



Deutsche  
Akkreditierungsstelle  
D-PL-12053-01-00

**Annex acc. to FCC Title 47 CFR Part 15  
relating to  
Hella KGaA Hueck & Co.  
BCM2R**

# **Annex no. 5 User Manual/ Functional Description**

**Title 47 - Telecommunication  
Part 15 - Radio Frequency Devices  
Subpart C – Intentional Radiators  
Measurement Procedure:  
ANSI C63.4-2014  
ANSI C63.10-2013**

**User Manual / Functional Description of the test equipment (EUT)**

## Functional Description

**Project/ Modelcode:** **BCM2R**

**Version:** **1.0**

## Document History

MKS version no.	Date	Status	Description	Person
1.0	2016/02/19	Released	Final Version	Elbers / Siekmann /

Hella 8601EN\_GE (2016-02)

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## 1 Functional Description – LF Transmitter

The LF-Transmitter in the BCM is part of a driving authorisation system with the following function: Car access by sending LF-Signals for Passive Entry and Passive Start function.

### General Technical Data: LF part

Temperature range:  
Working temperature: -40 ...+85 ° C

### Data of LF-Part

Kind of data transmission: simplex

Center frequency: 21,85 kHz

Transmitter power < 6mA/m @ 3m distance(free space)

Modulation: BPSK-signal (phase shift keying)

Modulation content: digital data  
Data rate: 5,4 kBit/s ; 2,7 kBit/s

Data content: Wake Pattern 4 Byte (5,4 Kbit/s):  
Data 19Byte (2,7kbit/s)  
Field no Modulation (3 to 6 times 3ms)  
WP-Field (0 to 4 times 2Byte with 5,4kBit/s)

Antenna: Serial capacity and inductivity resonance circuit  
C = 150nF, L = 1601H, Q :: 80  
3 (to 5) Antenna

Antenna connection: twisted pair

Antenna position in the car: Rear antenna: trunk border (inside car)  
Inside antenna: center console  
Side antenna: inside door covering

## 2 Functional description – Receiver

The Receiver in the BCM is part of a driving authorisation system with the following function:  
Remote control for car access by receiving RF- Signals and optional with Passive Entry function

### General Technical Data: RF part

Temperature range:  
Working temperature: -40 ...+85 ° C

### Data of RF-Part

Kind of data transmission: simplex

#### Receiver:

Center frequency: 315,00 MHz  
433,92 MHz  
868,30 MHz

3 dB bandwidth >300 kHz

Frequency tolerance:  
(production, aging, temperature) +/- 80 ppm

Sensitivity typ. -95 dBm @315,00 MHz  
typ. -95 dBm @433,92 MHz  
typ. -95 dBm @868,30 MHz

Modulation: 2-FSK (frequency shift keying)

Frequency deviation: +/- 16 kHz @ 315 MHz (+/-50%)  
+/- 16 kHz @ 433,92 MHz (+/-50%)  
+/- 25 kHz @ 868,3 MHz (+/-50%)

Modulation content: digital data  
Data rate: 1,3 kBit/s ; 10 kBit/s  
Coding: Manchester

Data content: Remote control value (1,3 Kbit/s):  
130 Zero-Bits preamble + 96 data bits

Antenna: Window antenna connected with a coax cable