R&S®CONTEST ITS

Test cases and applications

Test & Measurement

Data Sheet | 02.00

ROHDE & SCHWARZ

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Definitions

General use throughout this document:

- Detailed ordering information is listed at the end of this document
- n.a. = not available = not supported on this system
- n/a = not applicable

CONTEST basic software, drivers and interfaces

CONTEST test plan lock (R&S®TS8-KT015)

User generated test plans can be locked and transferred in a defined state onto other CONTEST installations.

For a more detailed description of the functionality of R&S®TS8-KT015, see the software manuals and the release notes documents.

CONTEST RF test system framework (R&S®TS8-KT100)

The CONTEST RF test system framework consists of the graphical user interface, sequencer functionality, online reporting and manages DUT settings.

For a more detailed description of the functionality of R&S®TS8-KT100, see the software manuals and the release notes documents.

CONTEST database interface (R&S®TS8-KT110)

CONTEST allows direct access to the reporting database for post processing and analysis. The CONTEST database scheme is available as SQL script for customized processing.

For a more detailed description of the functionality of R&S®TS8-KT110, see the software manuals and the release notes documents.

CONTEST external database extension (R&S®TS8-KT115)

This tool makes it possible to transfer local data (database, report files, log files) from the system controller to an external database and an external file server. This can be done interactively after filtering within the result analyzer. For PostgreSQL databases, installer/creation scripts are included. For other databases, an adapter can be user-programmed. R&S®TS8-KT115 comes with how-to documentation.

For a more detailed description of the functionality of R&S®TS8-KT115, see the software manuals and the release notes documents.

CONTEST climatic chamber driver (R&S®TS8-KT120)

Drivers for automatic control of ESPEC® SH-241 and VOETSCH® VT4002 environmental chambers as well as a generic driver template in C# programming language are part of this product.

For a more detailed description of the functionality of R&S®TS8-KT120, see the software manuals and the release notes documents.

CONTEST remote control (R&S®TS8-KT130)

The R&S®TS8-KT130 option allows remote control of the CONTEST GUI to load, parameterize and start test plans as well as control of the CONTEST tools for DUT services and preferences/settings.

CONTEST enhanced sequencer (R&S®TS8-KT135)

The R&S®TS8-KT135 option provides two general use cases:

- Run & repeat: test cases with a specific verdict will be repeated after the completion of a predefined sequence
- Automatic creation of a new test plan: depending on the test case verdicts of a previous test sequence, a new test plan can automatically be generated to repeat certain tests with the same parameter settings

CONTEST summary report (R&S®TS8-KT140)

The R&S®TS8-KT140 option generates a hierarchical XML summary report. The layout of the XML sheet can be customized to match customer requirements.

For a more detailed description of the functionality of R&S®TS8-KT140 see the software manuals and the release notes documents.

CONTEST report analyzer (R&S®TS8-KT150)

The R&S®TS8-KT150 option allows filtering and statistical analysis of results compiled in one report database.

For a more detailed description of the functionality of R&S®TS8-KT150, see the software manuals and the release notes documents.

CONTEST break conditions/IP trigger for debugging (R&S®TS8-KT155)

The R&S®TS8-KT155 option allows sophisticated debugging of UE problems at test case run time. Breakpoints can be set to pause the test case in order to manually operate the UE or to conduct manual measurements. Trigger events can be generated to control external software during the test case run to e.g. store UE logs.

CONTEST live notify (R&S®TS8-KT160)

The R&S®TS8-KT160 option activates notifications about the current system state and required user interactions.

For a more detailed description of the functionality of R&S®TS8-KT160, see the software manuals and the release notes documents.

CONTEST performance evaluation mode ITS (R&S®ITS-KT100)

The performance evaluation mode (PEM) tool makes it possible to access and modify test case parameter settings in order to establish the performance limits of the DUT in more detail.

Furthermore the CONTEST performance evaluation mode (PEM) tool enables field-2-lab testing (extra hardware required). This feature allows replaying of pre-recorded real IQ data via the R&S®TS-ITS100.

For a more detailed description of the functionality of R&S®ITS-KT100, see the software manuals and the release notes documents.

RF ITS performance test cases

Systems applicability
R&S®TS-ITS100
R&S®TS-ITS100 Base

Reference: C2C-CC basic system profile, whitepaper on antenna characterization and wireless performance aspects

Test case	Description	R&S®TS-ITS100	R&S®TS-ITS100 Base
8.0.0	Rx performance (with proposed ITS fading profiles)	R&S®ITS-KM120	R&S®ITS-KM120

Systems applicability
R&S®TS-ITS100

References:

- ETSI TS 102 687 V1.1.1 “Intelligent Transport Systems (ITS); Decentralized Congestion Control Mechanism for Intelligent Transport Systems operating in the 5 GHz range, Access layer part”
  and
- C2C-CC basic system profile, whitepaper on antenna characterization and wireless performance aspects

Test case	Description	R&S®TS-ITS100
3.1	Channel load threshold verification	R&S®ITS-KM121
3.2	Channel load measurement accuracy	R&S®ITS-KM121
3.3	Channel load quality under time-varying, multipath propagation conditions	R&S®ITS-KM121

RF ITS ETSI EN regulatory test cases (RED)

Systems applicability
R&S®TS-ITS100

Reference: ETSI EN 302 571 V2.0.2
Applicable frequency band: 5855 MHz to 5925 MHz (ITS-G5A, ITS-G5B, ITS-G5D)

Test case	Description	R&S®TS-ITS100
5.3.2.3.2	Transmitter frequency stability	R&S®ITS-KM100
5.3.3.3.2.1	RF output power	R&S®ITS-KM100
5.3.3.3.2.2	Power spectral density	R&S®ITS-KM100
5.3.5.3.2	Transmitter spectrum mask within the 5 GHz ITS frequency band for 10 MHz channel spacing	R&S®ITS-KM100
5.3.7.3.2	Receiver selectivity	R&S®ITS-KM101
5.3.8.3.2	Receiver sensitivity	R&S®ITS-KM101
5.3.4.3.2	Transmitter unwanted emissions outside the 5 GHz ITS bands	R&S®ITS-KM102
5.3.6.3.2	Receiver spurious emissions	R&S®ITS-KM103

RF ITS IEEE test cases

Systems applicability
R&S®TS-ITS100

Reference: IEEE 802.11-2012
Applicable frequency band: 5855 MHz to 5925 MHz

Test case	Description	R&S®TS-ITS100
18.3.9.2	Power levels	R&S®ITS-KM200
18.3.9.3	Spectrum mask	R&S®ITS-KM200
18.3.9.5	Center frequency tolerance	R&S®ITS-KM200
18.3.9.6	Symbol clock frequency tolerance	R&S®ITS-KM200
18.3.9.7.2	Center frequency leakage	R&S®ITS-KM200
18.3.9.7.3	Spectral flatness	R&S®ITS-KM200
18.3.9.7.4	Constellation error	R&S®ITS-KM200
18.3.10.2	Minimum input sensitivity	R&S®ITS-KM201
18.3.10.3	Adjacent channel rejection	R&S®ITS-KM201
18.3.10.4	Nonadjacent channel rejection	R&S®ITS-KM201
18.3.10.5	Maximum input level	R&S®ITS-KM201
18.3.10.6	CCA requirements	R&S®ITS-KM201
18.3.10.7	Received channel power indicator measurement	R&S®ITS-KM201
18.3.9.4	Transmission spurious	R&S®ITS-KM202

RF ITS TELEC test cases

Systems applicability
R&S®TS-ITS100

Reference: TELEC T257 (V2.0)
Applicable frequency band: 755.5 MHz to 764.5 MHz

Test case	Description	R&S®TS-ITS100
1.1.1	Frequency tolerance	R&S®ITS-KM300
1.1.2	Occupied bandwidth	R&S®ITS-KM300
1.1.3	Antenna power tolerance	R&S®ITS-KM300
1.1.5	Transmission data rate	R&S®ITS-KM300
1.3.3	Transmission time control function	R&S®ITS-KM300
1.3.1	Interference prevention function	R&S®ITS-KM301
1.3.2	Carrier sense function	R&S®ITS-KM301
1.1.4	Intensity of spurious or unwanted emissions	R&S®ITS-KM302
1.2.1	Limits of incidentially produced radiation	R&S®ITS-KM303

RF ITS ARIB test cases

Systems applicability
R&S®TS-ITS100

Reference: ARIB STD-T109 (V1.2)

Applicable frequency band: 755.5 MHz to 764.5 MHz

Test case	Description	R&S®TS-ITS100
2.1.1	Modulation accuracy	R&S®ITS-KM320
2.1.2	Reception sensitivity (packet error rate)	R&S®ITS-KM321
2.1.3	Maximum input power for reception	R&S®ITS-KM321
2.1.4	Blocking characteristics	R&S®ITS-KM321

Supported RF ITS frequency bands

Systems applicability
R&S®TS-ITS100
R&S®TS-ITS100 Base

ITS band	Frequency range	Option for R&S®TS-ITS100
ETSI ITS-G5A (in line with ETSI EN 302 571 V2.0.2)	5875 MHz to 5905 MHz	R&S®ITS-EUG5A
ETSI ITS-G5B (in line with ETSI EN 302 571 V2.0.2)	5855 MHz to 5875 MHz	R&S®ITS-EUG5B
ETSI ITS-G5D (in line with ETSI EN 302 571 V2.0.2)	5905 MHz to 5925 MHz	R&S®ITS-EUG5D
Japan (in line with ARIB STD-T109)	755 MHz to 765 MHz	R&S®ITS-JP760
USA (in line with IEEE 802.11 – 2012)	5855 MHz to 5925 MHz	R&S®ITS-US

Ordering information

CONTEST tools

Designation	Type	Order No.
CONTEST Test Plan Lock	R&S®TS8-KT015	1519.5573.02
CONTEST Basic Software	R&S®TS8-KT100	1510.7067.02
CONTEST Database Interface	R&S®TS8-KT110	1513.7516.02
CONTEST External Database Extension	R&S®TS8-KT115	1517.1335.02
CONTEST Environmental Chamber Driver	R&S®TS8-KT120	1513.7522.02
CONTEST Remote Control	R&S®TS8-KT130	1518.3502.02
CONTEST Enhanced Sequencer	R&S®TS8-KT135	1518.3525.02
CONTEST Summary Report	R&S®TS8-KT140	1513.7968.02
CONTEST Report Analyzer	R&S®TS8-KT150	1513.8293.02
CONTEST Break Cond./IP Trigger for Debugging	R&S®TS8-KT155	1518.3519.02
CONTEST Live Notify	R&S®TS8-KT160	1520.0071.02
CONTEST Performance Evaluation Mode	R&S®ITS-KT100	1522.8828.02

RF ITS performance test case

ITS RF Performance (with proposed ITS fading profiles)	R&S®ITS-KM120	1522.8740.02
ITS RF DCC Conformance	R&S®ITS-KM121	1526.5846.02

RF ITS ETSI EN regulatory test cases (RED)

ITS RF R&TTE IB Tx Conformance	R&S®ITS-KM100	1522.8705.02
ITS RF R&TTE IB Rx Conformance	R&S®ITS-KM101	1522.8711.02
ITS RF R&TTE OB Tx Conformance	R&S®ITS-KM102	1522.8728.02
ITS RF R&TTE OB Rx Conformance	R&S®ITS-KM103	1522.8734.02

RF ITS IEEE test cases

ITS RF IEEE IB Tx Conformance	R&S®ITS-KM200	1526.6136.02
ITS RF IEEE IB Rx Conformance	R&S®ITS-KM201	1526.6142.02
ITS RF IEEE OB Tx Conformance	R&S®ITS-KM202	1526.6507.02

RF ITS TELEC test cases

ITS RF TELEC T257 IB Tx Conformance	R&S®ITS-KM300	1526.5417.02
ITS RF TELEC T257 IB Rx Conformance	R&S®ITS-KM301	1526.6107.02
ITS RF TELEC T257 OB Tx Conformance	R&S®ITS-KM302	1526.6113.02
ITS RF TELEC T257 OB Rx Conformance	R&S®ITS-KM303	1526.6120.02

RF ITS ARIB test cases

ITS RF ARIB T109 IB Tx Conformance	R&S®ITS-KM320	1526.6494.02
ITS RF ARIB T109 IB Rx Conformance	R&S®ITS-KM321	1526.6488.02

Supported RF ITS frequency bands

ITS RF EU G5A	R&S®ITS-EUG5A	1522.8757.02
ITS RF EU G5B	R&S®ITS-EUG5B	1522.9099.02
ITS RF EU G5D	R&S®ITS-EUG5D	1526.5130.02
ITS RF JP 760	R&S®ITS-JP760	1526.5146.02
ITS RF US	R&S®ITS-US	1526.6094.02

Rohde & Schwarz reserves the right to adjust the content of the test case packages according to the progress in the relevant standardization bodies (e.g. ETSI) and certification forums (e.g. GCF, PTCRB).

Service that adds value

- Worldwide
- Local and personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

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The Rohde & Schwarz electronics group is a leading supplier of solutions in the fields of test and measurement, broadcasting, secure communications, and radiomonitoring and radiolocation. Founded more than 80 years ago, this independent global company has an extensive sales network and is present in more than 70 countries.
The company is headquartered in Munich, Germany.

Sustainable product design

- Environmental compatibility and eco-footprint
- Energy efficiency and low emissions
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Certified Quality Management
ISO 9001

Certified Environmental Management
ISO 14001

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