

# Acoustic Pass-by Test of the Europe Train

## First preliminary results

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DB Systemtechnik GmbH

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H. Heckelmueller

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T.TVI32(3)

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# Europe Train

## Train Configuration:

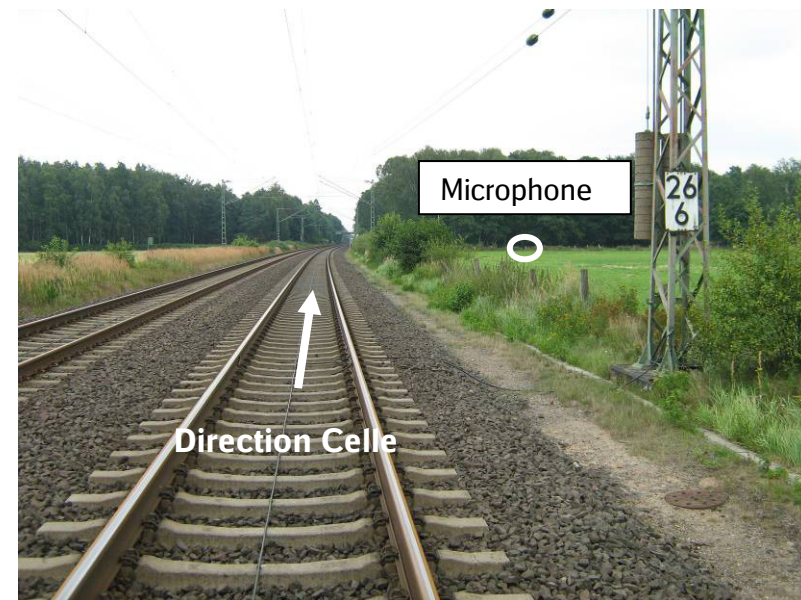
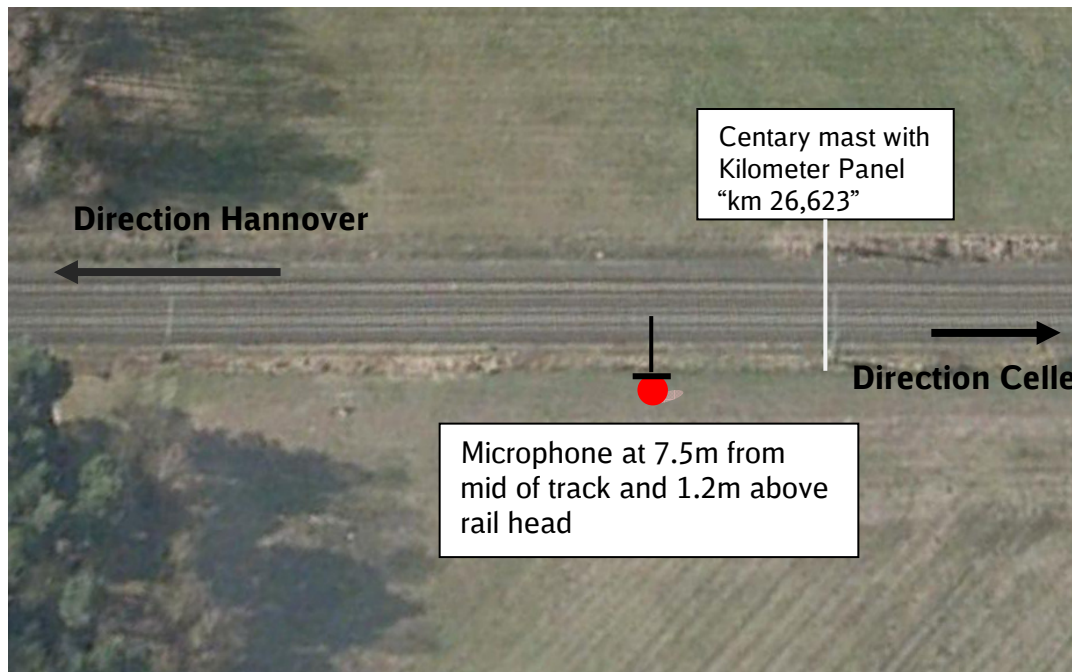
- 1 Locomotive at the front
- 29 Cars:
  - 7 cast iron braked
  - 22 with LL blocks of 4 different types
- 1 Locomotive at the rear

Car-No.	Car-Info	Car length	Number of axles	APL	Load	Brake type
1	Eas 706-3	14,0 m	4	0,286	No	GCI
2	Eanos 129-6	15,7 m	4	0,255	No	GCI
3	Eanos 121-3	15,7 m	4	0,255	Yes	GCI
4	Eas 612-3	14,0 m	4	0,286	No	GCI
5	Shimmns-ttu 935-9	12,0 m	4	0,333	No	GCI
6	RS 353-0	19,9 m	4	0,201	Yes	GCI
7	Remms 114-7	14,1 m	4	0,284	No	GCI
8	Sggmrs 223-4	29,5 m	6	0,203	No	GCI
9	Sggmrs_220-0	29,6 m	6	0,203	No	IB116* / C952-1
10	Sggmrs 234-1	29,6 m	6	0,203	Yes, Containers	IB116* / C952-1
11	Sggmrs 042-2	29,3 m	6	0,205	No	IB116* / C952-1
12	Rs 211-0	19,9 m	4	0,201	No	IB116*
13	Rs 271-4	19,9 m	4	0,201	No	IB116*
14	Shimmns-ttu 534-0	12,0 m	4	0,333	Yes	IB116*
15	Shimmns-ttu 366-7	12,0 m	4	0,333	Yes	IB116*
16	Shimmns-tu 108-6	12,0 m	4	0,333	No	Kombi
17	Shimmns-tu 136-7	12,0 m	4	0,333	No	Kombi
18	Rs 930-4	19,9 m	4	0,201	Yes, Tonne weights	IB116*
19	Eanos 223-7	15,8 m	4	0,253	No	C952-1
20	Eanos 130-4	15,8 m	4	0,253	No	C952-1
21	Hbillns 312-0	15,5 m	2	0,129	No	C952-1
22	Hbillns 497-3	15,6 m	2	0,128	No	C952-1
23	Hbillns 012-6	15,5 m	2	0,129	No	C952-1
24	Hbillns 451-0	15,5 m	2	0,129	No	C952-1
25	Eas 715-4	14,0 m	4	0,286	No	C952-1
26	Remms 065-0	14,1 m	4	0,284	No	C952-1
27	Remms 032-8	14,1 m	4	0,284	No	C952-1
28	Remms 880-3	14,1 m	4	0,284	No	C952-1
29	Remms 797-9	14,1 m	4	0,284	Yes, Load on the bugies	C952-1

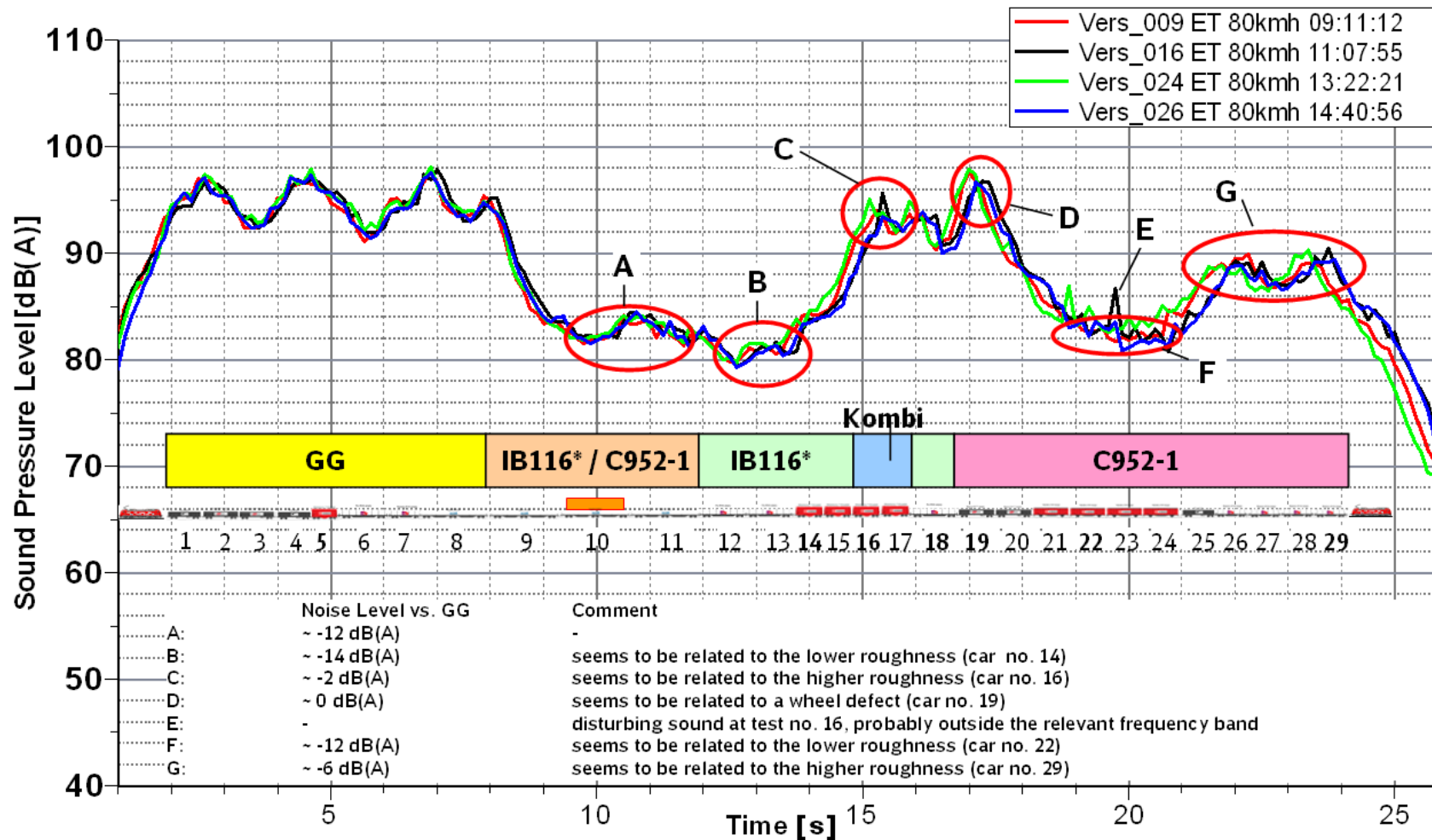
bold car numbers: the wheel roughness was measured for these cars

# Test Setup

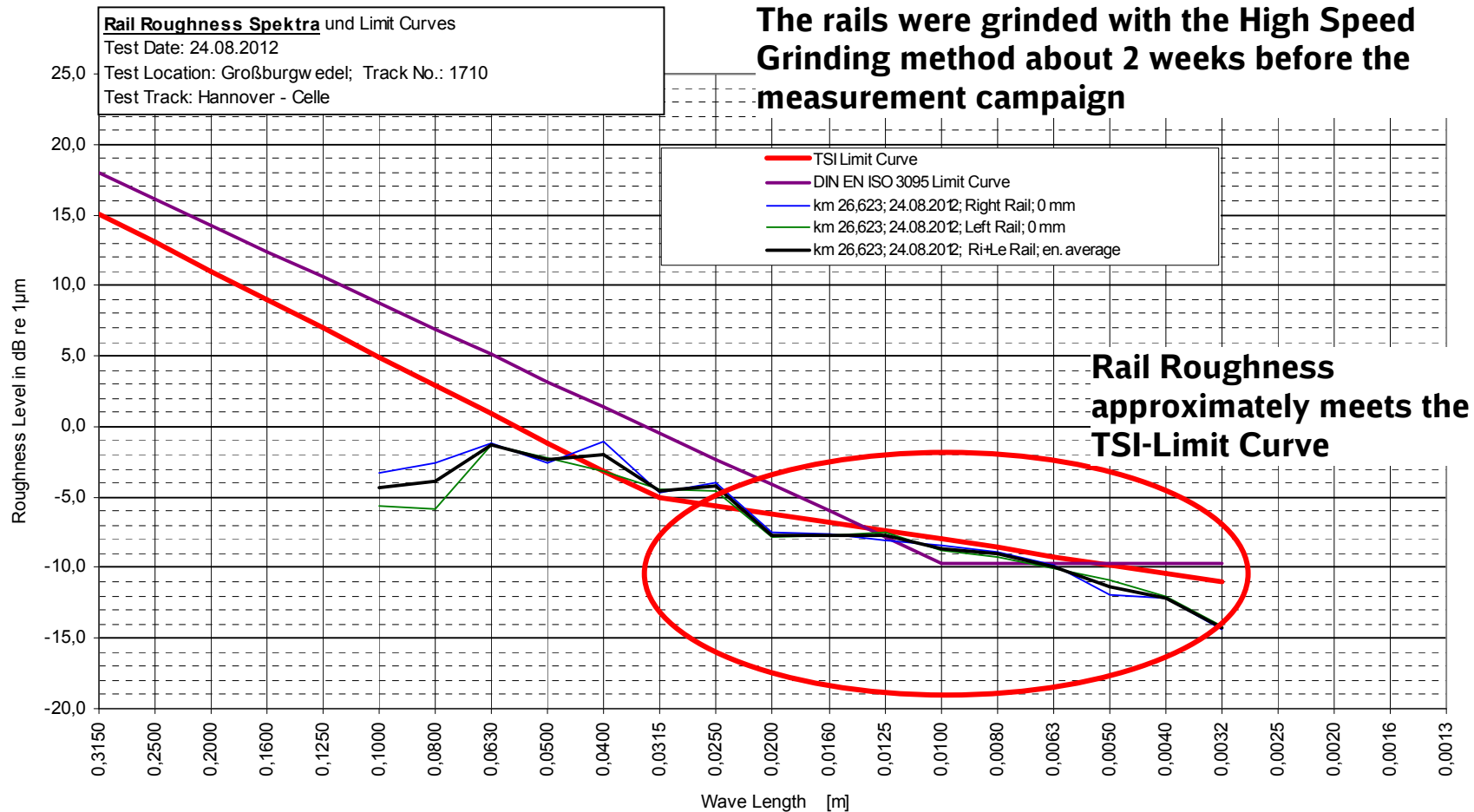
- Acoustic Test Setup according to ISO 3095:2005
- Test Date: 24th August 2012
- Test Procedure: 4 Pass-by@80 km/h, 1 Pass-by@100 km/h (not yet analyzed)
- Measurement of the rail roughness according DIN EN 15610
- Measurement of the wheel roughness for 7 wagons



# Preliminary Results Acoustic Test Pass-by@ 80 km/h

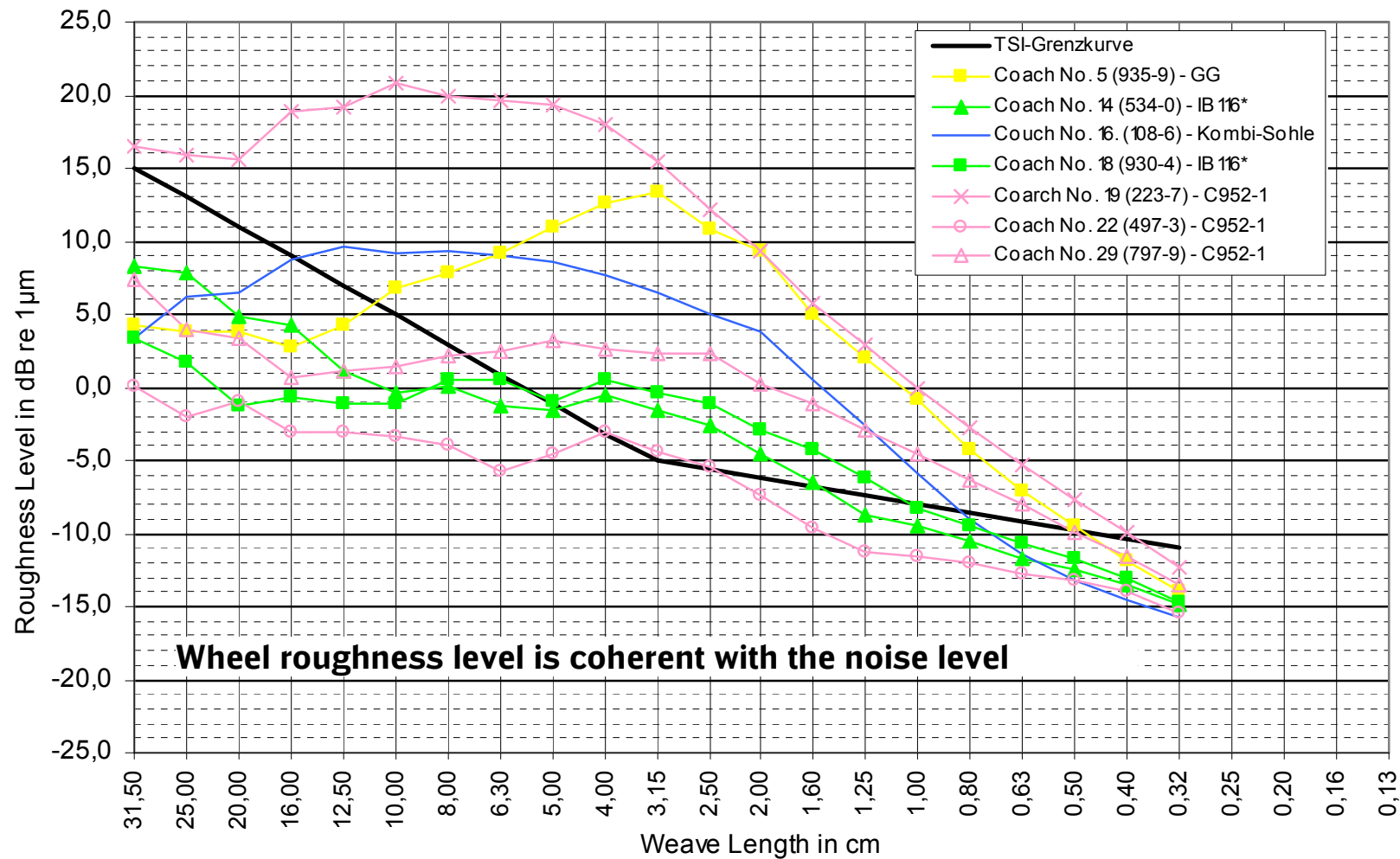


# Preliminary Results Rail Roughness



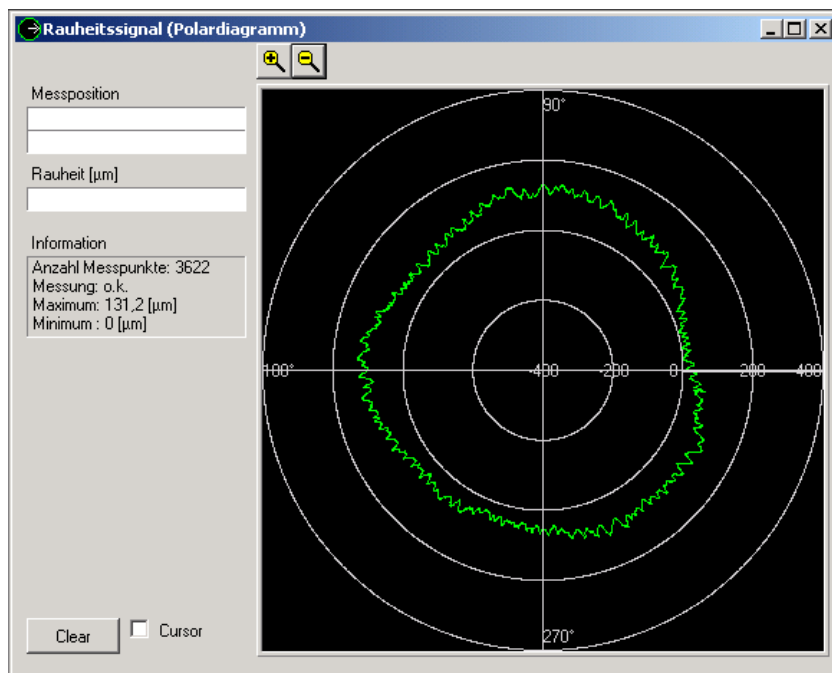
# Preliminary Results Wheel Roughness – Spectra

Wheel Roughness Spektra



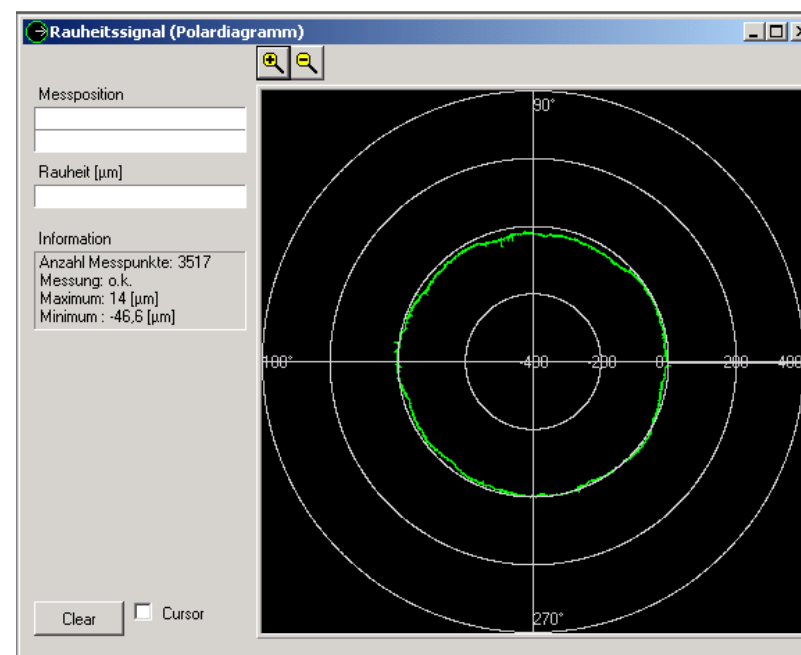
# Preliminary Results Wheel Roughness – Polar Diagrams

**Polar Diagram of the GG-Block braked wheel of wagon No. 5**



**Typical high wheel roughness of a GG-Block braked wheel**

**Polar Diagram of the IB116\*-Block braked wheel of wagon No. 14**

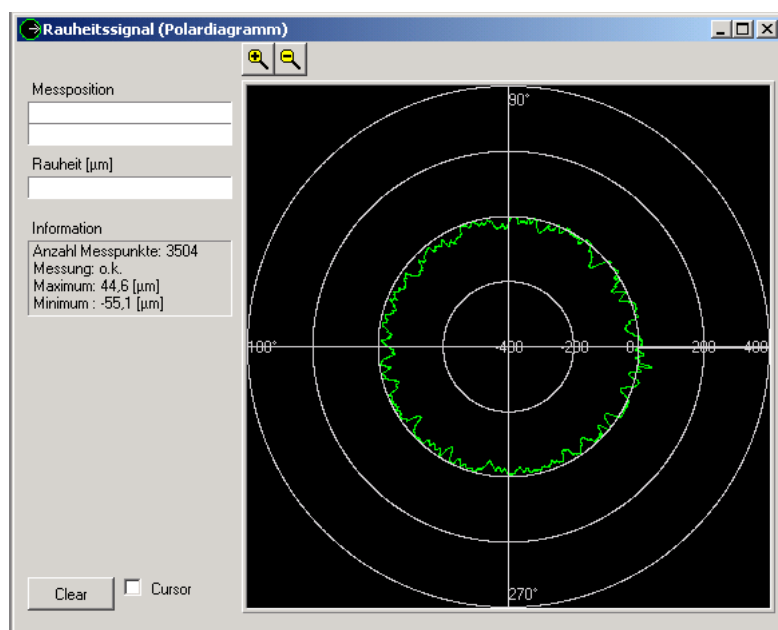


**Typical low wheel roughness of a Composite-Block braked wheel**



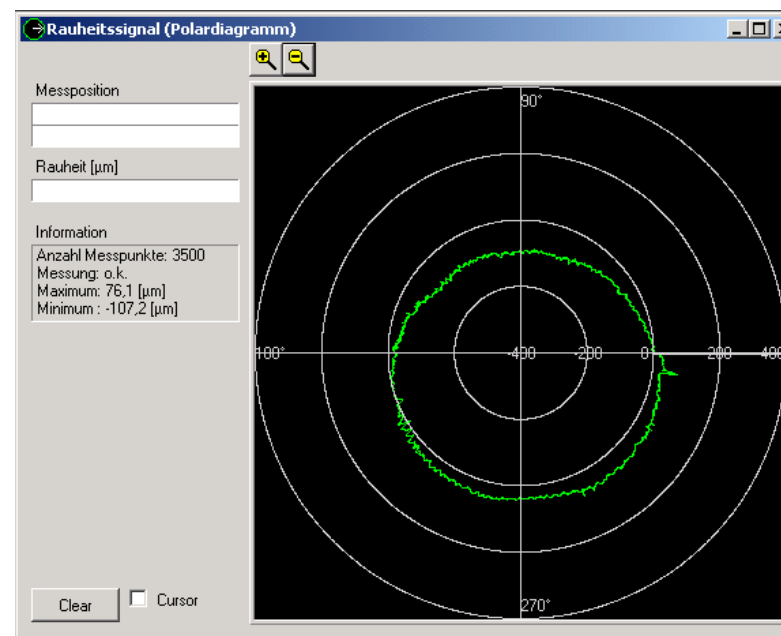
# Preliminary Results Wheel Roughness – Polar Diagrams

**Polar Diagram of the Kombi-Block braked wheel of wagon No. 16**



**High wheel roughness of the Kombi-Block braked wheel**

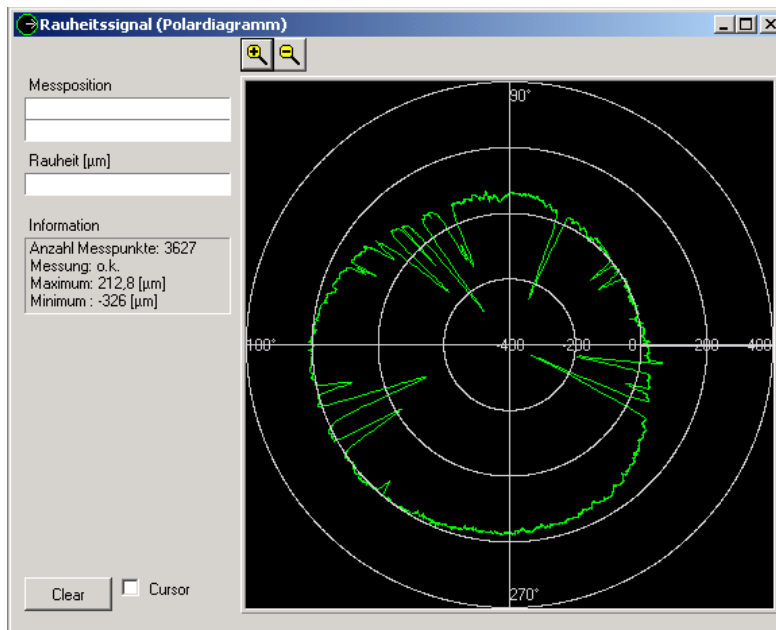
**Polar Diagram of the IB116\*-Block braked wheel of wagon No. 18**



**Typical low wheel roughness of a Composite-Block braked wheel**

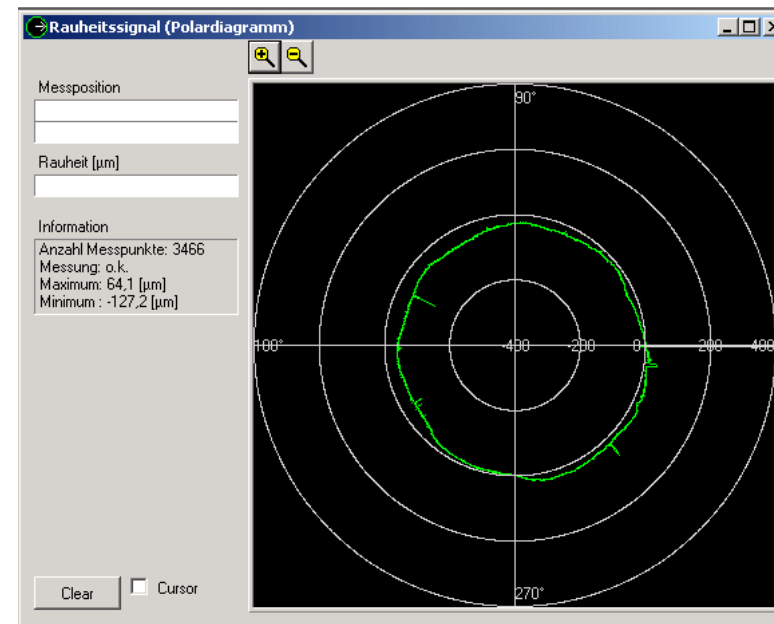
# Preliminary Result Wheel Roughness – Polar Diagrams

**Polar Diagram of the C952-1-Block braked wheel of wagon No. 19**



**This wheel presents severe tread defects with several deep pits and flats causing a high noise level**

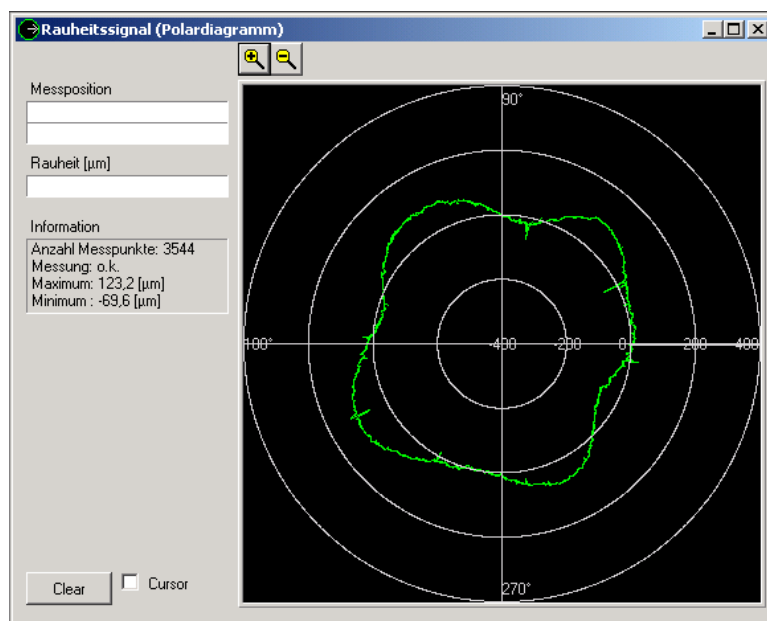
**Polar Diagram of the C952-1-Block braked wheel of wagon No. 22**



**Typical low wheel roughness of a Composite-Block braked wheel**

# Preliminary Result Wheel Roughness – Polar Diagrams

## Polar Diagram of the C952-1-Block braked wheel of wagon No. 29



**This wheel presents tread defects with some deep pits possibly responsible for the higher noise level**

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**Thank you for your attention**