

# NZRF/RIAA Road marking Conference and Exhibition 2011

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# **A little bit of history and the newest testing instruments for road markings**

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**ZRM 1011**  
**1981**

First with electrical standard  
positioning system



**ZRM 1012**  
**1987**

Distance 15m



**ZRM 1012**  
**1998**

Distance 30m



**ZRM 1013** First combined instrument  
**1999** for  $R_L$  and  $Q_d$



**ZRM 1013+** First with wet timer  
**2001** First with detailed report A4  
First with automatic self  
diagnostic



**ZRM 6013** First with LED illumination  
**2006** First with temperature and  
humidity



**ZRM 6014  
2010**

First with colour touch-  
screen

First with a camera in the  
same geometry

First with level-meter and  
compass



- ▶ Very simple operation over one button (incl. On/Off button)
- ▶ Measure accurate  $R_L$  and  $Q_d$  in about 2 seconds
- ▶ Long battery live
- ▶ Compact and robust design



▶ Hand-held devices



ZRM 6014

▶ Dynamic measurement system



ZDR 6020

- ▶ Measure  $R_L$  and  $Q_d$  in 2 sec.
- ▶ Compact, elegant, but also robust design
- ▶ Transfer and analysis of measured on PC provided



- ▶ Measures like the hand-held device  $R_L$
- ▶ Measures in a short time a wide area
- ▶ Welcome analysis of the measurement data over PC provided



- ▶ Easy handling and visualisation of measurement data
- ▶ Direct generating of reports



ZDR 6020

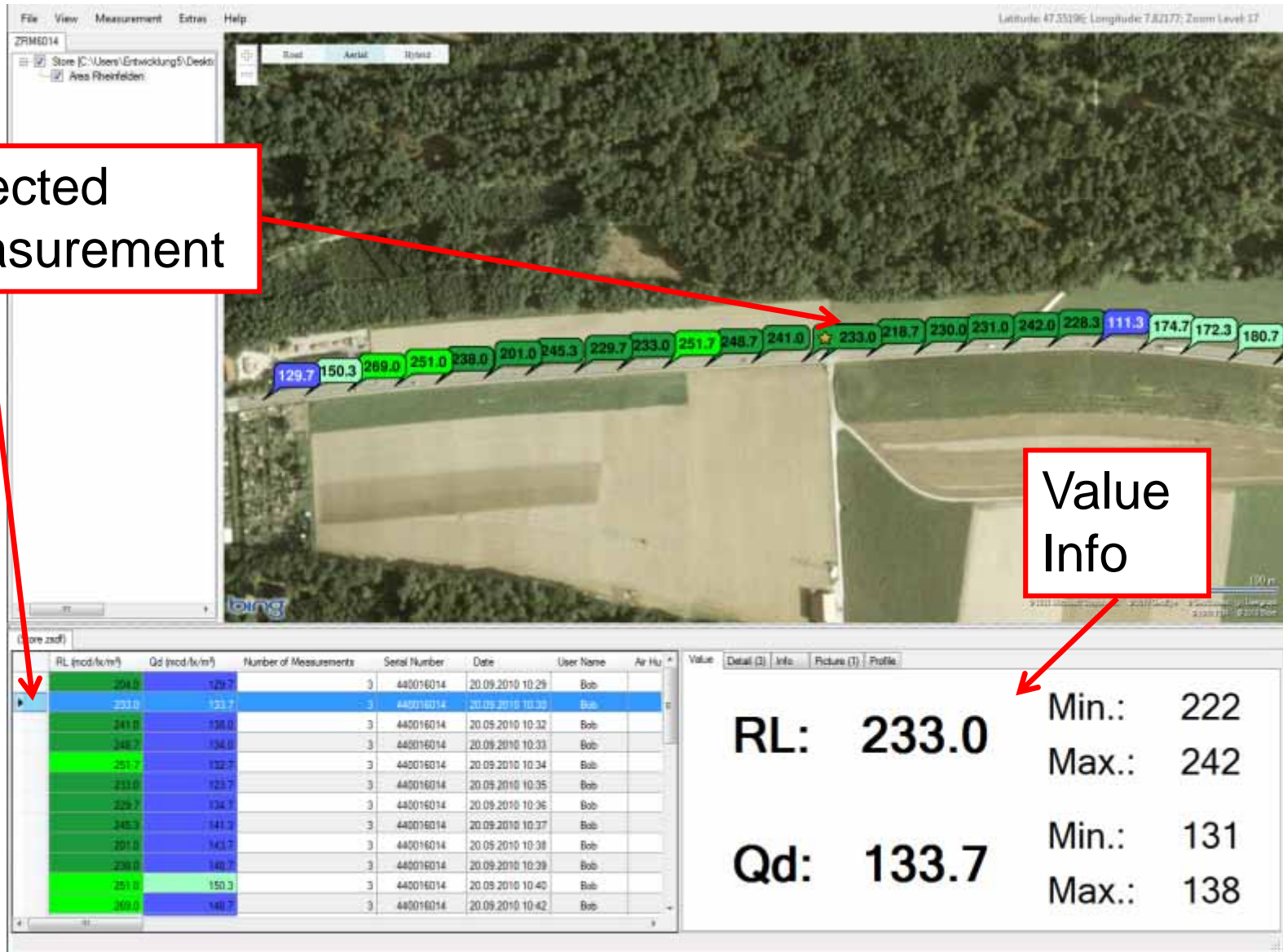


ZRM 6014



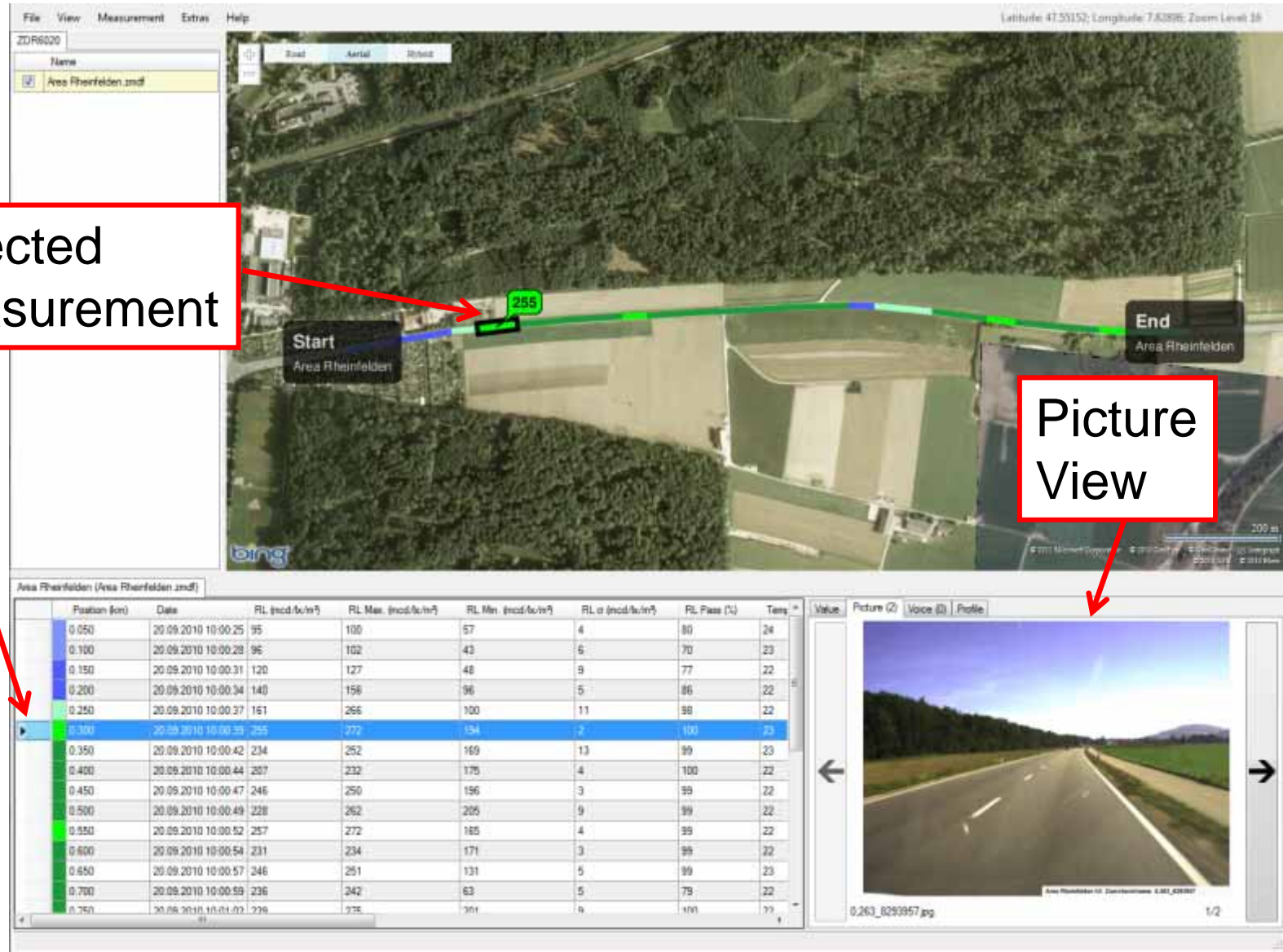
Mapping Tools

Selected Measurement



Selected Measurement

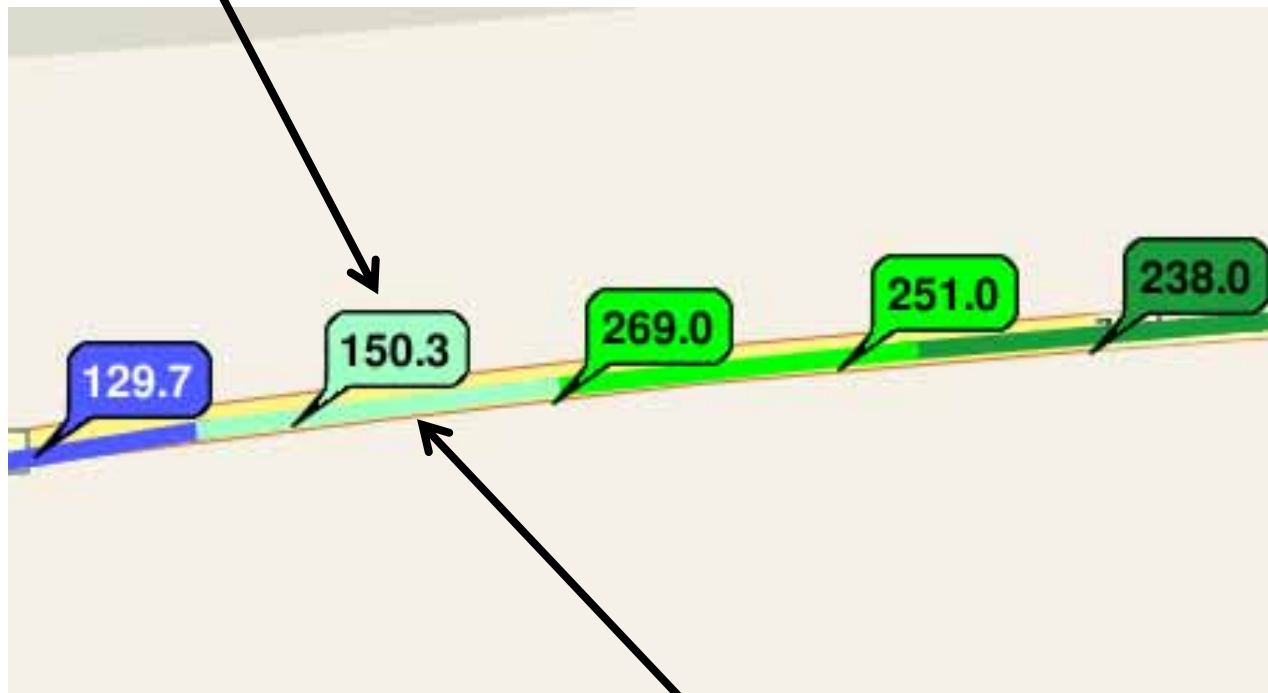
Picture View



The screenshot displays the ZDR 6020 software interface. At the top, there is a menu bar with 'File', 'View', 'Measurement', 'Extras', and 'Help'. Below the menu is a toolbar with 'Road', 'Aerial', and 'Road' options. The main area shows an aerial map of a rural area with a green path. The path starts at a point labeled 'Start Area Rheinfelden' and ends at 'End Area Rheinfelden'. A green box with the number '255' is placed on the path. A red arrow points from the 'Selected Measurement' text to this box. Below the map is a data table with columns for Position (km), Date, RL (mcd./t./m³), RL Max. (mcd./t./m³), RL Min. (mcd./t./m³), RL σ (mcd./t./m³), RL Pass (%), and Temp. The table contains 15 rows of data. A red arrow points from the 'Picture View' text to a picture view window on the right side of the interface, which shows a perspective view of a road.

Position (km)	Date	RL (mcd./t./m³)	RL Max. (mcd./t./m³)	RL Min. (mcd./t./m³)	RL σ (mcd./t./m³)	RL Pass (%)	Temp.
0.050	20.09.2010 10:00:25	95	100	57	4	80	24
0.100	20.09.2010 10:00:28	96	102	43	6	70	23
0.150	20.09.2010 10:00:31	120	127	48	9	77	22
0.200	20.09.2010 10:00:34	140	156	96	5	86	22
0.250	20.09.2010 10:00:37	161	266	100	11	98	22
0.300	20.09.2010 10:00:39	255	372	154	2	100	23
0.350	20.09.2010 10:00:42	234	252	169	13	99	23
0.400	20.09.2010 10:00:44	207	232	175	4	100	22
0.450	20.09.2010 10:00:47	246	250	196	3	99	22
0.500	20.09.2010 10:00:49	228	262	205	9	99	22
0.550	20.09.2010 10:00:52	257	272	185	4	99	22
0.600	20.09.2010 10:00:54	231	234	171	3	99	22
0.650	20.09.2010 10:00:57	246	251	131	5	99	23
0.700	20.09.2010 10:00:59	236	242	63	5	79	22
0.750	20.09.2010 10:01:02	229	236	201	6	100	23

ZRM 6014 measurement value

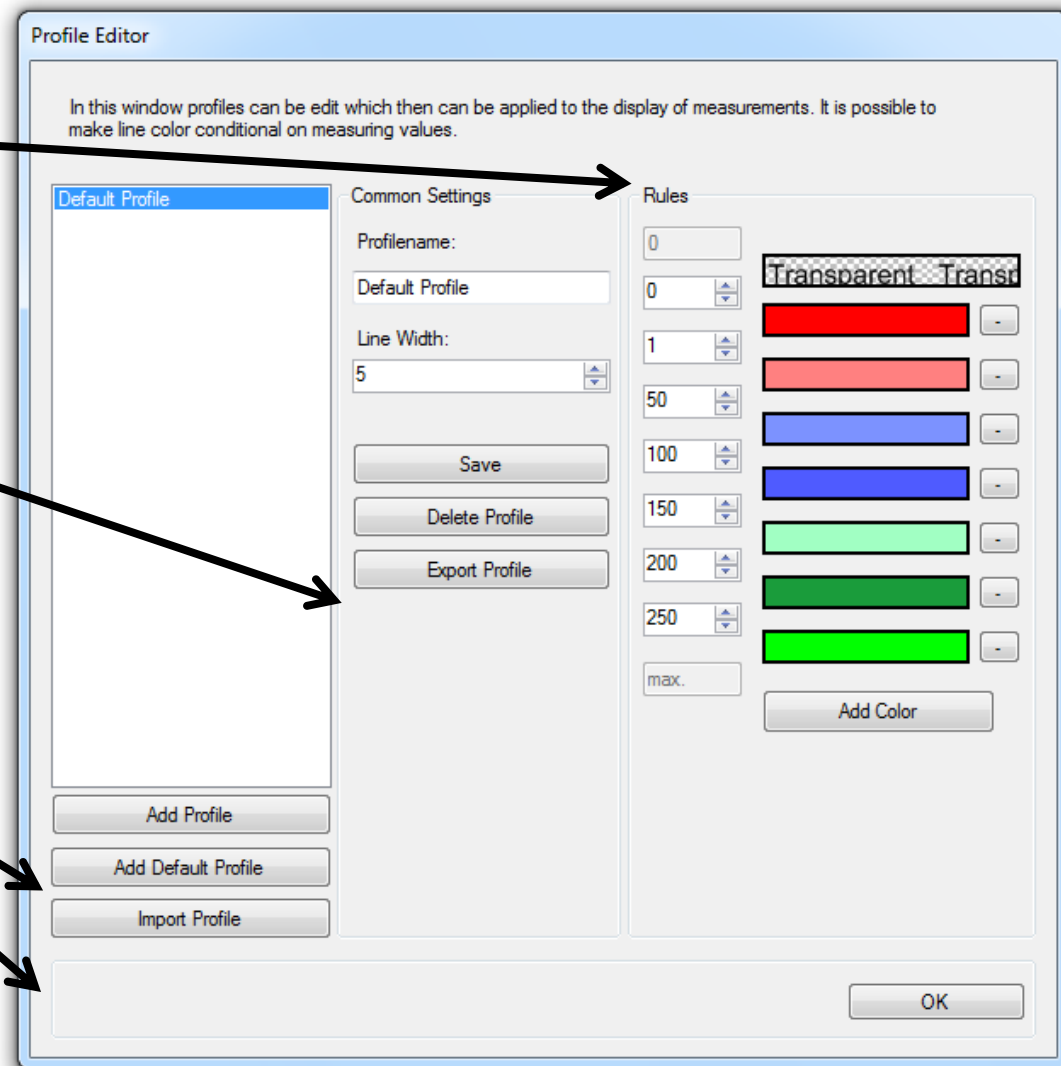


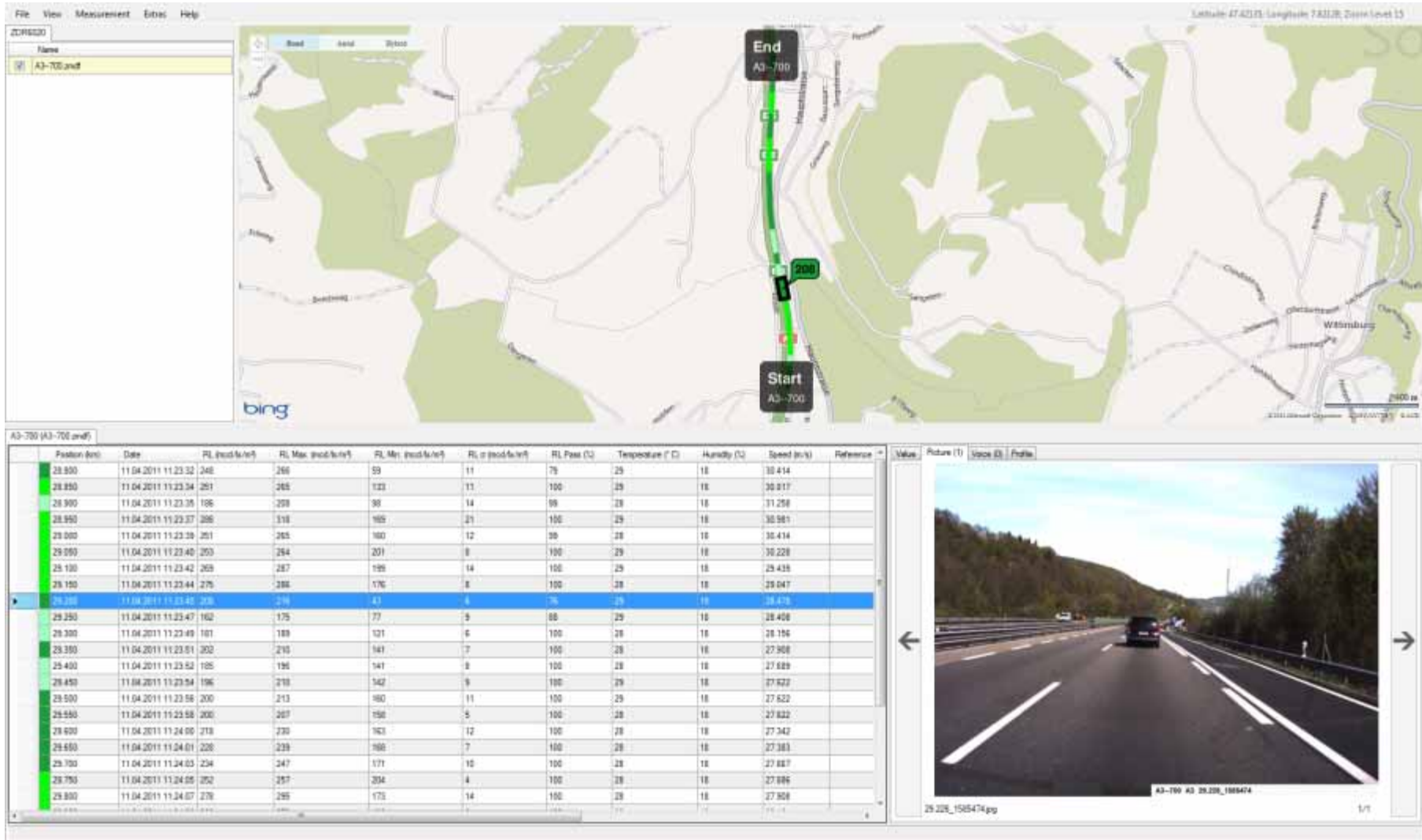
ZDR 6020 measurement section



free definition of the quality levels

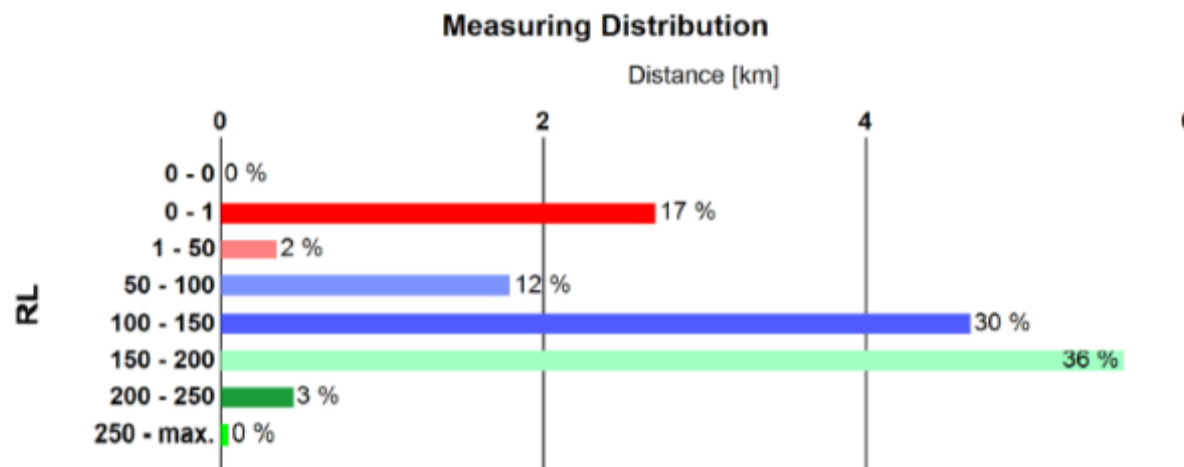
several profiles extendable with export and import possibility



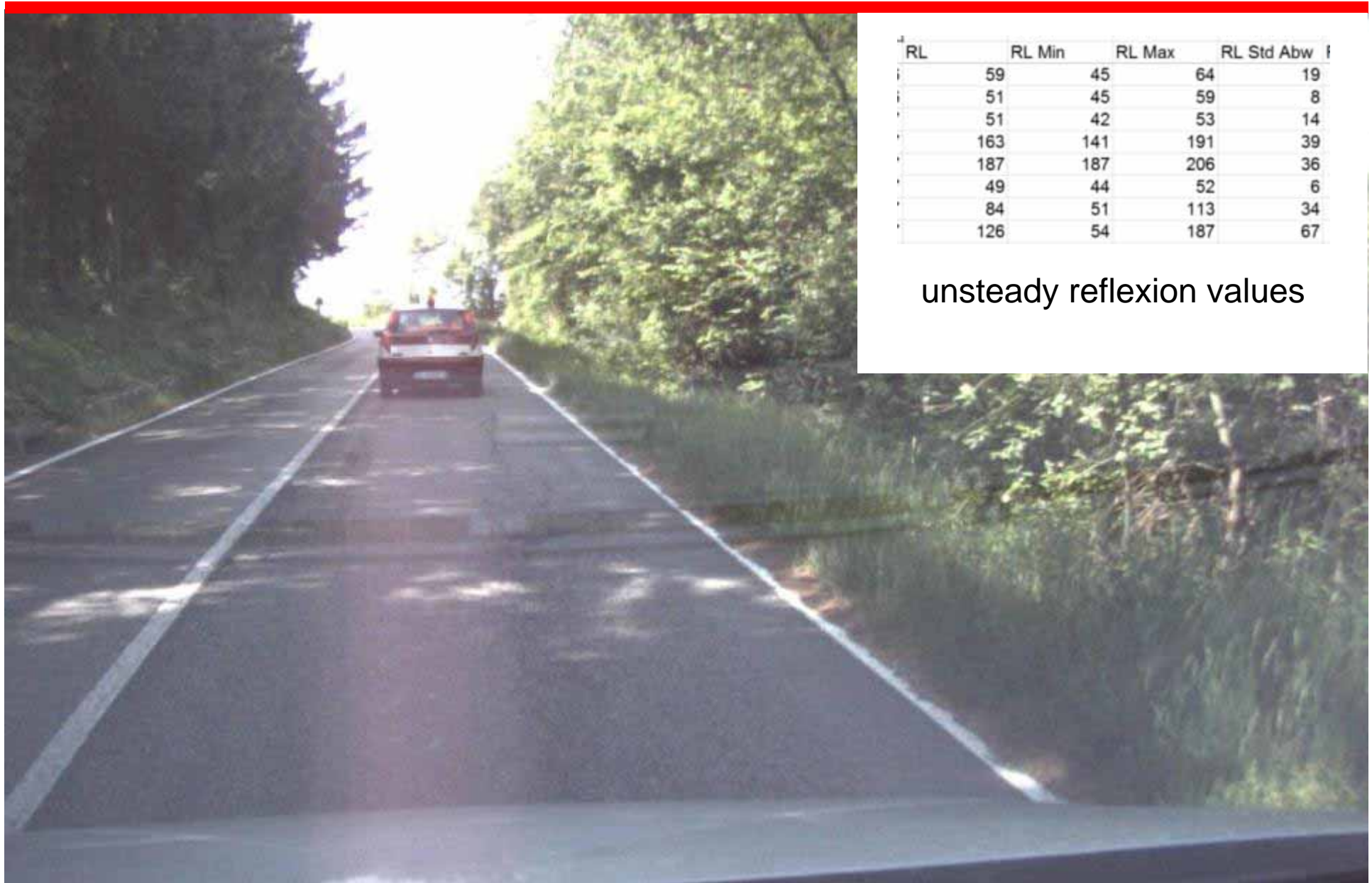




Graphical Illustration of the measurement values based on the individual configurable quality level



Measuring distribution of the whole test run according to the quality levels



RL	RL Min	RL Max	RL Std Abw	I
59	45	64	19	
51	45	59	8	
51	42	53	14	
163	141	191	39	
187	187	206	36	
49	44	52	6	
84	51	113	34	
126	54	187	67	

unsteady reflexion values



RL	RL Min	RL Max	RL Std Abw
144	109	193	44
192	182	205	21
35	23	46	19
38	31	45	19
46	42	48	44
46	41	48	21
42	40	42	34
38	38	37	37
34	37	31	40
38	43	33	43
38	45	30	46
38	47	28	49
37	49	26	52
37	51	23	55

invalid reflexion values



For questions please refer to booth KADCAM

