

<b>VDA 314</b>	Date/ Time:	Location:	<b>Creep Groan Evaluation</b>				Type:	License no.:
	Assessor:	Company:	Km <sub>total</sub> :	Weight:	<input type="checkbox"/> Partly loaded <input type="checkbox"/> Fully loaded	Vehicle state:	<input type="checkbox"/> Demonstrator <input type="checkbox"/> Prototype <input type="checkbox"/> Series <input type="checkbox"/> .....	
<b>Pre-conditioning:</b> <input type="checkbox"/> New setup <input type="checkbox"/> Mileage ..... <input type="checkbox"/> Pre-cond./Profile .....				<b>Visual assessment:</b>				
<b>Brake Pad</b>	<b>FA:</b>	Descr.:	Batch:	Version:	Shim:	Chamfer:	Compress.:	
		Part no.:	Setup date:	Setup Km:	Comment:			
	<b>RA:</b>	Descr.:	Batch:	Version:	Shim:	Chamfer:	Compress.:	
		Part no.:	Setup date:	Setup Km:	Comment:			
<b>Disc</b>	<b>FA:</b>	Descr.:	Version:	Part no.:	<b>Other:</b> (active driver assistance systems, opening of side windows, ...)			
	<b>RA:</b>	Descr.:	Version:	Part no.:				
<b>Caliper</b>	<b>FA:</b>	Descr.:	Version:	Part no.:				
	<b>RA:</b>	Descr.:	Version:	Part no.:				
<b>Rim</b>	Descr.:	Version:	Part no.:					
<b>Wheel</b>	Descr.:	Version:	Part no.:					

Minimum Requirements	Module	Pre-cond.		Test conditions			Vehicle and noise data					Assessment:			Comment: (especially: tonal noise, drumming noise, rim howl, ...)			
		T <sub>amb</sub> [°C]	Rest period [h]	Level road (automatic gear, only)	T <sub>amb</sub> [°C]	Weather cond.	Background noise level: [dB <sub>A</sub> ]	Idle speed [1/min]**	Axle	T <sub>Disc</sub> [°C]		P <sub>creep</sub> [bar]	Sound pressure [dB <sub>A</sub> ]			Subj. rating overall [1-10]	Loudness:	Ductility:
										Start	End		Max.	Av.				
	<b>4.2 Cold Brake*:</b> <small>directly after rest period</small>			Level road (automatic gear, only)					FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
																		at a slope
			Level road (automatic gear, only)					FA					<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present				
															at a slope	%		

Optional Requirements	5.1 "Early-Morning*":	T <sub>Disc</sub> < 10°C
	5.2 Gear set to "D" at a slope*:	T <sub>Disc</sub> < 50°C, gear set to "D" at a slope
	5.3 Warm engine in "D*":	T <sub>Disc</sub> < 50°C, gear set to "D", level road, engine running for 20min
	5.4 Reverse*:	T <sub>Disc</sub> < 50°C, vehicle backwards oriented
	5.5 Quick pedal release*:	T <sub>Disc</sub> < 50°C, like minimum requirements, but groan noise not forced
	5.6 With axle switch-off*:	T <sub>Disc</sub> < 50°C, like minimum requirements, one axle switched off and documented
	5.7 Automated brake release*:	T <sub>Disc</sub> < 50°C, usage of relevant assistance systems like final customer

Optional Requirements	5.8 Severe pressure application*:	T <sub>Disc</sub> < 50°C, like minimum requirements, however, brake applied for 10 bis 15s with p = 80 – 100bar prior to the test
	5.9 "In-Stop*":	T <sub>Disc</sub> < 50°C, parameters see below
	5.10 Fully heated brake*:	T <sub>Disc</sub> = 200 – 300°C
	5.11 Wet friction couple*:	T <sub>Disc</sub> < 50°C, outer friction ring of each brake disc fully covered with tab water
	5.12 Water exposure*:	T <sub>Disc</sub> < 50°C, outer friction ring of each brake disc fully covered with tab water + rest period of 6h
	5.13 Salt water exposure*:	T <sub>Disc</sub> < 50°C, as 5.12, however, with salt water (5 mass-% NaCl)

\*5 tests per module; \*\*fully electric mode = 0

Module	Pre-cond.		Test conditions			Vehicle and noise data						Assessment:			Comment: (especially: tonal noise, drumming noise, rim howl, ...)	
	T <sub>amb</sub> [°C] rH [%]	Rest period [h]	T <sub>amb</sub> [°C] rH [%]	Weather cond.	Background noise level: [dB <sub>A</sub> ]	Idle speed [1/min]**	Axle	T <sub>Disc</sub> [°C]		P <sub>Creep</sub> [bar]	Sound pressure [dB <sub>A</sub> ]		Subj. rating overall [1-10]	Loudness:		Ductility:
								Start	End		Max.	Av.				
Optional Requirements			Level road (automatic gear, only)				FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
			at a slope	%			FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
			Level road (automatic gear, only)				FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
			at a slope	%			FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
			Level road (automatic gear, only)				FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
			at a slope	%			FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
			"In-Stop"				FA			5				<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
		VStart= 30kph		p = 10bar			FA			10				<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
		VEnd= 0kph		p = 15bar			FA			15				<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
		T <sub>Disc</sub> < 50°C					FA							<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
				Level road (automatic gear, only)				FA						<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	
				at a slope	%			FA						<input type="checkbox"/> loud <input type="checkbox"/> audible <input type="checkbox"/> hardly audible	<input type="checkbox"/> long <input type="checkbox"/> short <input type="checkbox"/> barely present	

Measurement Equipment Minimum Requirements									
Sound level meter	Vehicle center position		<input type="checkbox"/> Gearshift level	<input type="checkbox"/> .....	Inv. no.:				
			Type:	Install.:					
Thermo-couple: min. one per axle	FA	FR:	<input type="checkbox"/> Inside brake disc	<input type="checkbox"/> Inside brake pads	<input type="checkbox"/> Rubbing along disc surf.	Inv. no.:			
		Type:	Install.:						
	RL:	FR:	<input type="checkbox"/> Inside brake disc	<input type="checkbox"/> Inside brake pads	<input type="checkbox"/> Rubbing along disc surf.	Inv. no.:			
		Type:	Install.:						

Measurement Equipment Additional Requirements											
<b>Artificial head measurement system:</b>				Inv. no.:		Type:					
<b>Wheel house microphone:</b>	FA	FR:	<input type="checkbox"/> Installed <input type="checkbox"/> Photo available		Inv. no.:		Type:				
			Position:								
	FL:	<input type="checkbox"/> Installed <input type="checkbox"/> Photo available		Inv. no.:		Type:					
		Position:									
<b>Acc. sensor:</b>	FA	FR:	<input type="checkbox"/> Installed <input type="checkbox"/> Photo available		Inv. no.:		Type:		RA		
			<input type="checkbox"/> Triaxial <input type="checkbox"/> Uniaxial <input type="checkbox"/> .....		Comment:						
			Position: <input type="checkbox"/> Caliper housing <input type="checkbox"/> Fist <input type="checkbox"/> .....								
			<input type="checkbox"/> Installed <input type="checkbox"/> Photo available		Inv. no.:		Type:				
	FL:	<input type="checkbox"/> Triaxial <input type="checkbox"/> Uniaxial <input type="checkbox"/> .....		Comment:							
		Position: <input type="checkbox"/> Caliper housing <input type="checkbox"/> Fist <input type="checkbox"/> .....									
		<input type="checkbox"/> Installed <input type="checkbox"/> Photo available		Inv. no.:		Type:					
		<input type="checkbox"/> Triaxial <input type="checkbox"/> Uniaxial <input type="checkbox"/> .....		Comment:							
Position: <input type="checkbox"/> Caliper housing <input type="checkbox"/> Fist <input type="checkbox"/> .....											
<div style="text-align: center; font-weight: bold;">Other comments:</div>											