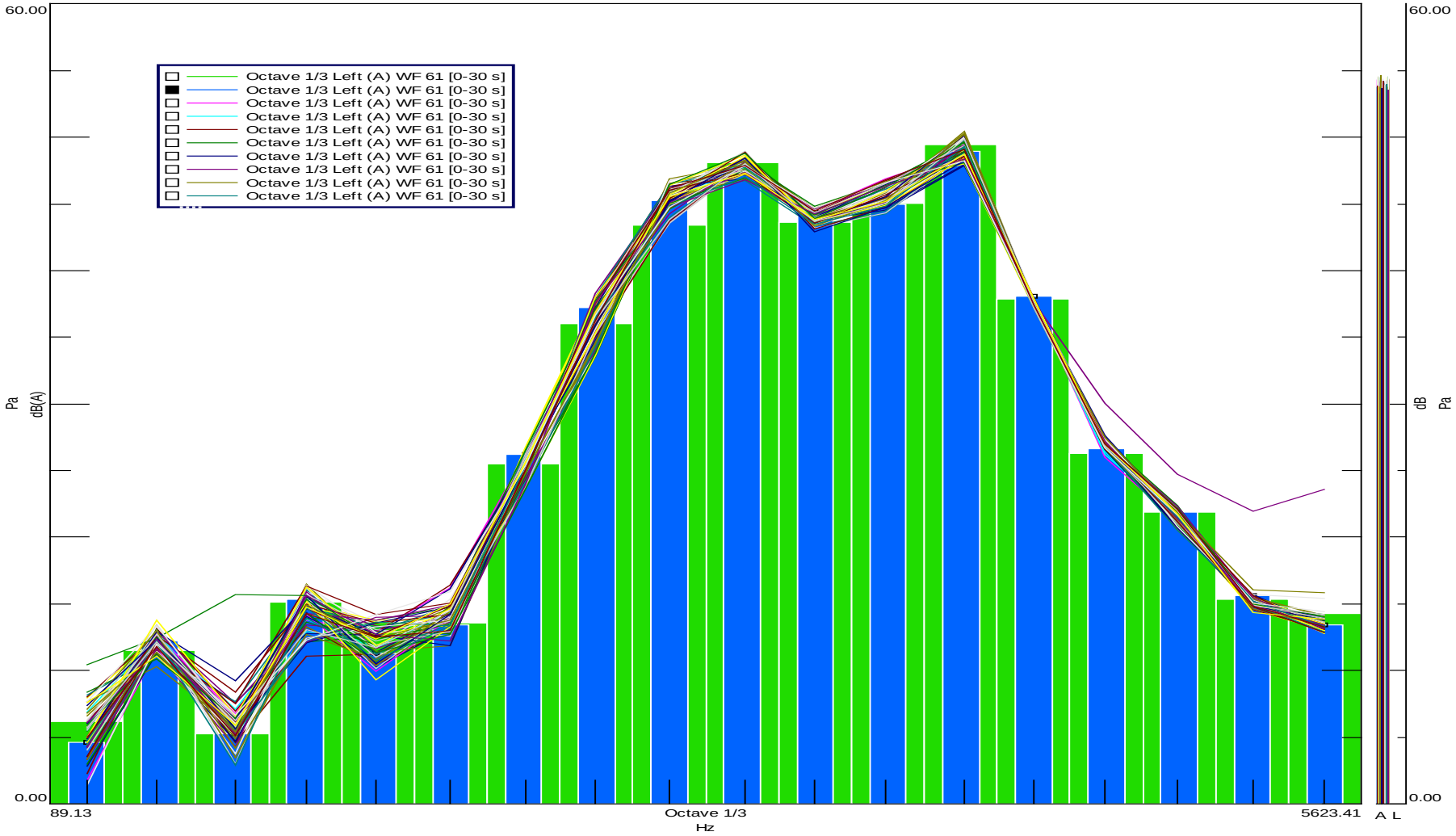
Measurement of SPL (0, 10, 20 km/h)



Indoor Measurement of 1/3 Octaves – 10 km/hr



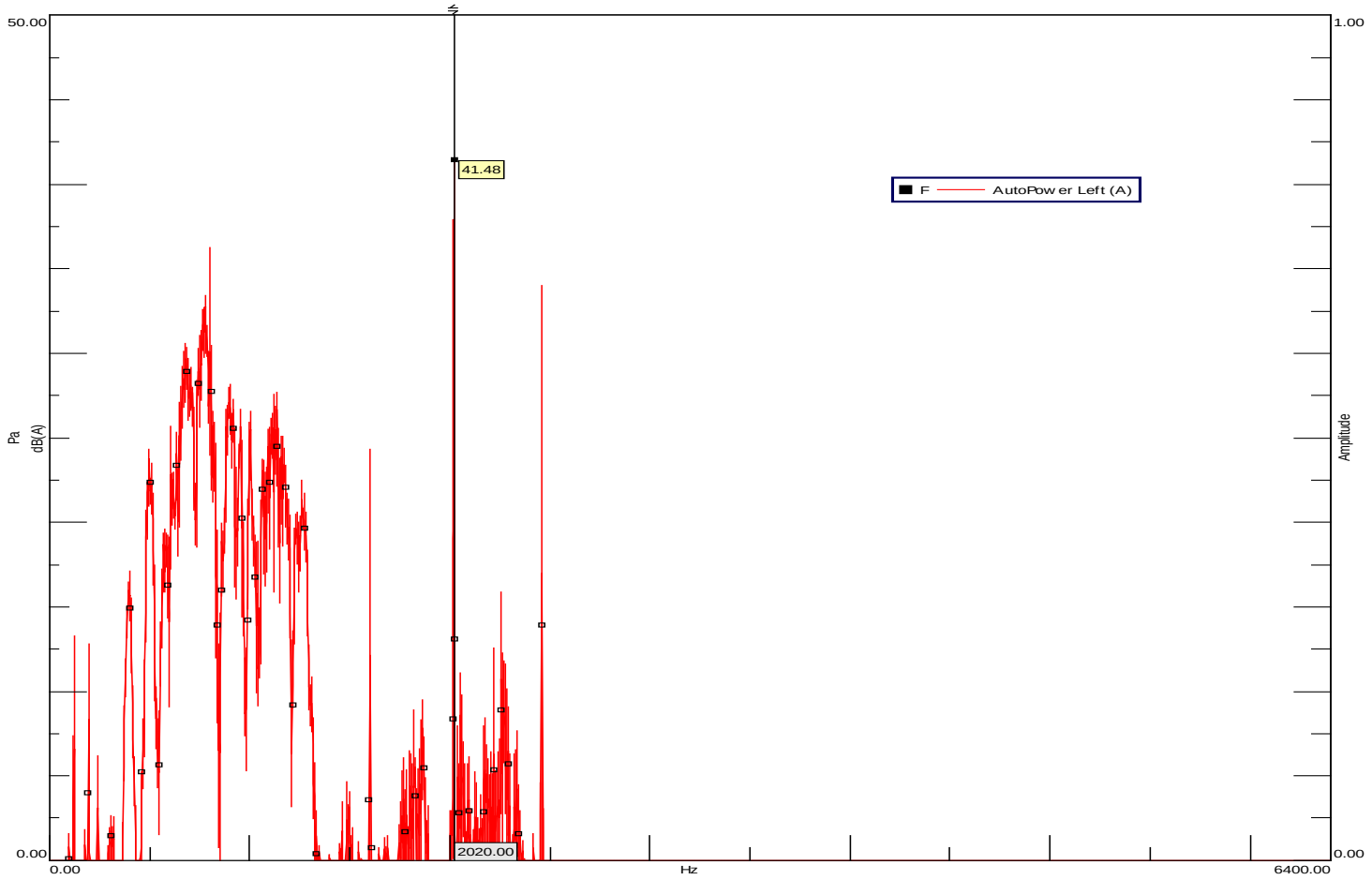
Indoor Measurement of 1/3 Octaves – 20 km/hr



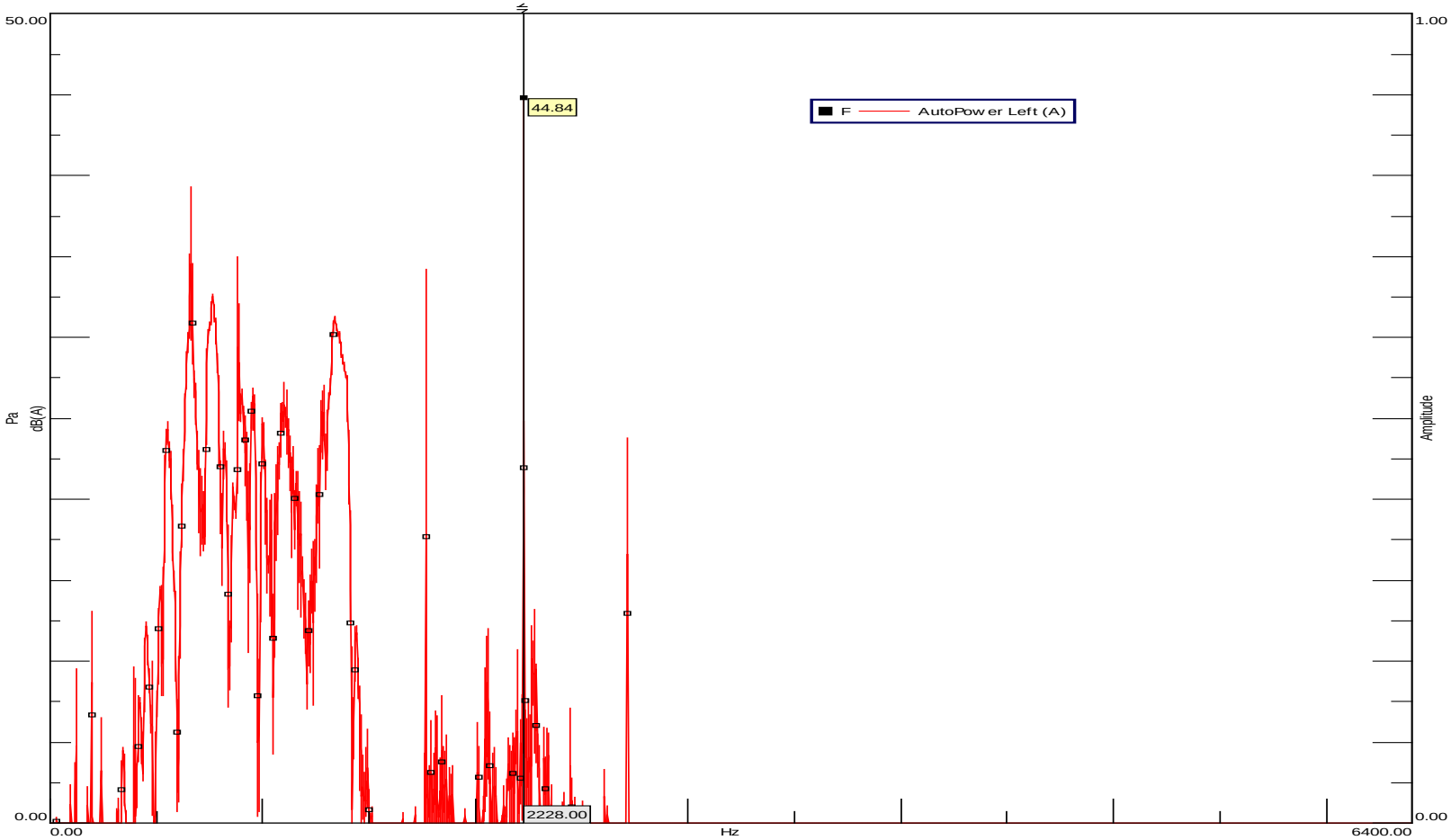
Measurement of 1/3 Octaves Comments

- Sounds incorporating modulation will have effective detection distance underreported by using linear averaging.
  - Maximum 1/3 octave?
- Need to consider if and how to account for modulation

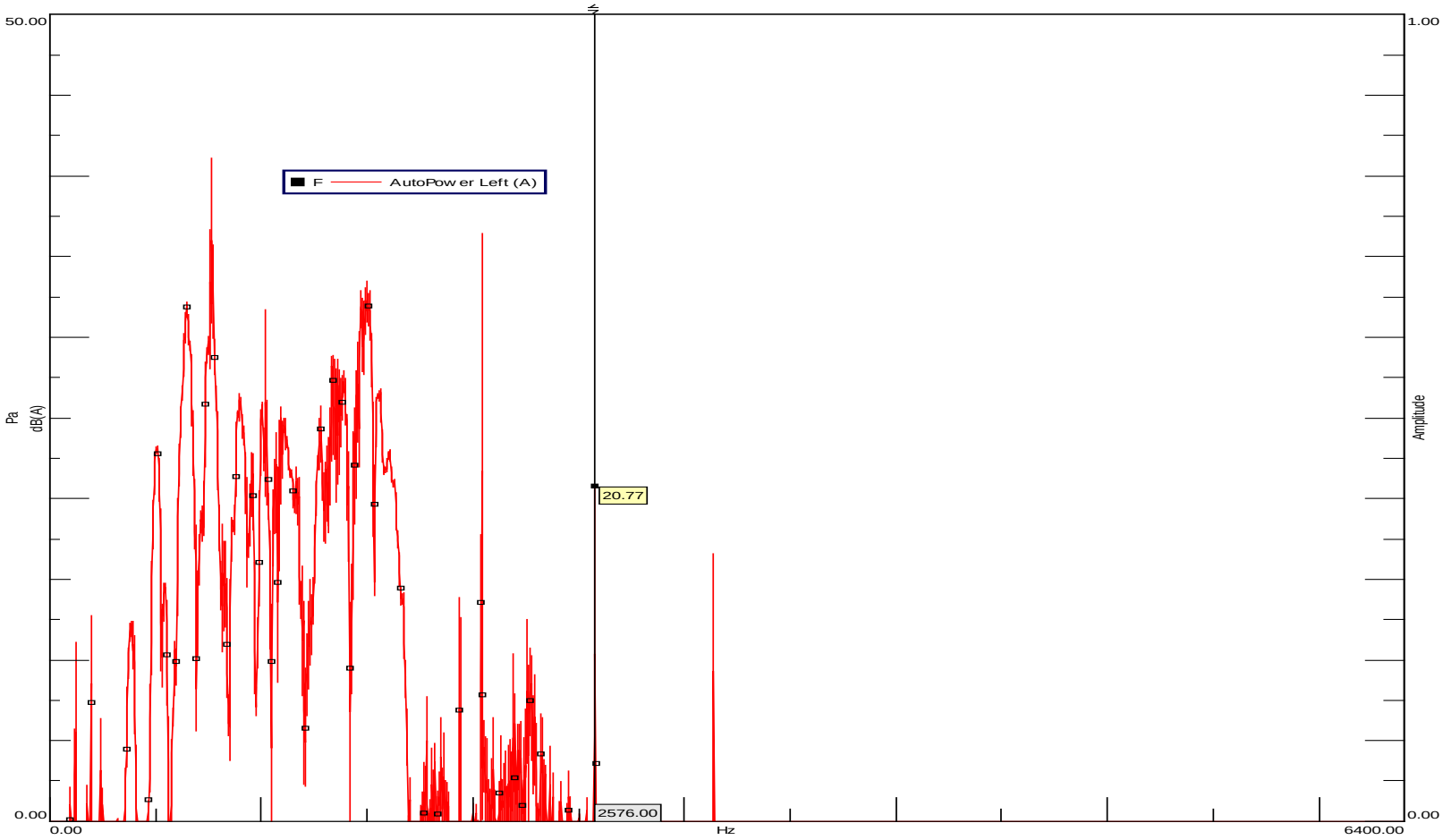
Indoor Measurement of frequency shift – 0 km/hr simulated speed.



Indoor Measurement of Frequency Shift – 10 km/hr simulated speed



Indoor Measurement of Frequency Shift – 20 km/hr simulated speed



Frequency Shift Comments

- Narrowband measurement indoors with simulated vehicle speed provides means to accurately and precisely identify frequency shift.
- Confirm this procedure is viable and technically accurate enough for regulatory purposes.

Comments from QRTV members

- Does the draft text provide for all necessary measurements to allow compliance verification for expected regulatory performance standards?

Forecast of Future Work

- July-September 2013: Continuing technical evaluations
- October 2013: ISO WG42 meeting to evaluate draft text (China). Target is to have CD ballot document as meeting outcome. Will also ballot in parallel the SAE J2889-1 document.
- 2014: Continue technical work as identified:
  - Resolution of any identified technical issues.
  - Incorporation of any comments from QRTV IG or GRB regarding fitness for purpose.
  - Expect ISO DIS document submitted for ballot in 2014.
  - SAE and ISO will maintain technical commonality of texts.

Thank you

- Other questions?