CC-DA/ECR

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Modifications

No.	Date/Reviser	Chapter	Description of modification
1	18.12.2013 Ernst	all	Initial version with mandatory test and labels
2	23.01.2014	1 2 5	update / revision USA/ CAN information split in 2 subchapters
2.1	29.01.2014	All	Corrections based on the findings in previous eUU
2.2	05.02.2015	All	Full update to reflect latest information
3.0	13.05.2015	All	Name changed to MRR1Crn. Abu Dhabi changed to United Arab Emirates. Ukraine Logo with dimensions added. Mexico and Jordan added.
3.1	16.06.2015 Velten	5.18, 5.19, 5.20	Malaysia, Singapore and Australia added.
3.2	30.06.2015 Velten		Ulf Wilhelm changed to Stefan Chittka
3.3	12.07.2015 Velten		Stefan Chittka changed to Daniel Seiler-Thull
3.4	16.09.2015 Velten	5.19	New version after release. Singapore text updated
3.7	09.10.2015 Ernst	5.12	Ukraine Authorized conformity assessment body registration number corrected
4.0	13.10.2015 Ernst / Velten	all	Thailand added. Malaysia CID added. Full revision of the document. Additional information added to distinguish between the requirements and responsibilities for radio frequency approval and equipment. Document title changed to: Radio Frequency Homologation: marking and user manual phrases.
4.1	23.02.2016 Velten	all	New version after release. List of signatures updated. Issue date updated. BOSCH definition added.
4.2	24.05.2016	All	Platform name changed to MRR1C throughout document.

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	Velten	6.10	Brazil barcode deleted as no longer required.
4.3	28.06.2016 Velten	All	Platform name changed back to MRR1Crn throughout document.
4.4	19.09.2016 Ernst	All Table 1.1 6.1 and 6.2	Platform name changed to MRR1Crn throughout the document Regulatory notices for USA and Canada updated according to new requirements
4.5	17.01.2017 Velten	5.2 6.19	Vehicle manufacturer responsibilities updated. Singapore label updated.
4.6	26.06.2017 Velten	Page 2	Bernhard Lucas added to list of signatures.
4.7	19.10.2017 Hellinger	All	Adaption to reduce country scope of MRR1Crn: US, Canada, EU, Japan, China
4.8	07.11.2017 Velten	7.5	Taiwan removed.

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1 External Reference Documents

1.1 Regulations and Standards

MRR1Crn SCU meets the following statutory requirements

Table 1-1

Country	Applicable standard / regulation
USA	47 CFR §15.19 47 CFR §2.925 47 CFR §15.21 47 CFR §15.105 47CFR §15.53 47CFR §15.253
Canada	RSS-GEN section 7.1.3 RSS-102 section 2.6 RSS-GEN RSS-251 Issue 1
Europe	EN 301 091-1 V2.1.0 EN 301 489 part-1 V1.9.2 EN 301 498 part-3 V1.6.1 EN 62368-1:2014 IEC 62368-1:2014 EN 60950-1:2006/A11:2009/A1:2010/A12:2011
Japan	ARIB STD-48 V2.1
China	Technical Specification for Micropower radio Equipments

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2 Abbreviations

ARIB	Association of Radio Industries and Businesses
ASIL	Automotive Safety Integrity Level
CEPT	European Conference of Postal and Telecommunications Administrations
ECU	Electronic Control Unit
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
MRR1Crn	Mid Range Radar 1st generation Corner
OET	FCC Office of Engineering and Technology
SCU	Sensor and Control Unit
RSS	Radio Standards Specification
TCD	Technical Customer Documentation
BOSCH	Robert Bosch GmbH

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3 Scope

This document is part of a TCD, valid for MRR1Crn Radar-Sensors.

The complete TCD consists of 5 Parts:

Part 1: HW functions and function states (operation modes), functional characteristic values

Part 2: Electrical, Mechanical, Climatic and Chemical Characteristics

Part 3: Transport, assembly, start of operation and end of operation, storage, service, maintenance and recycling

Part 4: Testing, test data and test methods

Part 5: Radio Frequency Homologation: marking and user manual phrases

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4 Basic information on radio frequency homologation and import requirements

4.1 Definitions

- In radio frequency homologation, automotive radar falls into the group of Short Range devices (SRD). This classification does not have any relation to the functional classification used for automotive radars.

  eg: a long range radar also comes under the Short Range device classification.
- The radar sensor is a component that is part of a vehicle. The sensor as a component is not brought on to the market.
- The radar sensor as a component cannot be operated stand alone. For the intended use of the component, a connection to the vehicle is required (supply voltage, data connection).
- In some countries, components that cannot be operated stand alone and also are designated to be mounted in a vehicle, are exempted from radio frequency licensing.
- The radar sensor intentionally radiates RF energy. Therefore a radio frequency type approval license is required for any country in which the sensor is intended to be operated.
- A vehicle is made of a number of components. Depending on the country, the vehicle may be subject to additional homologation requirements (e.g. registration of components).
- Type approval is the process by which any radio equipment is authorized to be used in a specific country having verified the equipment's compliance with the applicable standards and regulations.

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4.2 Overview Homologation: tasks and responsibilities

	Radio frequency homologation (component)	**Equipment Type Approval / Import license (vehicle)**
Required for	Legal operation of the device in a country	Import and sale of a device in a country
Responsible	BOSCH	OEM / (local registered) importer (BOSCH customer)
Certificate holder	BOSCH	OEM / Local agent / entity of OEM
Responsible for maintaining the certificate	BOSCH	OEM
Timing	Available with BOSCH SOP of the device	Must be obtained prior to importing of vehicles in a country

4.3 Responsibilities of the vehicle manufacturer

- It is in the responsibility of the vehicle manufacturer to obtain the required equipment type approvals or import licenses for bringing a vehicle into the market in a specific country.
- On customer request, BOSCH will provide the necessary technical radio frequency related documentation to the OEM that is required for applying and obtaining the component(equipment) type approval / import license for the radar sensor as a component of the vehicle in a specific country.
- The maintenance and renewal for the vehicle type approval certificates and import licenses for the relevant vehicle platforms is in the responsibility of the vehicle manufacturer.

4.4 Impact of import destinations

- Depending on the location of the OEM´s manufacturing plants, it needs to be clarified who will act as the importer of the radar sensor component into these countries.
- The importer responsibilities relevant to that country have to be fulfilled by the party accordingly

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4.5 Responsibilities of BOSCH

- BOSCH only provides radio frequency homologation for a sensor platform in the BOSCH focus countries
- The radio frequency homologation certificates for the specific sensor platforms are maintained by BOSCH.
- The BOSCH radar hardware development department maintains a database in which the requirements to obtain radio frequency approval in specific countries are stored.

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5 Remarks on the radio frequency homologation of automotive radar sensors

5.1 General points

- Radio frequency homologation is required to operate 76GHz radar sensors in a country. Frequency homologation in a country must be granted and available prior to selling in a country.
- Granting and defining the requirements for obtaining radio frequency type approvals is a task in the responsibility of a country´s telecommunication authority. Rejections of approvals or country specific restrictions are administrative decisions and cannot be influenced by BOSCH.
- BOSCH cannot control the elements involved in the radio frequency type approval process of a country:
    - Incurring Costs and fees
    - Lead-time for obtaining the type approval
    - Validity of a type approval certificate
    - Content and requirements for obtaining a type approval certificate
    - Availability of the frequency band for automotive radar operation, as regulation may change
- The requirements and procedures for obtaining radio frequency type approval in a country may change. In case of uncertainty reconfirmation of the requirements that apply may be necessary.

5.2 Markings on the component and user manual phrases

- With receiving frequency homologation for a specific country, certain requirements have to be satisfied regarding
    - Marking of the device
    - Reproducing specific statements and labels in the vehicle user manual
- The markings to satisfy the homologation requirements of the BOSCH defined countries are laser engraved in the back-cover of the GEN4 BOSCH radar sensors
- There are no radio frequency homologation relevant elements on the type label of the sensor
- The subset of the Bosch defined countries listed in chapter 7 of this document have requirements regarding specific markings and phrases for the vehicle´s user manual
- For any BOSCH other country, additional requirements regarding markings and user manual phrases may exist

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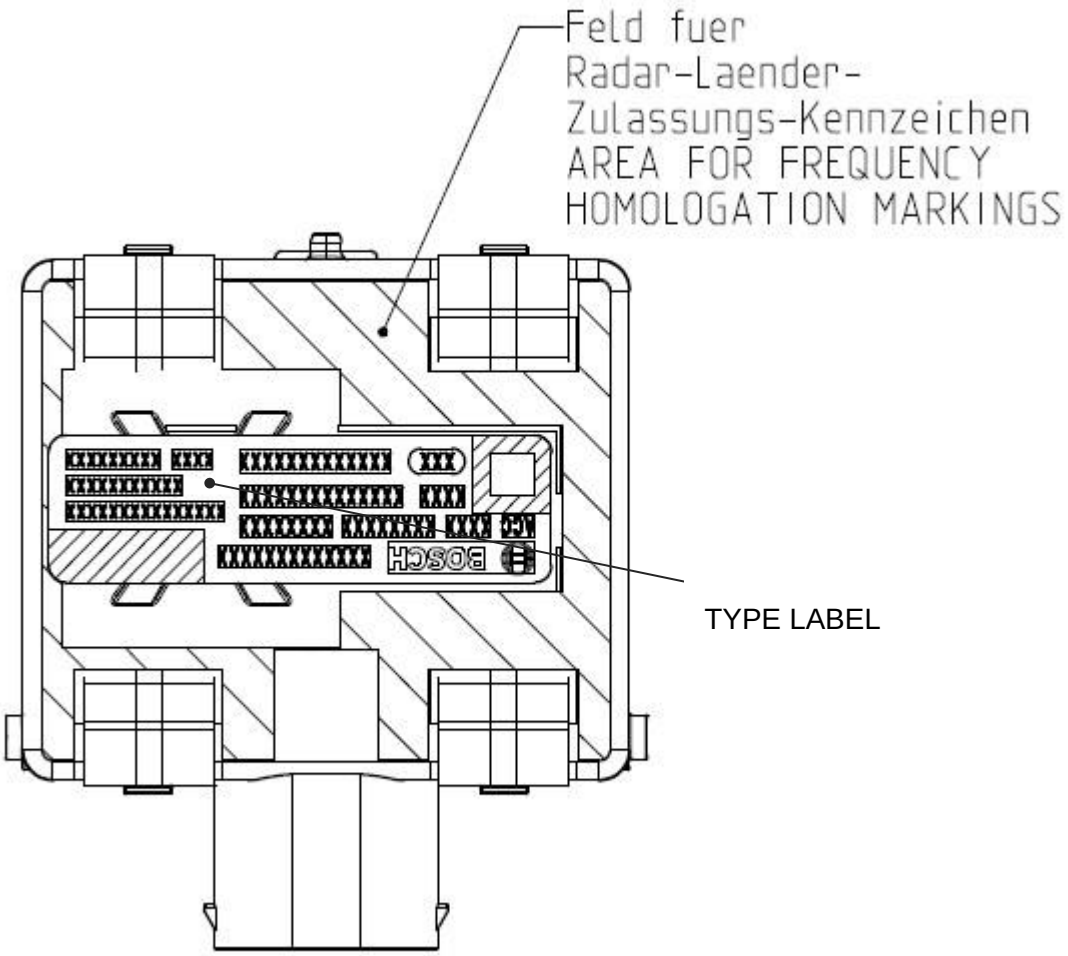
- A country may require additional product registration and/or markings to be added on the device or in the user manual, for a vehicle equipped with a radar sensor. Obtaining this information and the implementation of these requirements is the responsibility of the vehicle manufacturer.

- Example GEN4 back cover:



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5.3 BOSCH defined countries

- Bosch defined countries are US, Canada, EU, China and Japan

5.4 BOSCH non-focus countries

- Application for type approval in countries that are not listed on the BOSCH defined country list will be handled on customer request and charged separately. In this case the availability of the 76GHz frequency range for automotive radar, administrative requirements and incurring costs have to be confirmed prior to filing an application.

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6 Elements relevant to the RE-D 2014/53/EU

Requirement according to RE-D Article 10(9): The OEM is required to translate the EU Declaration of Conformity into the official language of each EU target country.

6.1 General statements

Statement according to RE-D Article 10(10): This Radio Equipment can be operated without restrictions in the EU.

Statement according to RE-D Article 10(2): This Radio Equipment is constructed so that it can be operated in all EU member states without infringing applicable requirements in regard to the requirements on the use of radio spectrum.

6.2 Technical Parameters

Declaration of the technical parameters of the Radio Equipment under RE-D Article 10(8).

6.2.1 Frequency Band

Frequency band	76-77 GHz

6.2.2 Maximum Transmit Power

Nominal radiated power: e.i.r.p. (peak detector)	23.9 dBm
Nominal radiated power: e.i.r.p. (RMS detector)	18.6 dBm

6.3 EU Declaration of Conformity under RE-D (2014/53/EU)

Hereby, Robert Bosch GmbH declares that the radio equipment type MRR1Crn & MRR1CrnCR is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: http://eu-doc.bosch.com

Please enter the Model as **MRR1Crn** to find the correct DoC in the database.

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7 Mandatory Country Specific User Manual Statements and Labels

The below subset of Bosch defined countries have requirements regarding specific phrases and labels that have to be reproduced in the vehicle user's manual.

The specific phrases and labels result from the radio type approval requirements of those countries.

The phrases and labels have to be included in a conspicuous location in the vehicle user manual and accurately reprinted as indicated in the following sub-chapters:

7.1 USA

User manual statement according to §15.19:

NOTICE:

This device complies with Part 15 of the FCC Rules

Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

User manual statement according to §15.21:

Changes or modifications made to this equipment not expressly approved by Robert BOSCH GmbH may void the FCC authorization to operate this equipment.

User manual statements according to §15.105:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RF Exposure Information according 2.1091 / 2.1093 / KDB 447498 / OET bulletin 65:

Radiofrequency radiation exposure Information:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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7.2 Canada

User manual statement according to RSS-GEN

NOTICE:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device must not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure Information according to RSS-102

Radiofrequency radiation exposure Information:
This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.
Ce transmetteur ne doit pas etre place au meme endroit ou utilise simultanement avec un autre transmetteur ou antenne.

MRR1Crn:

PMN -> BOSCH MRR1Crn

MRR1CrnCR:

PMN -> BOSCH MRR1CrnCR

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7.3 Japan

Japanese Radio Law Compliance. This device is granted pursuant to the Japanese Radio Law (電波法)

This device should not be modified (otherwise the granted designation number will become invalid)

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7.4 Hong Kong

HKCA 1035: automotive radar is radio equipment exempted from licensing

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8 Appendix A: Data Categories

The TCD data are subdivided into various categories.

The categories refer to the quality assurance measures taken by Bosch.

Category	Definition
I	Characteristic values for description of interface and application
II	Characteristic values for design verification test conditions
III	Tests which are performed one time in the release validation with at least one C-sample
IV	Test performed at least one time in reliability testing (environmental-endurance test) with a minimum of one C-sample
V	Test performed at least one time in reliability testing (QZ-Test) with a minimum of one D-sample

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