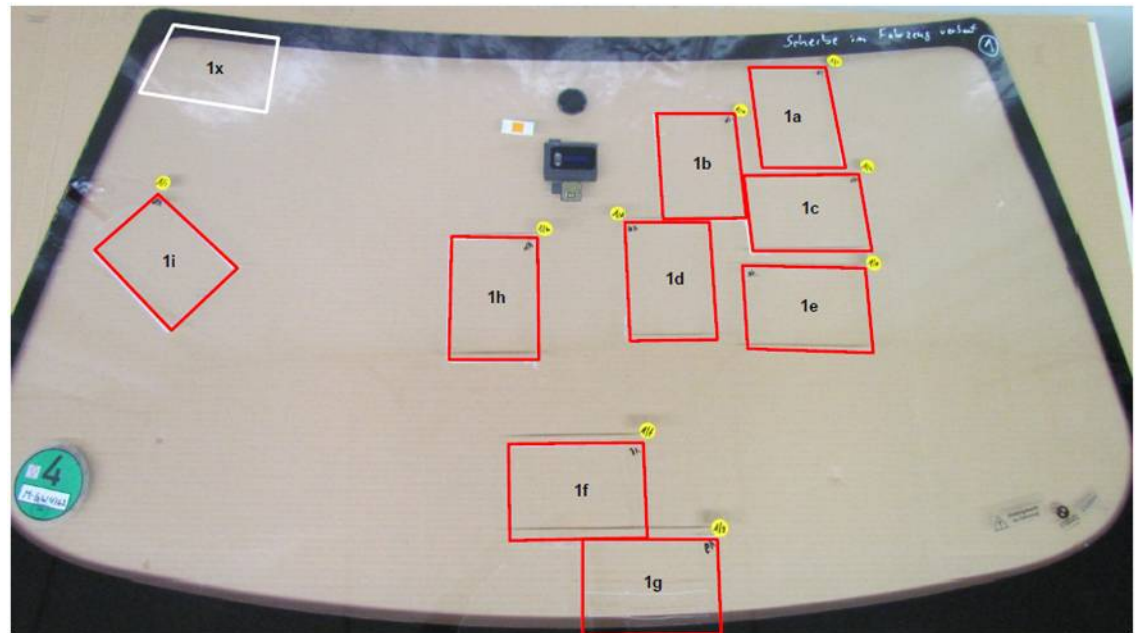


Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: safeguarding BMW 3er

- BMW 3er
- duration: approx. 2 month
- mileage: approx. 10.000 km
- wiper cycles: not known

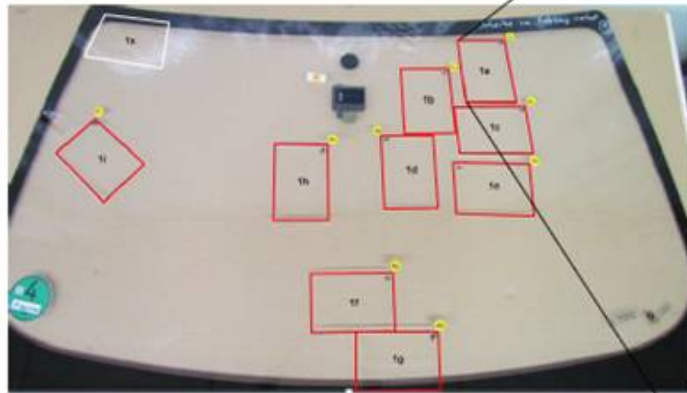
Red Marked Areas on the windshield with visible deterioration



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: safeguarding BMW 3er

Deterioration of sample 1a:
double wiped area

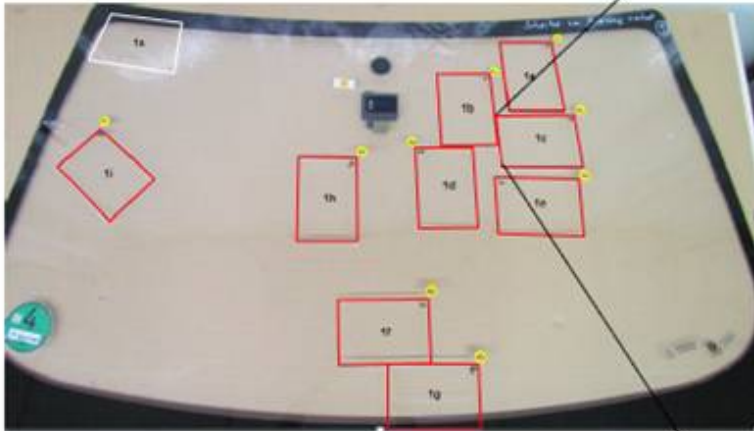


Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: safeguarding BMW 3er

Deterioration of sample 1c:

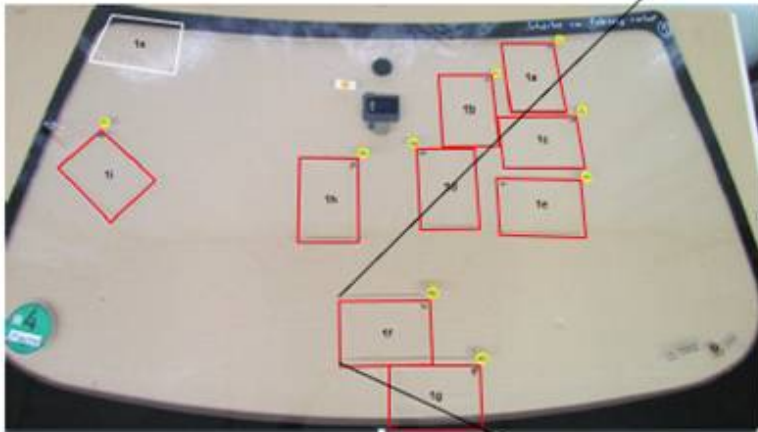
- by wiper
- stone impacts visible



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: safeguarding BMW 3er

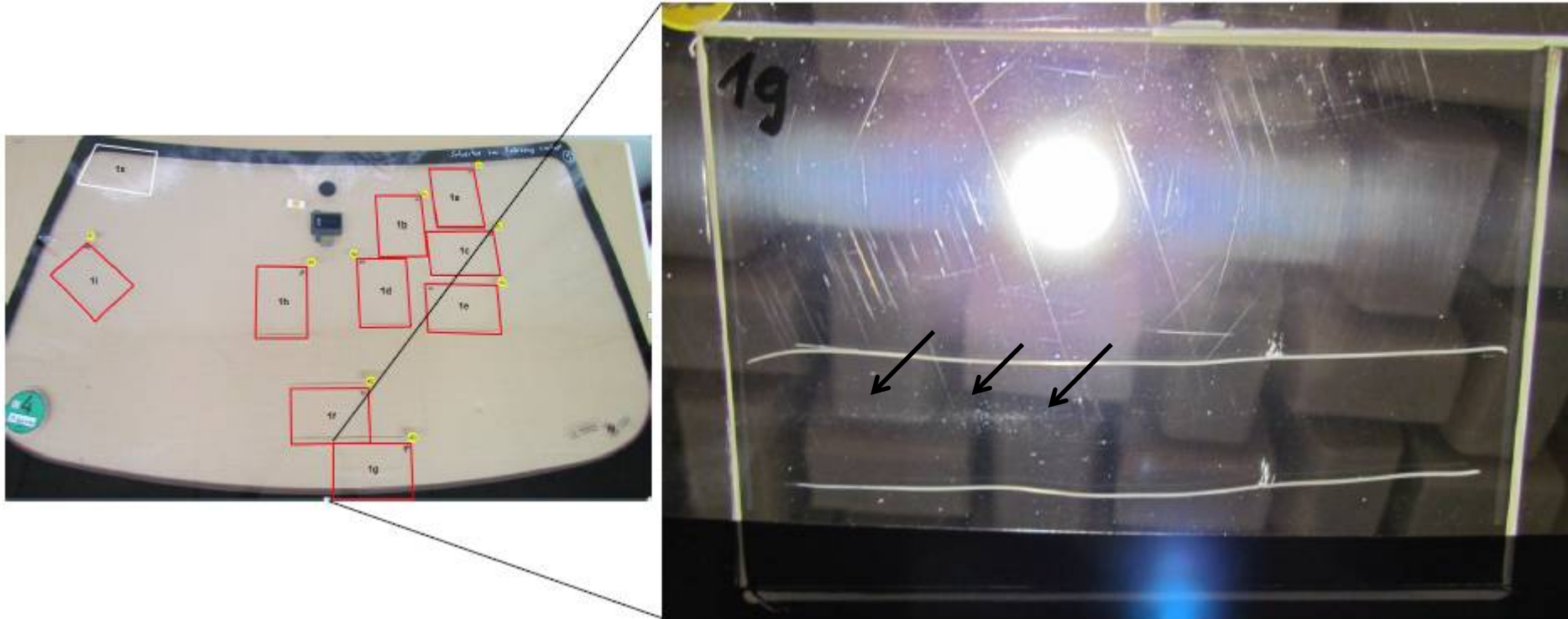
**Detrioration of sample 1f:
mostly by stone impacts**



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: safeguarding BMW 3er

**Detrioration of sample 1f:
mostly by stone impacts**

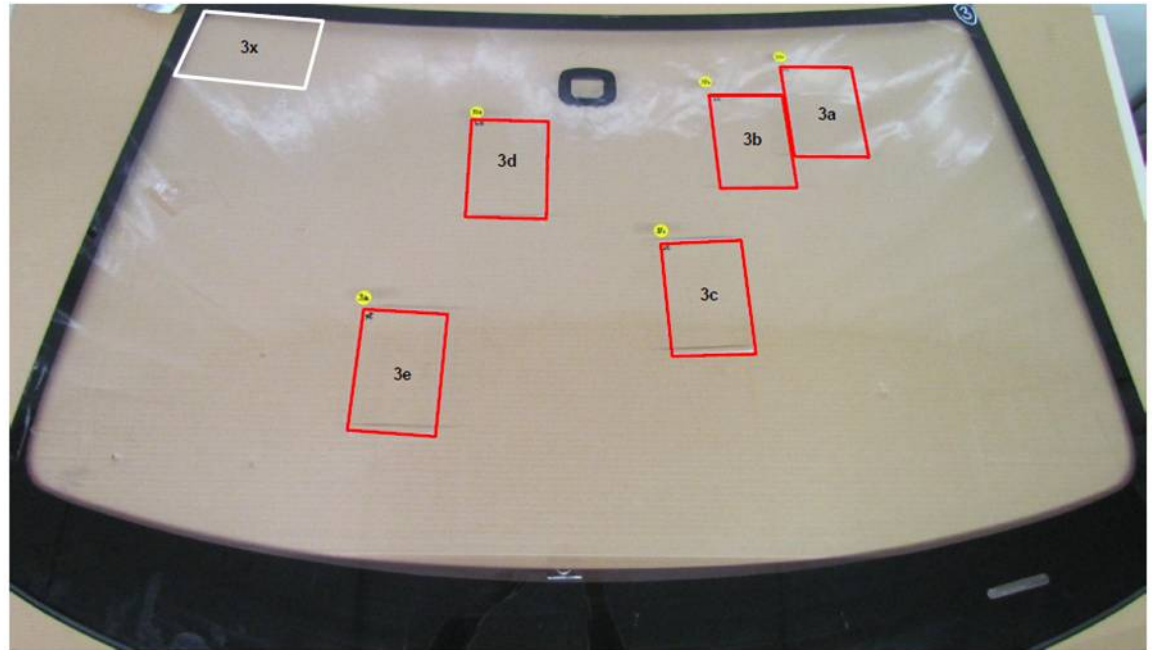


Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: test car Golf 6

- VW Golf 6
- test car (development pool-car)
- duration: approx. 3 month
- mileage: approx. 10.000 km
- wiper cycles: approx. 52000

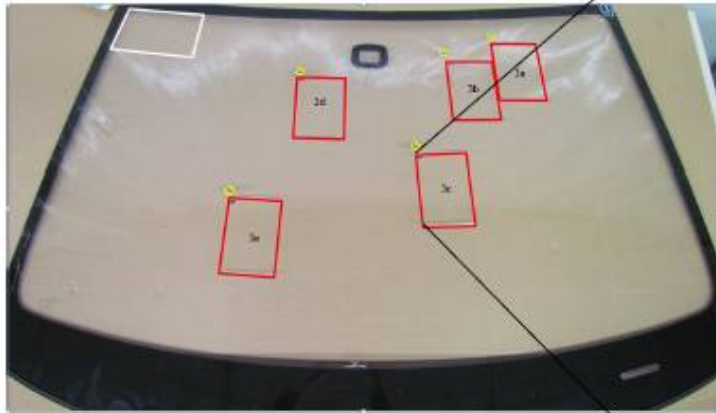
Red Marked Areas on the windshield with visible deterioration



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: test car Golf 6

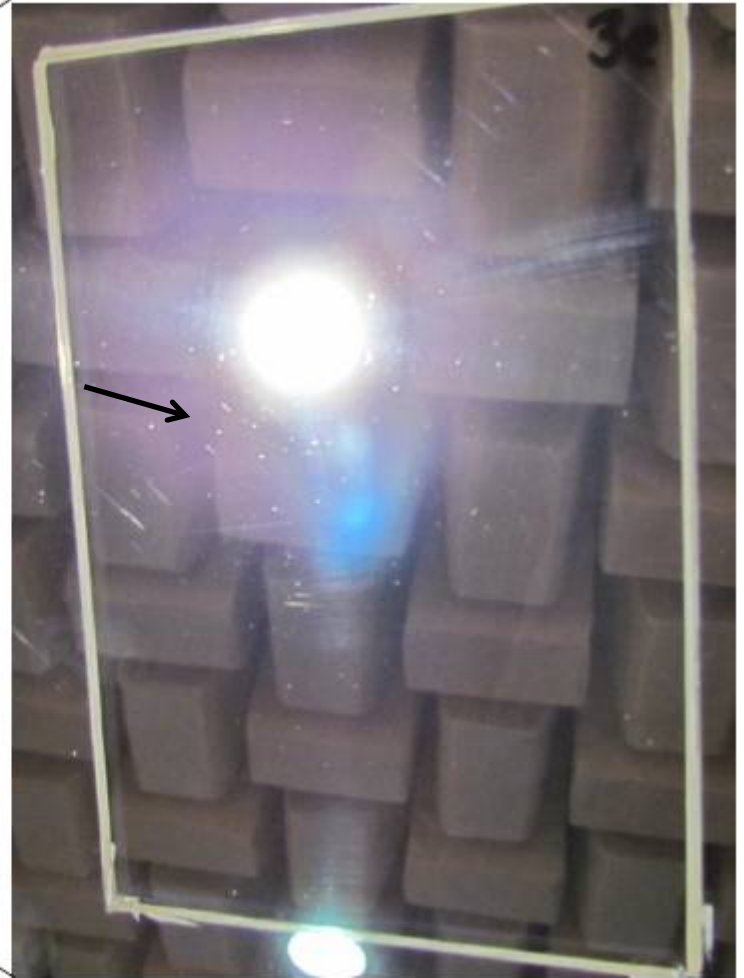
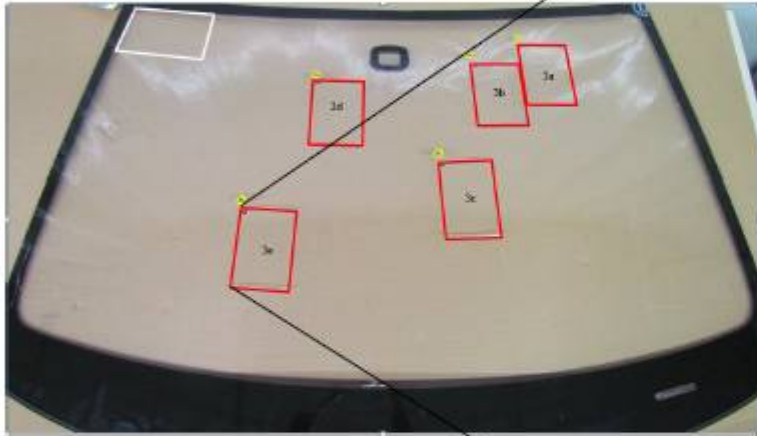
Deterioration of sample 3c:
by wiper



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

On-road tests PC windshields with AS4700: test car Golf 6

**Detrioration of sample 3e:
mostly by stone impacts**

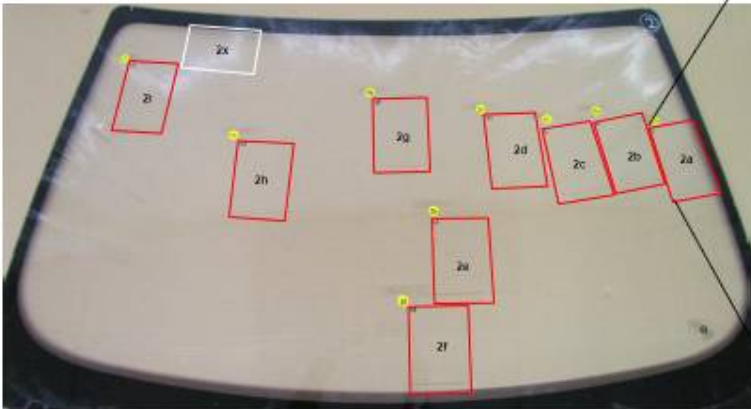


Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Current on-road tests: PC windshields in test cars

Windshield: PC with AS4700

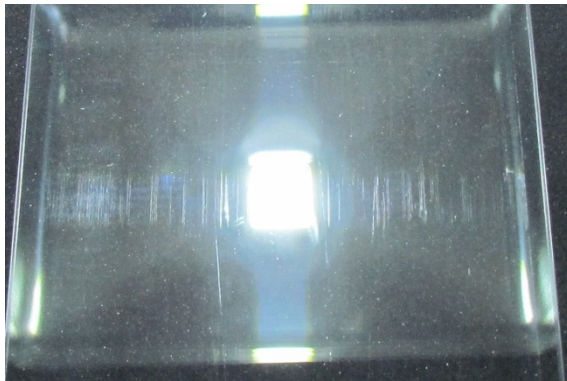
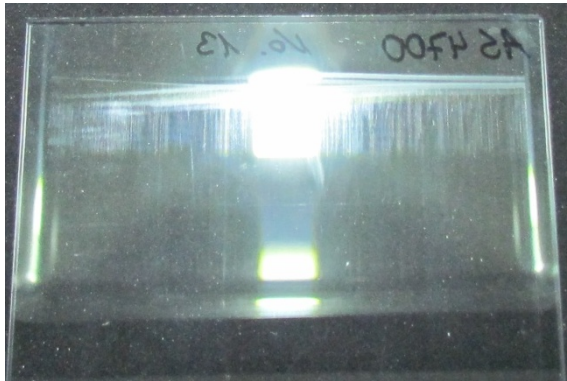
- BMW 3er
- wiper approval equipment
- 1,5 Mio cycles (without sand):
no visible deterioration
- 100 cycles with sand
manual distribution on the windshield



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Comparison wiper test and on-road test: similar deterioration

Samples from wiper test



AS4700: 10000 cycles

Samples of the windshield from on-road test



Samples of the windshield from wiper test



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Activities for on-road tests: Working plan

Analysis of parts from serial windshields

- Investigation of the samples cutted out of the windshields by Haze measurements and StrayLizer (if equipment is required)
- Correlation of test results from StrayLizer and Haze measurements and also with subjective rating

Status: Investigation is planned

Analysis of the sample parts from on-road tests

- Investigation of the samples cutted out of the windshields by Haze measurements and StrayLizer (if equipment is required)
additional investigations of the prarts currently mounted in the car (Porsche backlite, windshield Golf 6)
- Correlation of test results from StrayLizer and Haze measurements and also with subjective rating

Status: Investigation in progress

Correlation of test results with wiper lab tests

- Definition of tests and test conditions
- Definition of criteria for windshields of plastic glazing



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Current on-road tests: PC glazing in test cars

Backlite: PC with AS4700

- Porsche Cayman
- test car (development pool-car)
- duration: approx. 12 month
- mileage: currently not known
- wiper cycles: currently not known
- status: test in progress



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Activities for on-road tests: Working plan

Recording parameters for on-road tests with VW Golf 6

Fahrtenbuch für Golf WOB - DJ 557		Fahrzeug mit Polycarbonat-Frontscheibe					
Fahrer							
Telefon							
Datum							
Uhrzeit	Beginn						
	Ende						
	reine Fahrzeit (ca.)						
Kilometer	Anfang						
	Ende						
	Gesamt						
Fahrstrecke	Stadt						
	Land						
	Autobahn						
Belastung	Wischzyklen						
	Wasch-Zyklen						
	Fahrzeugwäsche						
	Eis-Kratzen						
	Streusalz						
	Spezial: Schmutz						
	Spezial: Sand (siehe auch Blätter im Anhang)						
Bemerkungen							



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Investigation of serial windshields (laminated glass)

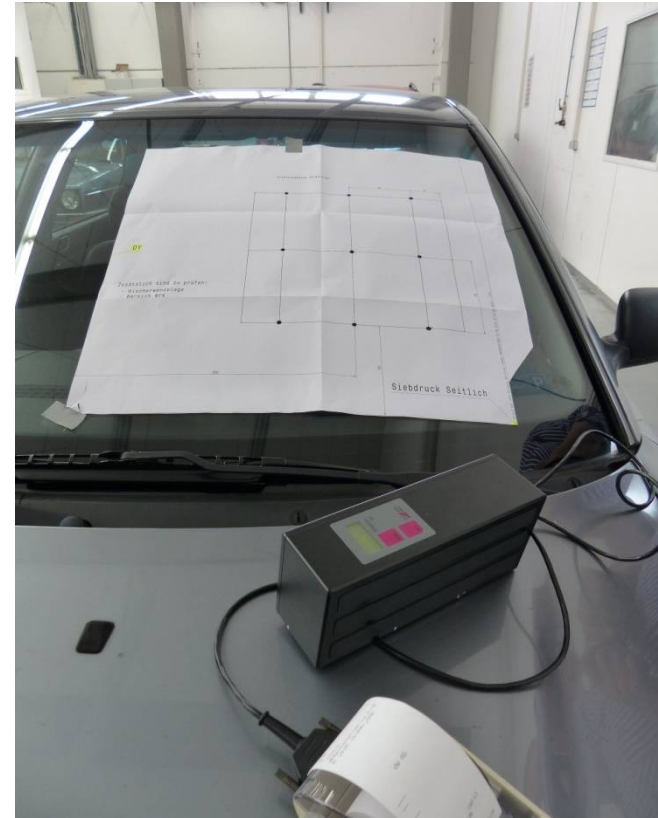
Data base for on-road tests

Windshield: laminated safety glass

- VW-Group, different cars
- serial cars in daily use
- duration: different
- mileage: approx. 200000 – 400000 km
- wiper cycles: not known
- results: measurements with StrayLizer from Fa. Schwahn Systems
results of the points the test field: see table
value in the wiped area: 2,6

deterioration of the windshield depends different influences:
stone impact, wiper, ice scratcher

correlation between subjective rating and measurements with StrayLizer



Test field for measurements with StrayLizer



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

**Investigation of serial windshields
(laminated glass)**

Data base for on-road tests

Windshield: laminated safety glass



car	initial registration	mileage	StrayLizer average value (test field)	StrayLizer maximum value
VW Golf 4	Jul 98	97600	0,96	1,8
AUDI A4 (B5)	Dez 95	310000	1,43	1,9
AUDI A6 (C4)	Mrz 92	316000	0,67	1,2
VW Sharan	Okt 96	285000*	0,43	0,7
VW Golf 2	Mai 89	235000	0,26	0,7

* not original windshield



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Data base for on-road tests

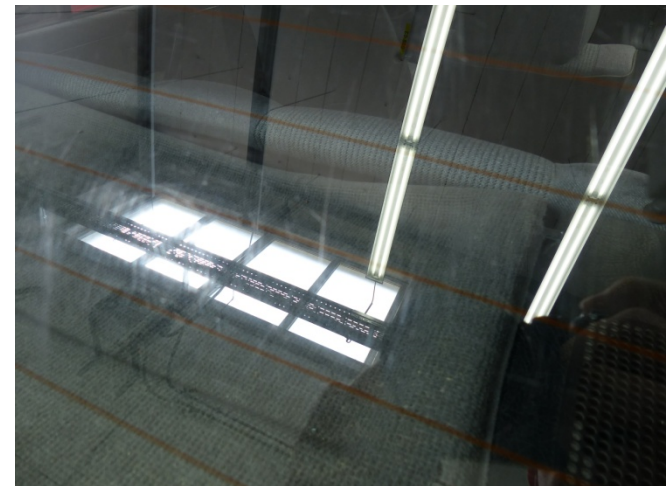
Backlite: tempered safety glass

- VW-Group, different cars
- serial cars in daily use
- duration: different
- mileage: approx. 100000 – 400000 km
- wiper cycles: not known
- results: measurements with StrayLizer from Fa. Schwahn Systems
value of one measurement: 2,6

deterioration of the backlite
influences by ice scratching



Backlite for measurements with StrayLizer



Backlite with Deterioration by ice scratcher



Proposal for IGPG: Wiper tests – On-road tests (Subgroup 1)

Activities for on-road tests: Timeline

