

TEST – RESULTS				Order-No.: T 21964-0-00 KJ	
Hersteller Manufacturer		Johnson Controls GmbH Electronics			
Kunde Client		Johnson Controls GmbH Electronics			
Geräteart Type		Garage door opener fixed installed in a vehicular, type Mercedes.			
Gerätebez. Model		VM8791 for W220 / C215 / BR240			
Prüfbeginn Testing Start Date		2002-04-04		Prüfende Testing End Date	
				2002-04-04	
☒ Approval - Test(EMI/EMC)		☐ Pretest		☐ Mass Prod.-Test	
TESTS ARE MADE ACCDG. FCC Part 15.231 partly				☐ Tech.Doc.	
KIND OF TEST			Serial – No.: Prototype		
<u>Emission</u>			max. limit exceeding [dB]		o.k. n.o.k.
ERP2	Effective radiated power	288 - 390 MHz			☒ ☐
SER 3	Radiated emission	1 – 4 GHz			☐ ☐
A4	DC power input/output ports	0.15 – 30 MHz			☐ ☐
A4	AC mains power input/output ports	0.15 – 30 MHz			☐ ☐
H	Harmonic current emissions				☐ ☐
FL	Voltage fluctuations and flicker				☐ ☐
					☐ ☐
<u>Immunity</u>			Test level		
I 3	Radio frequency electromagnetic field	80 – 1000 MHz		V/m	☐ ☐
I 2	Electrostatic discharge (ESD)	contact / air		kV	☐ ☐
I 4	Fast transients, common mode (Burst)			kV	☐ ☐
I 6	Radio frequency, common mode	0.15 – 80 MHz		V	☐ ☐
KFZ	Transients and surges in the vehicular environment			Pulse	☐ ☐
I 11	Voltage dips and interruptions			ms	☐ ☐
I 5	Surges			kV	☐ ☐
					☐ ☐
Remarks: - Test results: page 2 - List of test equipment: page 3 - Test setup photos: page 4					

This testreport consists 4 pages. The testresult only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the testlaboratory.

	Tag / Date	Name
Gemessen / Tested	2002-04-04	Josef Knab
Beurteilt / Final ok	2002-04-04	Klaus Gegenfurtner

☒ passed.
Approval - Test partly
☐ not passed.

Attachment : A

Test results

Frequency [MHz]	Duty Cycle [%]	Antenna polarization	Frequency reading [MHz]	PK Detector [dBµV/m]	QP Detector [dBµV/m]	AV Detector [dBµV/m]	Limit [dBµV/m]	Dlimit [dB]
288	30	H	288.11	56.2	53.9	44.0	73.83	-17.63
288	30	V	288.11	60.6	58.2	45.4	73.83	-13.23
288	50	H	288.11	51.6	49.3	44.5	73.83	-22.23
288	50	V	288.11	56.0	53.9	49.0	73.83	-17.83
288	80	H	288.03	47.5	45.3	43.9	73.83	-26.33
288	80	V	288.03	51.7	49.5	48.5	73.83	-22.13
310	30	H	310.11	53.6	51.7	42.4	75.32	-21.72
310	30	V	310.11	62.2	59.8	45.8	75.32	-13.12
310	50	H	309.98	50.0	47.7	43.0	75.32	-25.32
310	50	V	309.98	56.7	54.7	49.8	75.32	-18.62
310	80	H	310.06	44.8	42.4	41.3	75.32	-30.52
310	80	V	310.06	53.5	50.9	49.9	75.32	-21.82
390	30	H	390.17	57.1	55.0	44.2	79.24	-22.14
390	30	V	390.17	68.7	66.4	55.0	79.24	-10.54
390	50	H	390.13	51.8	49.6	44.5	79.24	-27.44
390	50	V	390.13	63.9	61.2	55.6	79.24	-15.34
390	80	H	390.09	50.3	47.9	47.0	79.24	-28.94
390	80	V	390.09	58.4	56.7	55.0	79.24	-20.84

Attachment : B

List of Test Equipment

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Test Report No: T 21964-0-00 KJ
Beginning of Testing: 04-April-2002

Test ID	Model Type	Kind of Equipment	Manufacturer	Equipment No.
ERP2	HCC	Controller Ant.-Mast	Rohde & Schwarz München	04-07/59-97-001
	RG 214 U	Antenna Cable 2 m	Huber+Suhner	04-07/60-89-463
	HF 7/8 inch	Antenna Cable 13 m	Huber+Suhner	04-07/60-99-001
	HF 7/8 inch	Antenna Cable 20 m	Huber+Suhner	04-07/60-99-002
	HF 7/8 inch	Antenna Cable 40 m	Huber+Suhner	04-07/60-99-003
	KR - 200	Coax Antenna Switch	Rosenberger HF-Technik	04-07/60-99-004
	VULB - 9165	Super Broadband Antenna	Schwarzbeck Mess-Elektronik	04-07/62-00-001
	ESVP	Test Receiver	Rohde & Schwarz München	04-07/63-89-008
	ESVP-EZM	Spectrum Monitor	Rohde & Schwarz München	04-07/74-86-016
	FSEM 30	Spectrum Analyser	Rohde & Schwarz München	04-07/74-97-001
	Turntable 5m	Turntable	EMISYS Vertriebs GmbH	04-07/92-88-155
	Antenna Mast	Antenna Mast	Rohde & Schwarz München	04-07/92-97-001

Attachment : C

Test setup photos

Effective radiated power

