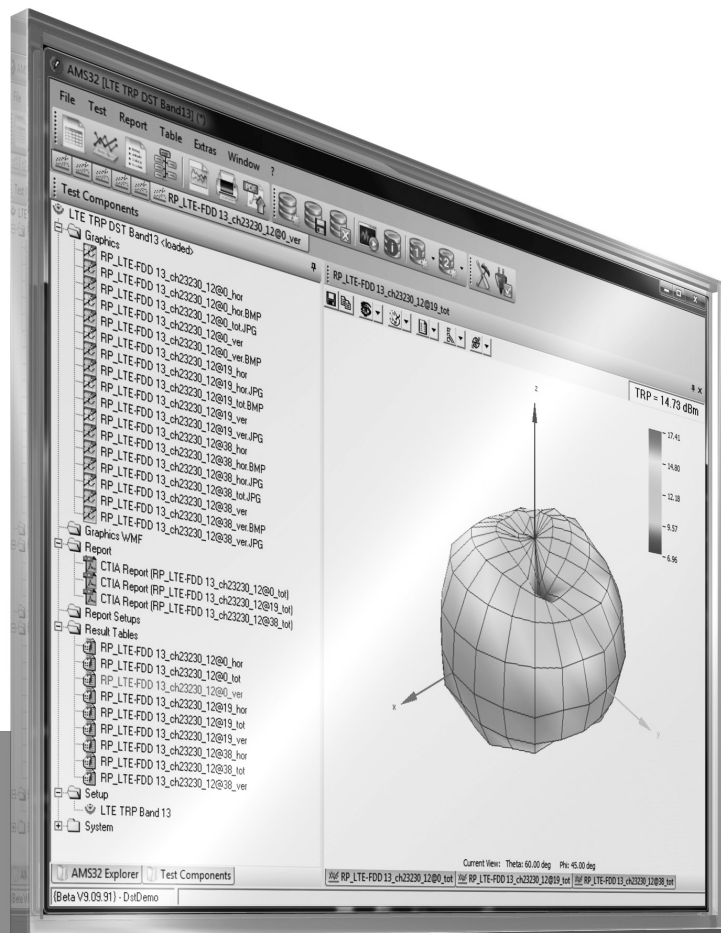


R&S[®] AMS32 OTA PERFORMANCE MEASUREMENT SOFTWARE

Specifications



Data Sheet
Version 08.00

ROHDE & SCHWARZ

Make ideas real



CONTENTS

System requirements	4
Base software	4
R&S®AMS32 OTA performance measurement software	4
Options	5
R&S®AMS32-K22 option for GSM, GPRS, EDGE.....	5
R&S®AMS32-K23 option for CDMA, CDMA2000®, 1xRTT, 1xEV-DO	5
R&S®AMS32-K24 option for WCDMA, HSPA	5
R&S®AMS32-K25 option for WLAN, Bluetooth®	5
R&S®AMS32-K271 option for TD-SCDMA	5
R&S®AMS32-K28 option for A-GPS (GSM, CDMA, WCDMA)	5
R&S®AMS32-K29 option for LTE (FDD, TDD), SISO	5
R&S®AMS32-K30 option for LTE (FDD, TDD), ECC, CA	5
R&S®AMS32-K30A option for LTE-Advanced (FDD, TDD),	5
R&S®AMS32-K30L option for LTE license assisted access (LAA).....	5
R&S®AMS32-K31 option for LTE MIMO.....	6
R&S®AMS32-K33 option for A-GPS and A-GLONASS LTE	6
R&S®AMS32-K33V option for A-GPS LTE, VzW SIB8/16	6
R&S®AMS32-K34 option for stand-alone GNSS measurements	6
R&S®AMS32-K35 option for LTE Cat M1, NB-IoT.....	6
R&S®AMS32-K36 option for Bluetooth® low energy	6
R&S®AMS32-K37 option for A-GNSS with location based services (LBS) server, base option.....	6
R&S®AMS32-K37F option for A-GNSS multi-frequency.....	6
R&S®AMS32-K37L option for A-GNSS with LBS server, LTE	6
R&S®AMS32-K48 option for triggered vector network analyzer (VNA) measurements	6
R&S®AMS32-K49 option for visualization of far-field (FF) antenna measurements	6
R&S®AMS32-K50 option for near-field – far-field (NF-FF) transformation.....	7
R&S®AMS32-K50G option for calculation of arbitrary ground material	7
R&S®AMS32-K50P option for PEC correction over metal ground plane.....	7
R&S®AMS32-K51 option for probe correction (NF-FF transformation)	7
R&S®AMS32-K52 option for visualization of equivalent currents (NF-FF transformation)	7
R&S®AMS32-K52U option for user defined surface currents (NF-FF transformation).....	7
R&S®AMS32-K53 option for NF-FF transformation, spherical wave expansion (SWE).....	7
R&S®AMS32-K54 option for DUT offset correction	7
R&S®AMS32-K55 option for AUT phase center calculation.....	7
R&S®AMS32-K56 option for NF-FF transformation, pattern measurements for AUT with active antennas	7
R&S®AMS32-K57 option for antenna tests with frequency converting DUT.....	7
R&S®AMS32-K58 option for RF uplink 3D measurements for 5G	8
R&S®AMS32-K58D option for RF measurements with digitally modulated signals	8
R&S®AMS32-K59N option for phase measurement with multiple R&S®NRQ6 power sensors	8

R&S®AMS32-K80 option for machine readable report (CTIA)	8
R&S®AMS32-K90 option for AMS32 software upgrade service, 1 year	8
R&S®EMC32-K974 remote control for EMC32	8
R&S®AMS32-U9 upgrade option to version 9	8
Options for R&S®DST200 RF diagnostic chamber	9
R&S®AMS32-DST OTA measurement software.....	9
R&S®AMS32-RDST TCP remote control for R&S®DST-B160 and R&S®DST-B165 3D positioners.....	9
R&S®AMS32-PK20 software license package for R&S®DST200.....	9
R&S®AMS32-PK25 software license package for R&S®DST200.....	9
R&S®EMC32-K11 test sequencer	9
Ordering information	10

System requirements ¹

Operating system	Windows 10 (64 bit), Windows 7 (32 and 64 bit),
CPU	Intel Core models or compatible models with a core speed > 2.4 GHz
Free RAM	≥ 16 Gbyte
Free hard disk space	≥ 512 Gbyte, usage of SSD recommended
Screen resolution	≥ 1280 × 1024 pixel, 65536 colors (higher resolution strongly recommended); screen size: at least 17 inch
Measuring instrument connection	IEEE bus interface from National Instruments with the latest available IEEE 488 driver (compatible cards from other manufacturers are not supported) ≥ 100 Mbit LAN interface
NI Visa driver	National Instruments VISA I/O library with optional NI GPIB interface card: Compatible GPIB cards from other manufactures are not supported! Not included in CD image.
Software update	The integrated software update manager requires Internet access for querying the Rohde & Schwarz website on updates and important messages.
Open source acknowledgement	The R&S®AMS32 OTA performance measurement software contains open source software packages. Copies of the respective licenses are included in the “R&S®AMS32 OTA performance measurement software open source acknowledgement”. Please refer to the download area at www.emc32.rohde-schwarz.com .

Base software

R&S® AMS32 OTA performance measurement software

Standards	CTIA 3.7 or higher
	3GPP TS 34.114
	Verizon Wireless proprietary standards
Measured parameters	<ul style="list-style-type: none"> total radiated power (TRP) near-horizon partial radiated power (NHPRP) (at different angles, upper and lower hemisphere) total isotropic sensitivity (TIS) near-horizon partial isotropic sensitivity (NHPIS) (at different angles, upper and lower hemisphere) antenna gain, efficiency, directivity
Key features	<ul style="list-style-type: none"> over-the-air (OTA) measurements on mobile phones (one or more option required, see below) intermediate sensitivity tests on mobile phones desense tests on mobile phones passive antenna measurements conducted and radiated tests MIMO OTA measurements, Rohde & Schwarz decomposition method (options required) path loss and range calibration ripple test in line with CTIA anechoic chamber validation in line with 3GPP anechoic chamber validation in line with WMF R&D mode viewer mode sequencer (ability to run multiple tests in sequential order with little or no user interaction) configuration through intuitive GUI
Reporting	HTML, RTF, PDF 3D graphics
Test instruments	
Passive antenna measurements	R&S®ZVx, R&S®ZNx
Total radiated power (TRP)	R&S®NRP2, R&S®NRP-Zxx, R&S®FSx, R&S®ZVL

¹ If your PC does not meet these requirements, the performance of the software may be impaired.

Options

R&S® AMS32-K22 option for GSM, GPRS, EDGE

Standards	CTIA 3.7 or higher 3GPP TS 34.114
Test instruments	R&S®CMU200, R&S®CMW500

R&S® AMS32-K23 option for CDMA, CDMA2000®, 1xRTT, 1xEV-DO

Standard	CTIA 3.7 or higher
Test instruments	R&S®CMU200, R&S®CMW500

R&S® AMS32-K24 option for WCDMA, HSPA

Standards	CTIA 3.7 or higher 3GPP TS 34.114
Test instruments	R&S®CMU200, R&S®CMW500

R&S® AMS32-K25 option for WLAN, Bluetooth®

Standard	CWG 2.0 or higher
Test instruments	
Bluetooth®	R&S®CBT, R&S®CBT32, R&S®CMU200, R&S®CMW500
WLAN	R&S®CMW500, R&S®CMW270

R&S® AMS32-K271 option for TD-SCDMA

Standard	YD/T 1977
Test instrument	R&S®CMW500

R&S® AMS32-K28 option for A-GPS (GSM, CDMA, WCDMA)

Standard	CTIA 3.7 or higher
Test instruments	R&S®CMU200, R&S®CMW500 R&S®SMU200A, R&S®SMBV100A

R&S® AMS32-K29 option for LTE (FDD, TDD), SISO

Standards	<ul style="list-style-type: none"> CTIA 3.7 or higher 3GPP TS 34.114
Test instrument	R&S®CMW500

R&S® AMS32-K30 option for LTE (FDD, TDD), ECC, CA

Standards	<ul style="list-style-type: none"> CTIA 3.7 or higher 3GPP TS 34.114 Verizon Wireless, proprietary 2CC carrier aggregation
Test instrument	R&S®CMW500

R&S® AMS32-K30A option for LTE-Advanced (FDD, TDD),

Standards	<ul style="list-style-type: none"> CTIA 3.7 or higher 3GPP TS 34.114 Verizon Wireless, proprietary LTE-U, 3CC, 4CC carrier aggregation
Test instrument	R&S®CMW500

R&S® AMS32-K30L option for LTE license assisted access (LAA)

Standard	CTIA 3.8 or higher
Test instruments	R&S®CMW500

R&S® AMS32-K31 option for LTE MIMO

Standard	Rohde & Schwarz decomposition method
Test instruments	R&S®CMW500, R&S®SMW200A

R&S® AMS32-K33 option for A-GPS and A-GLONASS LTE

Standard	CTIA 3.7 or higher
Test instruments	R&S®CMW500, R&S®SMBV100A
Test software	R&S®CONTEST

R&S® AMS32-K33V option for A-GPS LTE, VzW SIB8/16

Standard	Verizon Wireless, proprietary
Test instruments	R&S®CMW500, R&S®SMBV100A
Test software	R&S®CONTEST

R&S® AMS32-K34 option for stand-alone GNSS measurements

Standard	CTIA 3.7 or higher
Test instruments	R&S®SMBV100A

R&S® AMS32-K35 option for LTE Cat M1, NB-IoT

Standards	CTIA 3.8 or higher
Test instrument	R&S®CMW500

R&S® AMS32-K36 option for Bluetooth® low energy

Standard	CTIA 3.x (planned)
Test instrument	R&S®CMW270, R&S®CMW500

R&S® AMS32-K37 option for A-GNSS with location based services (LBS) server, base option

Standard	CTIA 3.7 or higher
Test instruments	R&S®SMBV100A, R&S®CMW500

R&S® AMS32-K37F option for A-GNSS multi-frequency

Standard	CTIA 4.0 or higher
Test instruments	R&S®CMW500, R&S®SMBV100B

R&S® AMS32-K37L option for A-GNSS with LBS server, LTE

Standard	CTIA 3.7 or higher
Test instruments	R&S®SMBV100A, R&S®CMW500

R&S® AMS32-K48 option for triggered vector network analyzer (VNA) measurements

Test method	passive antenna measurements, triggered VNA measurements with continuous mode of positioner
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K49 option for visualization of far-field (FF) antenna measurements

Test method	passive antenna measurements, visualization of far-field antenna measurements
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K50 option for near-field – far-field (NF-FF) transformation

Test method	passive antenna measurements
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K50G option for calculation of arbitrary ground material

Test method	passive antenna measurements, calculation of radiation characteristics of a DUT over arbitrary ground materials
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K50P option for PEC correction over metal ground plane

Test method	passive antenna measurements, PEC correction for measurements over metal ground plane
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K51 option for probe correction (NF-FF transformation)

Test method	passive antenna measurements
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K52 option for visualization of equivalent currents (NF-FF transformation)

Test method	passive antenna measurements
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K52U option for user defined surface currents (NF-FF transformation)

Test method	passive antenna measurements
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K53 option for NF-FF transformation, spherical wave expansion (SWE)

Test method	passive antenna measurements
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K54 option for DUT offset correction

Test method	passive antenna measurements, OTA measurements
Test instruments	R&S®ZVx, R&S®ZNx, R&S®CMW500

R&S® AMS32-K55 option for AUT phase center calculation

Test method	passive antenna measurements
Test instruments	R&S®ZVx, R&S®ZNx,

R&S® AMS32-K56 option for NF-FF transformation, pattern measurements for AUT with active antennas

Test method	passive antenna measurements with reference antenna
Test instruments	R&S®ZVx, R&S®ZNx, R&S®RTO

R&S® AMS32-K57 option for antenna tests with frequency converting DUT

Test method	passive antenna measurements, antenna tests with frequency converting DUT
Test instruments	R&S®ZVx, R&S®ZNx

R&S® AMS32-K58 option for RF uplink 3D measurements for 5G

Test method	passive antenna measurements, RF uplink 3D measurements for 5G (EVM, EIRP, ACLR)
Test instruments	R&S®FSWx

R&S® AMS32-K58D option for RF measurements with digitally modulated signals

Test method	passive antenna measurements, RF measurements with digitally modulated signals for two R&S®SMW200A signal generators
Test instruments	R&S®SMW200A

R&S® AMS32-K59N option for phase measurement with multiple R&S®NRQ6 power sensors

Test method	passive antenna measurements, phase measurement with multiple R&S®NRQ6 frequency selective power sensors, up to 3 units
Test instruments	R&S®NRQ6

R&S® AMS32-K80 option for machine readable report (CTIA)

Standard	CTIA 4.0 or higher
Test instrument	R&S®CMW500

R&S® AMS32-K90 option for AMS32 software upgrade service, 1 year

Test software	for base software: R&S®AMS32, R&S®AMS32-VUS, R&S®AMS32-DST
---------------	--

R&S® EMC32-K974 remote control for EMC32

Key features	<ul style="list-style-type: none"> • TCP based remote control interface • test control: create, run, save, load • NF-FF transformation control
--------------	---

R&S® AMS32-U9 upgrade option to version 9

Upgrade	upgrade from R&S®AMS32 version 8.xx or lower to version 9.xx or 10.xx
---------	---

Options for R&S® DST200 RF diagnostic chamber

R&S® AMS32-DST OTA measurement software

Standards	CTIA 3.5.2 or higher, 3GPP TS 34.114 (precompliant)
Measured parameters	<ul style="list-style-type: none"> total radiated power (TRP) near-horizon partial radiated power (NHPRP) (at different angles, upper and lower hemisphere) total isotropic sensitivity (TIS) near-horizon partial isotropic sensitivity (NHPIIS) (at different angles, upper and lower hemisphere) intermediate sensitivity tests on mobile phones desense tests on mobile phones
Key features	<ul style="list-style-type: none"> OTA measurements on mobile phones intermediate sensitivity tests on mobile phones desense tests on mobile phones conducted and radiated tests path loss and range calibration sequencer (ability to run multiple test in sequential order with little or no user interaction) R&D mode viewer mode configuration through intuitive GUI
Reporting	<ul style="list-style-type: none"> HTML, RTF, PDF 3D graphics

R&S® AMS32-RDST TCP remote control for R&S® DST-B160 and R&S® DST-B165 3D positioners

Standards	CTIA 3.5.2 or higher, 3GPP TS 34.114 (precompliant)
Key features	<ul style="list-style-type: none"> TCP based remote control interface single control of elevation and azimuth axes

R&S® AMS32-PK20 software license package for R&S® DST200

Cellular standards	<ul style="list-style-type: none"> GSM, GPRS, EDGE CDMA2000®, 1xEV-DO WCDMA, HSPA LTE (FDD, TDD)
--------------------	--

R&S® AMS32-PK25 software license package for R&S® DST200

Cellular and wireless standards	<ul style="list-style-type: none"> GSM, GPRS, EDGE CDMA2000®, 1xEV-DO WCDMA, HSPA TD-SCDMA LTE (FDD, TDD) WLAN, Bluetooth®
---------------------------------	--

R&S® EMC32-K11 test sequencer

Key features	<ul style="list-style-type: none"> sequential test runs for OTA measurements with R&S® AMS32 test plan for different categories individual and comprehensive reports in line with customer requirements
--------------	--

Ordering information

Designation	Type	Order No.	Required software version
OTA performance measurement software	R&S®AMS32	1508.6650.02	≥ 10.00
R&S®AMS32 upgrade to version 9	R&S®AMS32-U9	1508.6680.09	8.xx or lower
Options			
GSM, GPRS, EDGE	R&S®AMS32-K22	1508.6680.22	≥ 10.00
CDMA, CDMA2000®, 1xRTT, 1xEV-DO	R&S®AMS32-K23	1508.6680.23	≥ 10.00
WCDMA, HSPA	R&S®AMS32-K24	1508.6680.24	≥ 10.00
WLAN, Bluetooth®	R&S®AMS32-K25	1508.6680.25	≥ 10.00
TD-SCDMA	R&S®AMS32-K271	1508.6680.27	≥ 10.00
A-GPS (GSM, CDMA, WCDMA)	R&S®AMS32-K28	1508.6680.28	≥ 10.00
LTE, SISO	R&S®AMS32-K29	1508.6680.29	≥ 10.00
LTE, ECC, CA	R&S®AMS32-K30	1508.6680.30	≥ 10.00
LTE, Advanced	R&S®AMS32-K30A	1508.6680.10	≥ 10.00
LTE, LAA	R&S®AMS32-K30L	1508.6680.15	≥ 10.50
LTE MIMO	R&S®AMS32-K31	1508.6680.31	≥ 10.00
A-GPS LTE	R&S®AMS32-K33	1508.6680.33	≥ 10.00
A-GPS LTE, VzW SIB8/16	R&S®AMS32-K33V	1508.6680.13	≥ 10.00
Stand-alone GNSS measurements	R&S®AMS32-K34	1508.6680.34	≥ 10.40
LTE Cat M1, NB-IoT	R&S®AMS32-K35	1508.6680.35	≥ 10.40
Bluetooth® low energy	R&S®AMS32-K36	1508.6680.36	≥ 10.50
A-GNSS with LBS server, base option	R&S®AMS32-K37	1508.6680.37	≥ 10.40
A-GNSS multi-frequency	R&S®AMS32-K37F	1508.6680.16	≥ 10.60
A-GNSS with LBS server, LTE	R&S®AMS32-K37L	1508.6680.12	≥ 10.40
Triggered VNA measurements	R&S®AMS32-K48	1508.6680.48	≥ 10.00
Visualization of far-field antenna measurements	R&S®AMS32-K49	1508.6680.49	≥ 10.35
NF-FF transformation	R&S®AMS32-K50	1508.6680.50	≥ 10.00
Calculation of arbitrary ground material	R&S®AMS32-K50G	1508.6680.63	≥ 11.20
PEC correction over metal ground plane	R&S®AMS32-K50P	1508.6680.62	≥ 11.20
Probe correction for NF-FF transformation	R&S®AMS32-K51	1508.6680.51	≥ 10.00
Visualization of equivalent currents	R&S®AMS32-K52	1508.6680.52	≥ 10.00
User-defined surface currents	R&S®AMS32-K52U	1508.6680.82	≥ 10.59
NF-FF transformation, SWE	R&S®AMS32-K53	1508.6680.53	≥ 10.20
DUT offset correction	R&S®AMS32-K54	1508.6680.54	≥ 10.59
AUT phase center calculation	R&S®AMS32-K55	1508.6680.55	≥ 10.59
Pattern measurements for AUT with active antennas	R&S®AMS32-K56	1508.6680.56	≥ 10.20
Antenna tests for frequency converting DUT	R&S®AMS32-K57	1508.6680.57	≥ 10.35
RF uplink 3D measurements for 5G	R&S®AMS32-K58	1508.6680.58	≥ 10.35
RF measurements with digitally modulated signals for two R&S®SMW200A signal generators	R&S®AMS32-K58D	1508.6680.18	≥ 11.10
Phase measurement with multiple R&S®NRQ6 power sensors	R&S®AMS32-K59N	1508.6680.59	≥ 11.20
Machine readable report (CTIA)	R&S®AMS32-K80	1508.6680.80	≥ 11.00
R&S®AMS32 software upgrade service, 1 year	R&S®AMS32-K90	1508.6680.90	≥ 11.00
OTA measurement software for R&S®DST200	R&S®AMS32-DST	1518.5270.02	≥ 10.00
TCP remote control for R&S®DST-B160 and R&S®DST-B165 3D positioners	R&S®AMS32-RDST	1518.5270.04	≥ 10.20
Software license package 1 for R&S®DST200	R&S®AMS32-PK20	1518.5286.02	≥ 10.00
Software license package 2 for R&S®DST200	R&S®AMS32-PK25	1508.5286.25	≥ 10.00
Test sequencer for R&S®AMS32, R&S®EMC32, R&S®WMS32	R&S®EMC32-K11	1117.6862.02	≥ 10.00
Remote control for R&S®AMS32, R&S®EMC32, R&S®WMS32	R&S®EMC32-K974	1520.9879.02	≥ 10.00

Please check the R&S®AMS32 installation CD for the required firmware versions of the test instruments.

Download of R&S®AMS32 OTA performance measurement software: www.emc32.rohde-schwarz.com

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Rohde & Schwarz is under license.

CDMA2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA).

Service that adds value

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

Rohde & Schwarz

The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, monitoring and network testing. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.

www.rohde-schwarz.com

Sustainable product design

- ▶ Environmental compatibility and eco-footprint
- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership

Certified Quality Management
ISO 9001

Certified Environmental Management
ISO 14001

Rohde & Schwarz training

www.training.rohde-schwarz.com

Rohde & Schwarz customer support

www.rohde-schwarz.com/support

