CEN/TC278 5.8GHz DSRC multi-application DSRC module

Features

- Compact size
- Field-proven
- Compliant to all relevant standards
- Easy integration into host system
- Mounted within host system housing
- Multiple power modes for minimum power consumption
- One-chip design
- Powerful SPI-based interface to host system
- Firmware and configuration can be updated from host system
- Host system can dynamically change mix of supported DSRC application types
- Host system can access and update DSRC attributes
- Support for up to 8 simultaneous DSRC application elements
- Support for mix of DSRC application types such as EFC, CCC, LAC and AVI
- Support for EFC variants such as EN 15509, PISTA, A1, CARDME and various national standards
- Optional integrated MMI buzzer
- For larger orders, physical dimensions and host system interface can be adapted to customer needs.

Applications

- Integration into GNSS-based OBUs
- Factory integration into new vehicles
- Custom housing OBUs

Description

Norbit DSRC Module VTM721 is a multi-application transponder (On-Board Unit) designed for Dedicated Short Range Communication (DSRC) compliant to CEN/TC278 and ETSI standards. It is designed to be integrated into Customer's equipment, enabling this to support DSRC functionality.

A single chip provides analogue signal handling, CPU, encryption algorithms and secure storing of program, application parameters and security keys. This ensures maximum reliability, flexibility and security. The VTM721 contains non-volatile memory allowing power down without data or program loss.

Norbit DSRC Module VTM721 supports a variety of DSRC Electronic Fee Collection (EFC) application types, including EN 15509, A1, CARDME and PISTA. National standards and vendor-defined variants such as AutoPASS, OGS, AS4962-A/B and SDSRC are also supported. Non-EFC DSRC application types supported include CCC, LAC, AVI, AutoPASS Parking and more. Additional DSRC application types or variants may be added by request.

The VTM721 can be delivered with pre-mounted antenna patch, or antenna patch may be integrated into Customer's housing.

VTM721

VTM721   technical features

Physical

Size	60 x 41 x 4.1 mm (excluding antenna patch)
Weight	Approx. 5 g

Electrical

Frequency	5.8 GHz
Conversion gain	> +7 dBi [1]
Sensitivity	< - 43 dBm [1]
Antenna beamwidth	> 70 degrees [1]
Input power	3.3V ±0.3V
Current	12 µA (sleep) [2]
	8 mA (active) [2]

Environmental

Operating temperature	-25 °C - +85 °C
Storage temperature	-40 °C - +90 °C

Performance

Encryption	DES in hardware
Transaction speed	All downlink frames give immediate response (no EN13372 'late response')

SPI protocol

Firmware update	Encrypted image
Attributes	Can be read/updated by host system [3]
Transactions	Host system can be alerted of any transaction attempts

Marking

Serial number/PAN	Printed in text and bar code

DSRC Communication

Physical layer	EN 12253
Data link layer	EN 12795
Application layer	EN 12834
EFC application profile	EN/ISO 14906
DSRC Profile	EN 13372 (Profile 0/1, Set L1-B)
Interoperability	GSS 3.2, EN 15509

DSRC compliance verification

Data link layer	ETSI TS 102 486-1
Application layer	ETSI TS 102 486-2
EN 14906 compliance	ISO/TS 14907
EN 15509 compliance	EN 15876

Conformance [4]

R&TTE	Ref. 99/5/EC
ERM	ETSI EN 300 674-2-2
EMC	Ref. 2004/108/EC
	ETSI EN 301 489
LVD	EN 60950
RoHS	Ref. 2011/65/EU
WEEE	Ref. 2012/19/EU

Lifetime

Transaction capacity	ISO 14815 Class A2
MTBF	> 200.000 hours

[1]   Typical, depending on Customer housing
[2]   Maximum value over operating temperature range
[3]   Except during DSRC transactions
[4]   Customer's product may require separate conformance certification

Ordering information [5]

Hardware: PartNo 20027-X-XX
- Buzzer option: A = With buzzer, B = no buzzer
- Antenna patch spacer: A = 3mm, B = 2.5mm, Z = No antenna patch
- Part revision number

Bootloader: PartNo 80101-X.X
- Bootloader software revision (e.g. 2.4)

Application: PartNo 80102-X.X.X-YYYY-ZZ
- ManufacturerId (normally 42-Norbit ITS)
- Customer variant number (normally 0000)
- Application software revision number (e.g. 1.9.0)

[5]   Unless software PartNo specified, most recent revisions will be delivered

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