R&S®BBA300
BROADBAND AMPLIFIER

Specifications

Data Sheet
Version 04.00

ROHDE&SCHWARZ
Make ideas real

CONTENTS

European directives

RoHS Europe, Directive 2011/65/EU:
Equipment category 9, fulfilled without any exceptions.

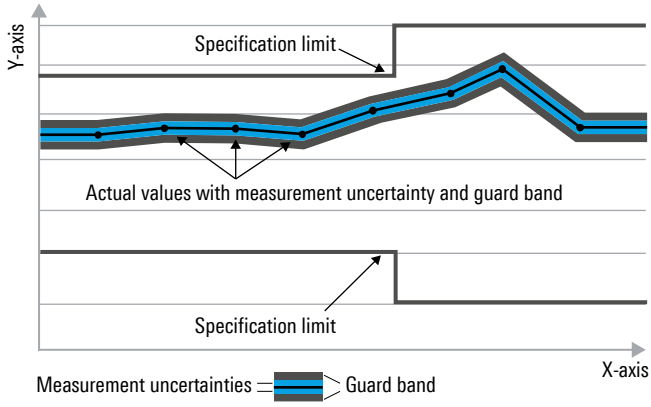
WEEE Europe, Directive 2002/96/EC:
No disposing with unsorted municipal waste; no return with collection of waste electrical and electronic equipment from private households. Separate collection necessary. Ask Rohde & Schwarz representatives about recovery.

Definitions

General
Product data applies under the following conditions:

- 15 minutes warm-up operation
- All specified parameters are valid for an ambient temperature of +25 °C, input impedance of 50 Ω and output impedance of 50 Ω
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits
Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as <, ≤, >, ≥, ±, or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Non-traceable specifications with limits (n. trc.)
Represent product performance that is specified and tested as described under “Specifications with limits” above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Rohde & Schwarz laboratories.

Specifications without limits
Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

Typical data (typ.)
Characterizes product performance by means of representative information for the given parameter. When marked with <, > or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)
Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)
Characterize expected product performance by means of measurement results gained from individual samples.

Uncertainties
Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are designated with the format “parameter: value”.

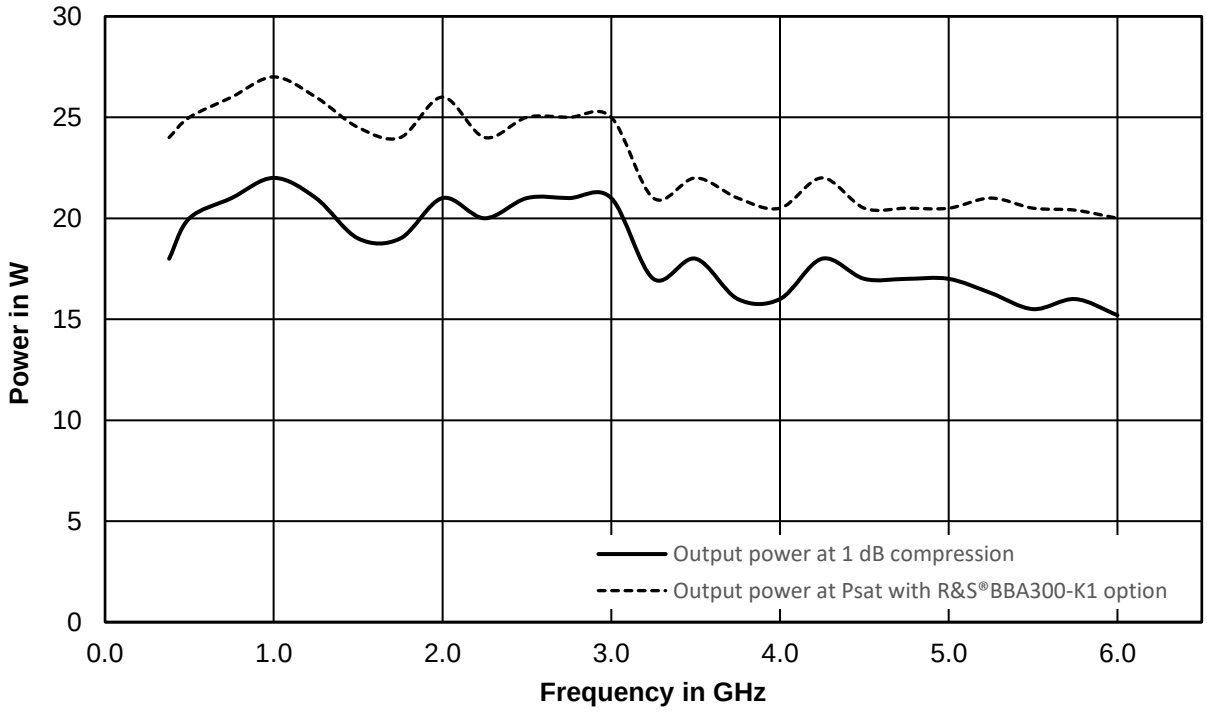
Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

In line with the 3GPP standard, chip rates are specified in million chips per second (Mcps), whereas bit rates and symbol rates are specified in billion bit per second (Gbps), million bit per second (Mbps), thousand bit per second (kbps), million symbols per second (Msps) or thousand symbols per second (ksps), and sample rates are specified in million samples per second (Msample/s). Gbps, Mcps, Mbps, Msps, kbps, ksps and Msample/s are not SI units.

Frequency band CDE from 380 MHz to 6 GHz

R&S®BBA300-CDE15, power class: 15 W P1dB, or 20 W P_{sat} [1]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		380 MHz to 6 GHz instantaneously
Nominal output load		50 Ω
Nominal output power		15 W (41.76 dBm)
Output power [2]	380 MHz to 6 GHz	min. 15 W (41.76 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [2]	380 MHz to 6 GHz	min. 20 W (43.00 dBm)
Output power at 1 dB compression [2]	380 MHz to 6 GHz	min. 15 W (41.76 dBm)
Nominal power gain	at 1 GHz	nom. 41.76 dB
Gain flatness	380 MHz to 6 GHz	±4.0 dB
Harmonics at P1dB and class A		< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	380 MHz to 5 GHz	nom. < 10.0 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	380 MHz to 6 GHz	nom. –114 dBm (1 Hz)

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

[1] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[2] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^{1}/_{1}$, 4 HU
Weight		approx. 16 kg (35 lb)

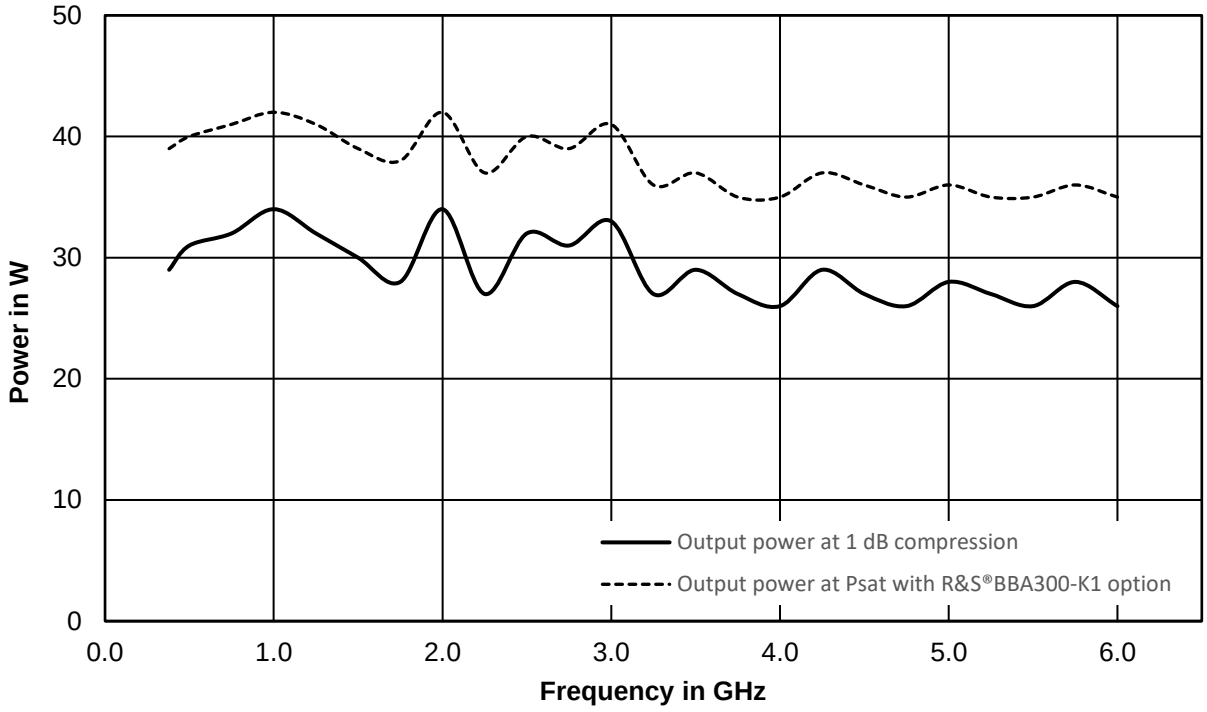
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
Rated current	at 110 V	5.5 A
	at 230 V	2.6 A
Maximum AC power		600 VA

R&S®BBA300-CDE25, power class: 25 W P1dB, or 35 W P_{sat} [3]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		380 MHz to 6 GHz instantaneously
Nominal output load		50 Ω
Nominal output power		25 W (44.0 dBm)
Output power [4]	380 MHz to 6 GHz	min. 25 W (44.0 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [4]	380 MHz to 6 GHz	min. 35 W (45.44 dBm)
Output power at 1 dB compression [4]	380 MHz to 6 GHz	min. 25 W (44.0 dBm)
Nominal power gain	at 1 GHz	nom. 44.0 dB
Gain flatness	380 MHz to 6 GHz	±4.0 dB
Harmonics at P1dB and class A		< –23 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	380 MHz to 5 GHz	nom. < 10.0 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	380 MHz to 6 GHz	nom. –114 dBm (1 Hz)

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S® BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

[3] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[4] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^{1}/_{1}$, 4 HU
Weight		approx. 16 kg (35 lb)

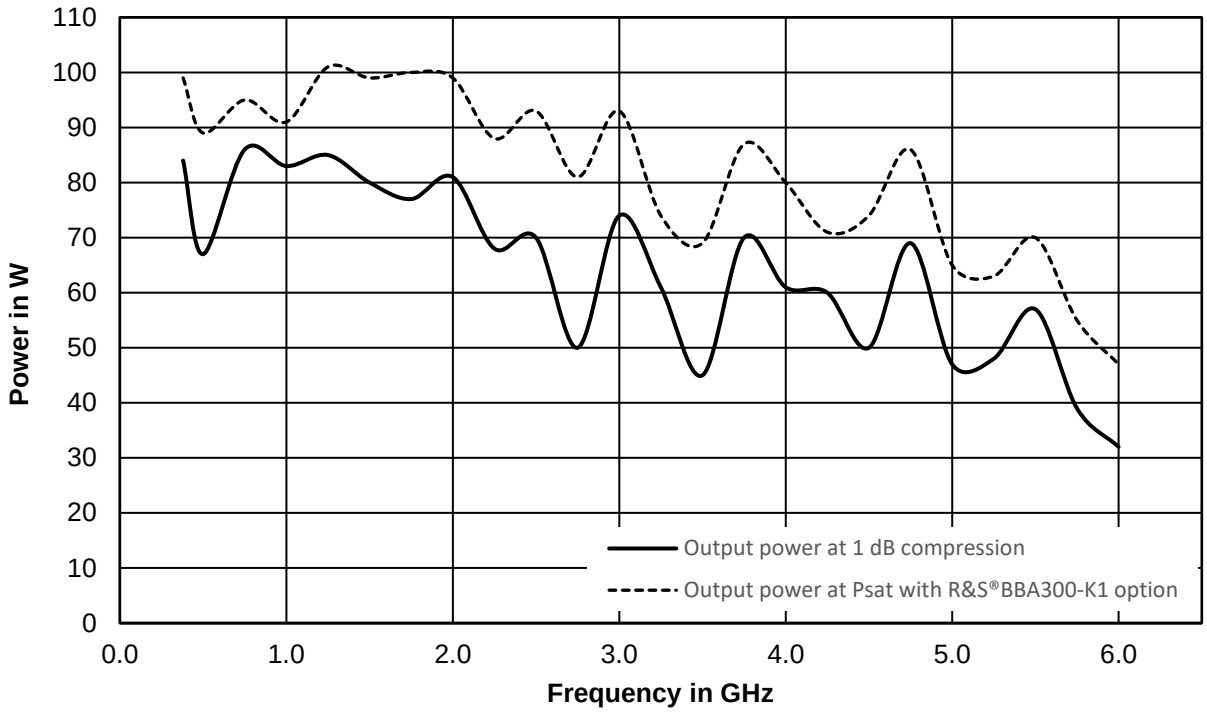
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
Rated current	at 110 V	5.7 A
	at 230 V	2.7 A
Maximum AC power		620 VA

R&S®BBA300-CDE50, power class: 50 W P1dB, or 75 W P_{sat} [5]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		380 MHz to 6 GHz instantaneously
Nominal output load		50 Ω
Nominal output power		50 W (47 dBm)
Output power [6]	380 MHz to 5.5 GHz	min. 50 W (47.00 dBm)
	5.5 GHz to 6 GHz	min. 40 W (46.00 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [6]	380 MHz to 2 GHz	min. 75 W (48.75 dBm)
	2 GHz to 3.2 GHz	min. 63 W (48.00 dBm)
	3.2 GHz to 5.5 GHz	min. 50 W (47.00 dBm)
	5.5 GHz to 6 GHz	min. 35 W (45.50 dBm)
Output power at 1 dB compression [6]	380 MHz to 2.6 GHz	min. 50 W (47.00 dBm)
	2.6 GHz to 5.5 GHz (except 3.2 to 3.6 GHz, 4.8 to 5.2 GHz)	min. 45 W (46.50 dBm)
	3.2 GHz to 3.6 GHz, 4.8 GHz to 5.2 GHz	min. 40 W (46.03 dBm)
	5.5 GHz to 6 GHz	min. 30 W (44.80 dBm)
Nominal power gain	at 1 GHz	nom. 47 dB
Gain flatness	380 MHz to 6 GHz	±4.0 dB
Gain adjustment range		> 20 dB
Harmonics at P1dB and class A	380 MHz to 2.6 GHz	< –20 dBc
	2.6 GHz to 3.2 GHz	< –18 dBc
	3.2 GHz to 6 GHz	< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	380 MHz to 5 GHz	nom. < 10 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	at nominal gain	nom. < –114 dBm (1 Hz)

[5] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[6] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^1/_1$, 4 HU
Weight		approx. 16 kg (35 lb)

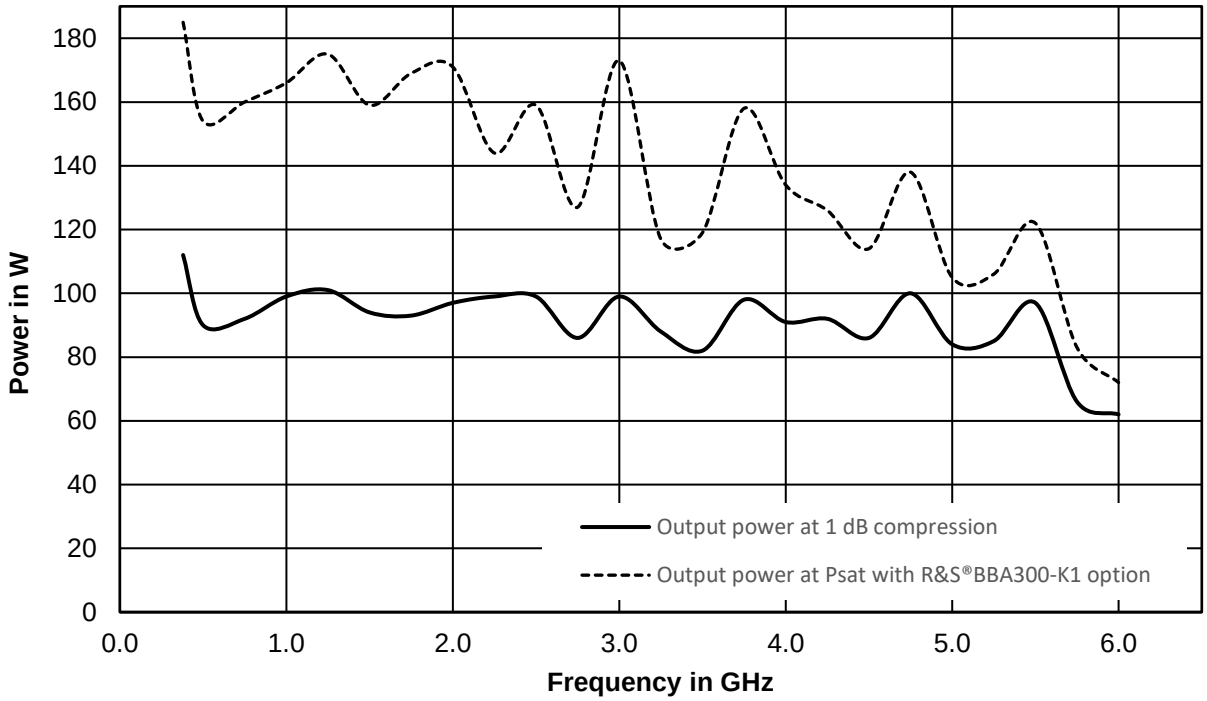
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
Rated current	at 110 V	6.9 A
	at 230 V	3.3 A
Maximum AC power		750 VA

R&S®BBA300-CDE90, power class: 90 W P1dB, or 140 W P_{sat} [7]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		380 MHz to 6 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		90 W (49.54 dBm)
Output power [8]	380 MHz to 5.5 GHz	min. 90 W (49.54 dBm)
	5.5 GHz to 6 GHz	min. 60 W (48.45 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [8]	380 MHz to 2 GHz	min. 140 W (51.50 dBm)
	2 GHz to 4.7 GHz	min. 110 W (50.40 dBm)
	4.7 GHz to 5.5 GHz	min. 95 W (49.80 dBm)
	5.5 GHz to 6 GHz	min. 63 W (48.00 dBm)
Output power at 1 dB compression [8]	380 MHz to 2.5 GHz	min. 90 W (49.54 dBm)
	2.5 GHz to 5.5 GHz (except 3.2 GHz to 3.6 GHz)	min. 80 W (49.00 dBm)
	3.2 GHz to 3.6 GHz	min. 75 W (48.80 dBm)
	5.5 GHz to 6 GHz	min. 56 W (47.50 dBm)
Nominal power gain	at 1 GHz	nom. 49.54 dB
Gain flatness	380 MHz to 6 GHz	±4.0 dB
Harmonics at P1dB and class A	380 MHz to 2.6 GHz	< –20 dBc
	2.6 GHz to 3.2 GHz	< –18 dBc
	3.2 GHz to 6.0 GHz	< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	380 MHz to 6 GHz	nom. < 10.0 dB
Noise power density	380 MHz to 6 GHz	nom. –111 dBm (1 Hz)

[7] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[8] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^1/_1$, 4 HU
Weight		approx. 25 kg (77 lb)

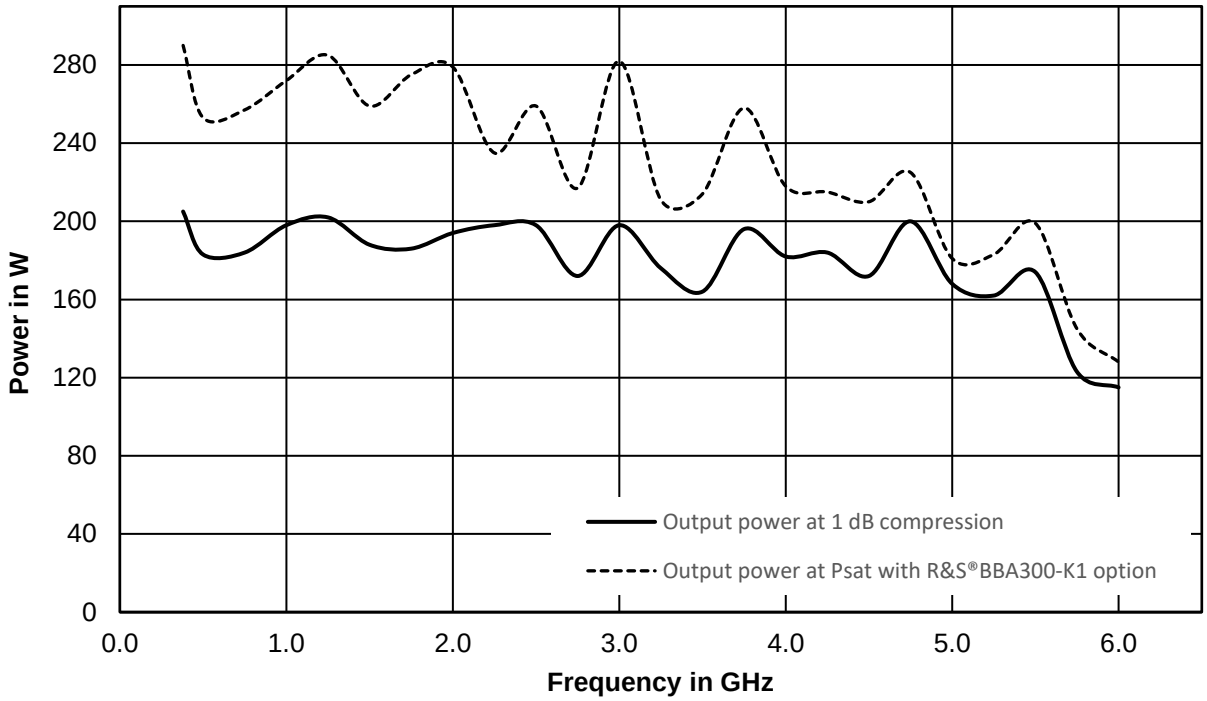
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
	at 230 V	6.1 A
Maximum AC power		1.5 kVA

R&S®BBA300-CDE180, power class: 180 W P1dB, or 250 W P_{sat} [9]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		380 MHz to 6 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		180 W (52.55 dBm)
Output power [10]	380 MHz to 5.5 GHz	min. 180 W (52.55 dBm)
	5.5 GHz to 6 GHz	min. 120 W (50.80 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [10]	380 MHz to 2 GHz	min. 250 W (54.00 dBm)
	2 GHz to 4.7 GHz	min. 210 W (53.24 dBm)
	4.7 GHz to 5.5 GHz	min. 180 W (52.55 dBm)
	5.5 GHz to 6 GHz	min. 125 W (51.00 dBm)
Output power at 1 dB compression [10]	380 MHz to 2.5 GHz	min. 180 W (52.55 dBm)
	2.5 GHz to 4.8 GHz	min. 160 W (52.04 dBm)
	4.8 GHz to 5.5 GHz	min. 150 W (51.75 dBm)
	5.5 GHz to 6 GHz	min. 112 W (50.50 dBm)
Nominal power gain	at 1 GHz	nom. 52.55 dB
Gain flatness	380 MHz to 6 GHz	±4.0 dB
Harmonics at P1dB and class A	380 MHz to 2.6 GHz	< –20 dBc
	2.6 GHz to 3.2 GHz	< –18 dBc
	3.2 GHz to 6 GHz	< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	380 MHz to 5 GHz	nom. < 10.0 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	380 MHz to 6 GHz	nom. –107 dBm (1 Hz)

[9] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[10] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^1/_1$, 4 HU
Weight		approx. 35 kg (77 lb)

RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

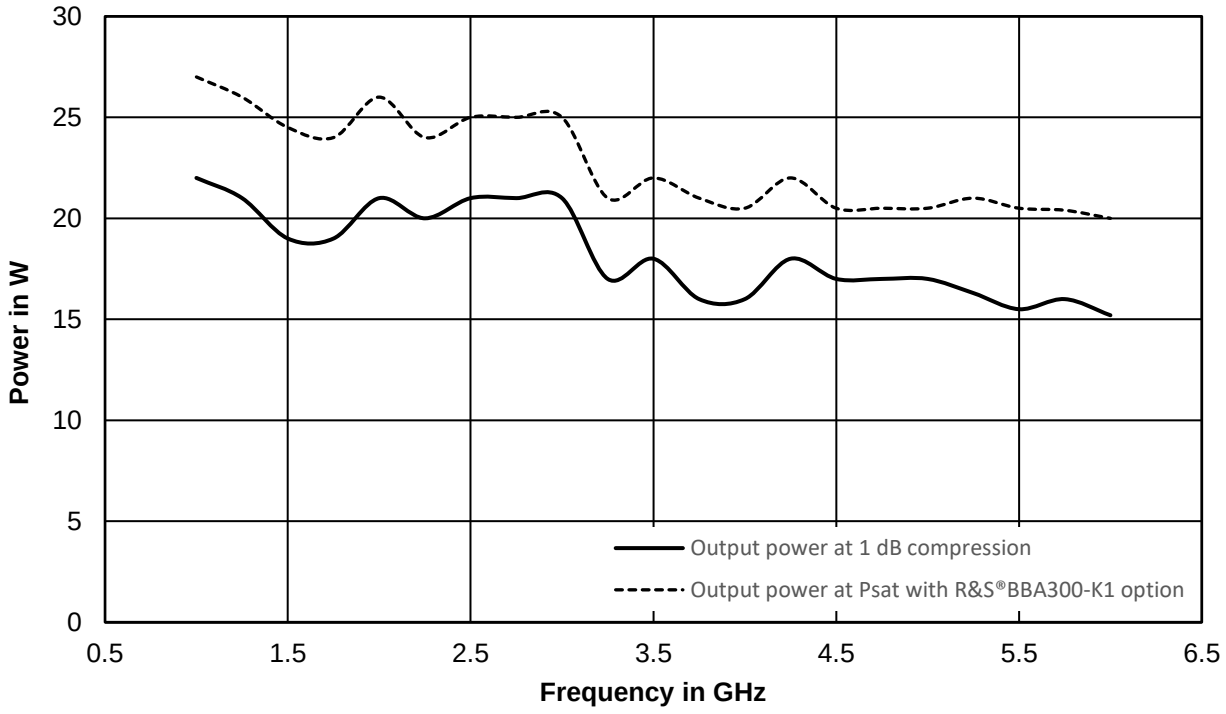
Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
	at 230 V	10.9 A
Maximum AC power		2.5 kVA

Frequency band DE from 1 GHz to 6 GHz

R&S®BBA300-DE15, power class: 15 W P1dB, or 20 W P_{sat} [11]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		1 GHz to 6 GHz instantaneously
Nominal output load		50 Ω
Nominal output power		15 W (41.76 dBm)
Output power [12]	1 GHz to 6 GHz	min. 15 W (41.76 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [12]	1 GHz to 6 GHz	min. 20 W (43.00 dBm)
Output power at 1 dB compression [12]	1 GHz to 6 GHz	min. 15 W (41.76 dBm)
Nominal power gain	at 1 GHz	nom. 41.76 dB
Gain flatness	1 GHz to 6 GHz	±4.0 dB
Harmonics at P1dB and class A		< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	1 GHz to 5 GHz	nom. < 10.0 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	1 MHz to 6 GHz	nom. –114 dBm (1 Hz)

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

[11] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[12] Internal cable insertion loss for RF output on the front: 1 GHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^{1}/_{1}$, 4 HU
Weight		approx. 16 kg (35 lb)

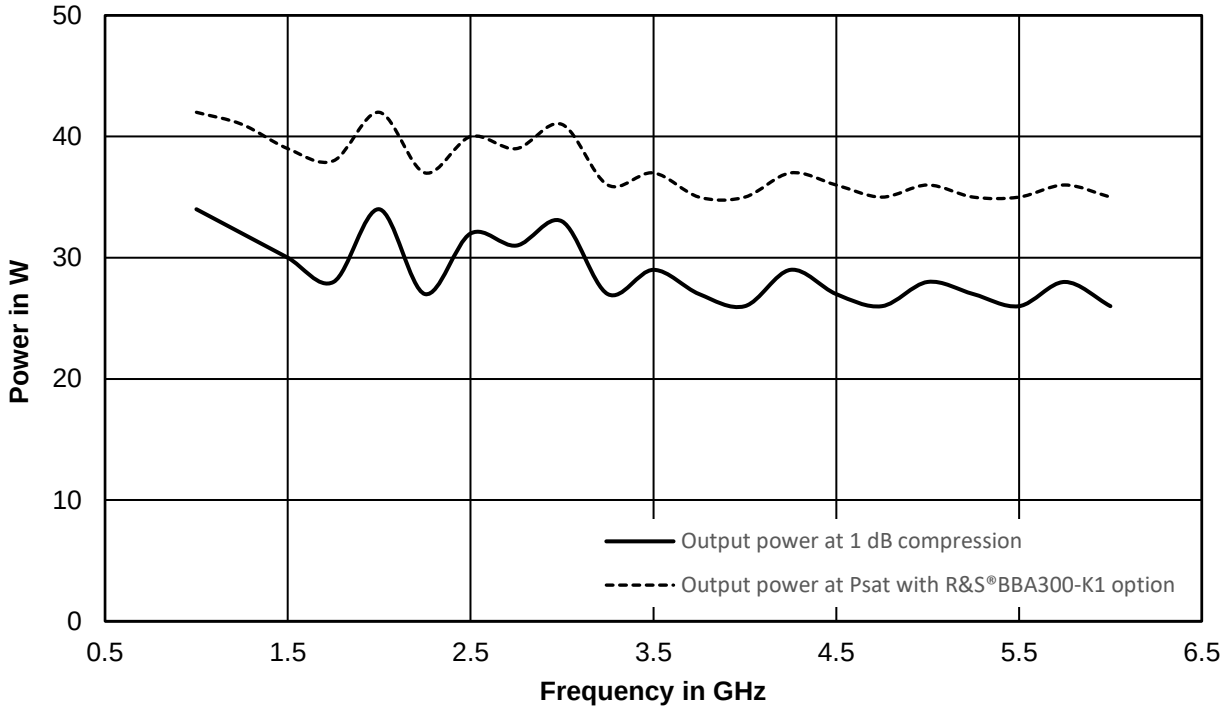
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
Rated current	at 110 V	5.5 A
	at 230 V	2.6 A
Maximum AC power		600 VA

R&S®BBA300-DE25, power class: 25 W P1dB, or 35 W P_{sat} [13]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		1 GHz to 6 GHz instantaneously
Nominal output load		50 Ω
Nominal output power		25 W (44.0 dBm)
Output power [14]	1 GHz to 6 GHz	min. 25 W (44.0 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [14]	380 MHz to 6 GHz	min. 35 W (45.44 dBm)
Output power at 1 dB compression [14]	1 GHz to 6 GHz	min. 25 W (44.0 dBm)
Nominal power gain	at 1 GHz	nom. 44.0 dB
Gain flatness	1 GHz to 6 GHz	±4.0 dB
Harmonics at P1dB and class A		< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	1 GHz to 5 GHz	nom. < 10.0 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	1 GHz to 6 GHz	nom. –114 dBm (1 Hz)

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

[13] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[14] Internal cable insertion loss for RF output on the front: 1 GHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^{1}/_{1}$, 4 HU
Weight		approx. 16 kg (35 lb)

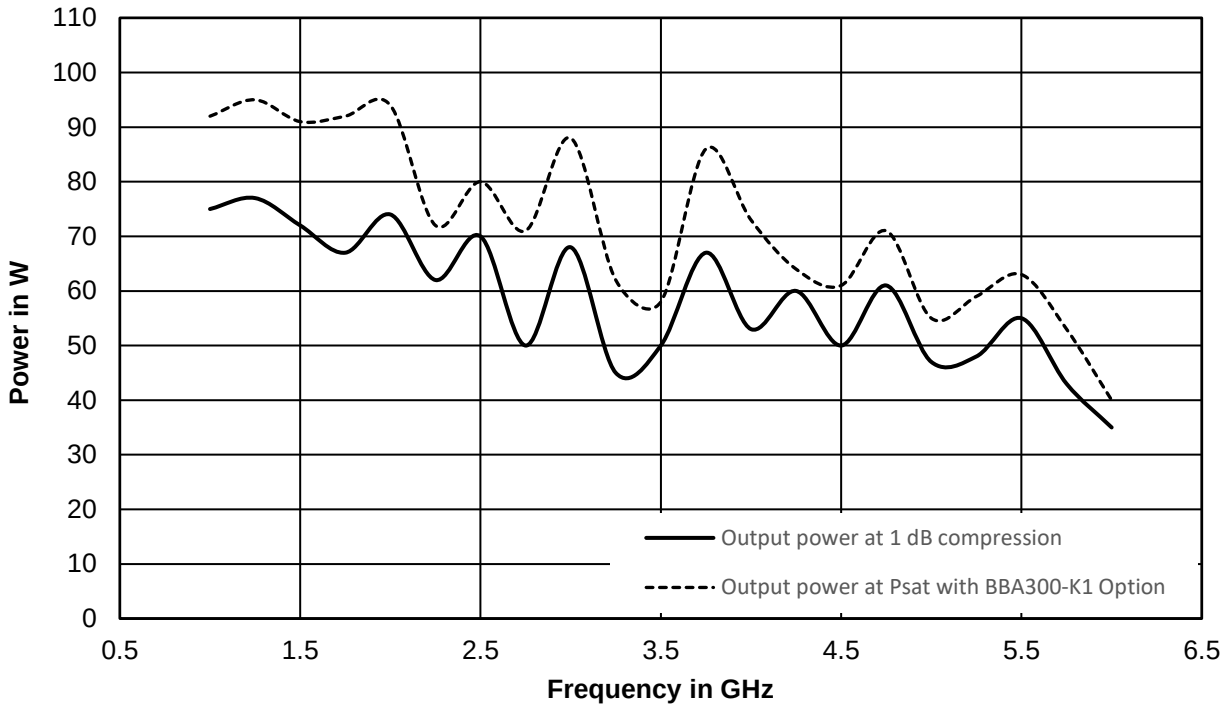
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
Rated current	at 110 V	5.7 A
	at 230 V	2.7 A
Maximum AC power		620 VA

R&S®BBA300-DE50, power class: 50 W P1dB, or 75 W P_{sat} [15]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		1 GHz to 6 GHz instantaneously
Nominal output load		50 Ω
Nominal output power		50 W (47 dBm)
Output power [16]	1 GHz to 5.5 GHz	min. 50 W (47.00 dBm)
	5.5 GHz to 6 GHz	min. 40 W (46.00 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [16]	1 GHz to 2 GHz	min. 75 W (48.75 dBm)
	2 GHz to 3.2 GHz	min. 63 W (48.00 dBm)
	3.2 GHz to 5.5 GHz	min. 50 W (47.00 dBm)
	5.5 GHz to 6 GHz	min. 35 W (45.50 dBm)
Output power at 1 dB compression [16]	1 GHz to 2.6 GHz	min. 50 W (47.00 dBm)
	2.6 GHz to 5.5 GHz (except 3.2 to 3.6 GHz, 4.8 to 5.2 GHz)	min. 45 W (46.50 dBm)
	3.2 GHz to 3.6 GHz, 4.8 GHz to 5.2 GHz	min. 40 W (46.03 dBm)
	5.5 GHz to 6 GHz	min. 30 W (44.80 dBm)
Nominal power gain	at 1 GHz	nom. 47 dB
Gain flatness	1 GHz to 6 GHz	±4.0 dB
Gain adjustment range		> 20 dB
Harmonics at P1dB and class A	1 GHz to 2.6 GHz	< –20 dBc
	2.6 GHz to 3.2 GHz	< –18 dBc
	3.2 GHz to 6 GHz	< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	1 GHz to 5 GHz	nom. < 10 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	at nominal gain	nom. < –114 dBm (1 Hz)

[15] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[16] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^1/_1$, 4 HU
Weight		approx. 16 kg (35 lb)

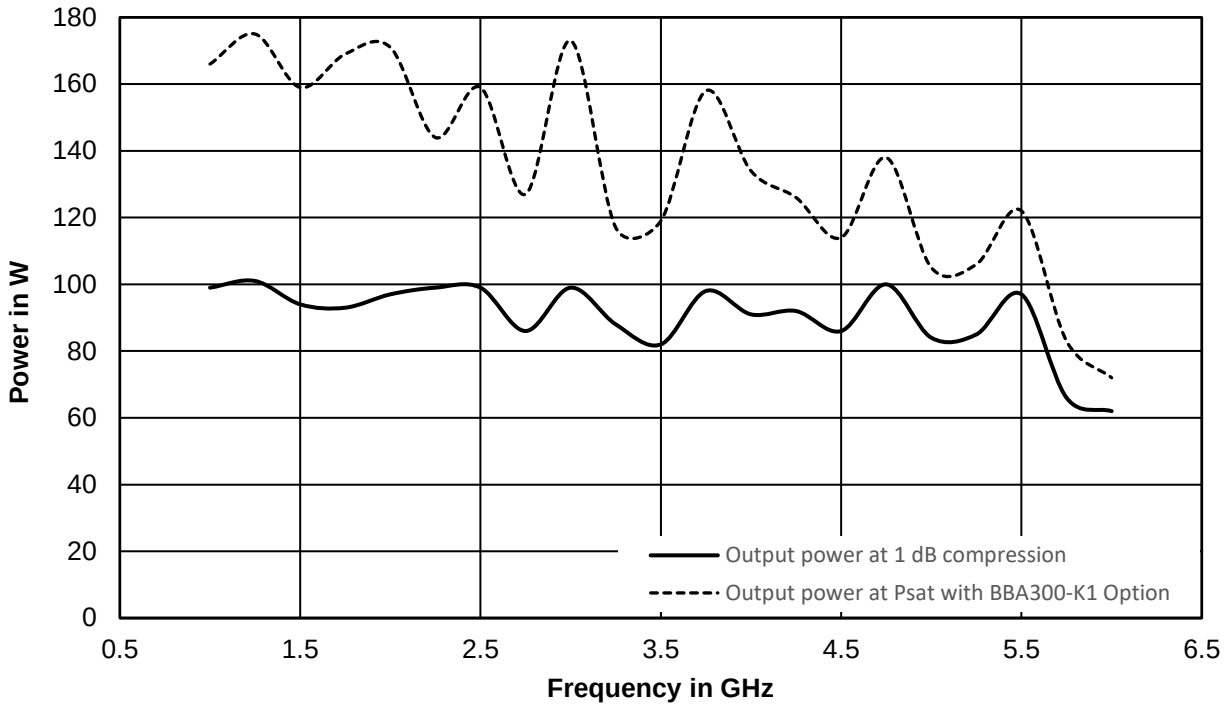
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
Rated current	at 110 V	6.9 A
	at 230 V	3.3 A
Maximum AC power		750 VA

R&S®BBA300-DE90, power class: 90 W P1dB, or 140 W P_{sat} [17]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		1 GHz to 6 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		90 W (49.54 dBm)
Output power [18]	1 GHz to 5.5 GHz	min. 90 W (49.54 dBm)
	5.5 GHz to 6 GHz	min. 60 W (48.45 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [18]	1 GHz to 2 GHz	min. 140 W (51.50 dBm)
	2 GHz to 4.7 GHz	min. 110 W (50.40 dBm)
	4.7 GHz to 5.5 GHz	min. 95 W (49.80 dBm)
	5.5 GHz to 6 GHz	min. 63 W (48.00 dBm)
Output power at 1 dB compression [18]	1 GHz to 2.5 GHz	min. 90 W (49.54 dBm)
	2.5 GHz to 5.5 GHz (except 3.2 GHz to 3.6 GHz)	min. 80 W (49.00 dBm)
	3.2 GHz to 3.6 GHz	min. 75 W (48.80 dBm)
	5.5 GHz to 6 GHz	min. 56 W (47.50 dBm)
Nominal power gain	at 1 GHz	nom. 49.54 dB
Gain flatness	1 GHz to 6 GHz	±4.0 dB
Gain adjustment range		> 20 dB
Harmonics at P1dB and class A	1 GHz to 2.6 GHz	< –20 dBc
	2.6 GHz to 3.2 GHz	< –18 dBc
	3.2 GHz to 6.0 GHz	< –25 dBc
Spurious at P1dB an class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	1 GHz to 6 GHz	nom. < 10.0 dB
Noise power density	1 GHz to 6 GHz	nom. –111 dBm (1 Hz)

[17] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[18] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^{1}/_{1}$, 4 HU
Weight		approx. 25 kg (77 lb)

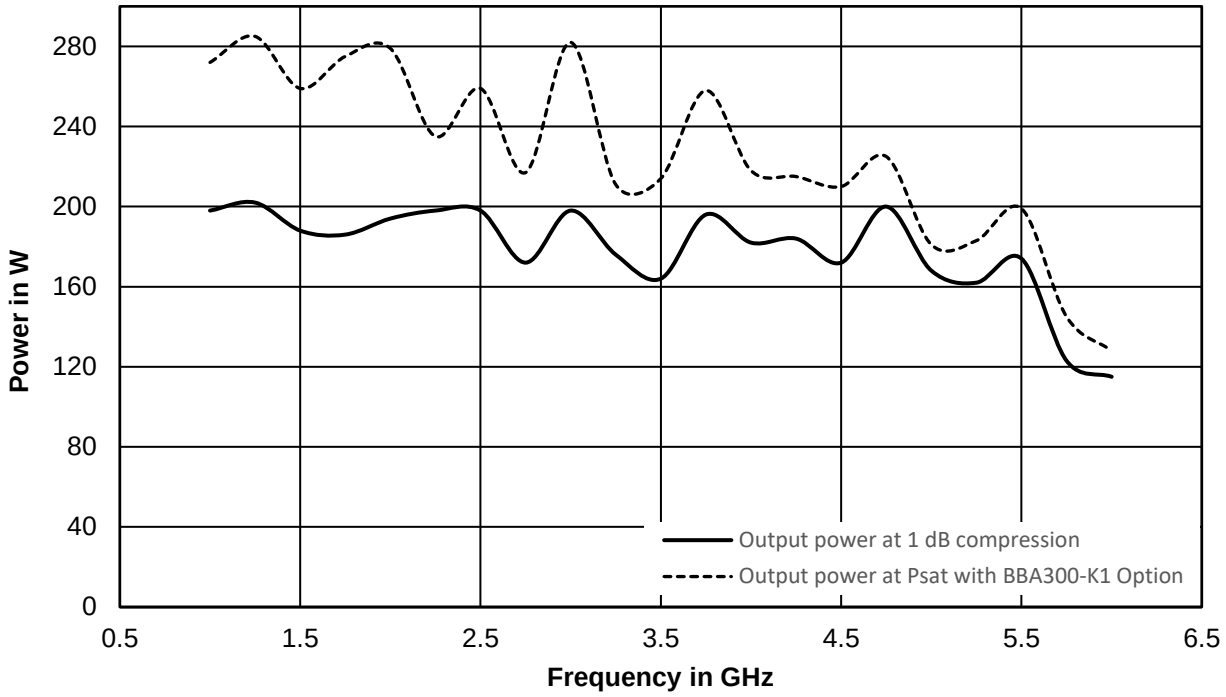
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
	at 230 V	6.1 A
Maximum AC power		1.54 kVA

R&S®BBA300-DE180, power class: 180 W P1dB, or 250 W P_{sat} [19]

Frequency response at 1 dB compression and P_{sat}



RF specifications

Main parameters		
Frequency range		1 GHz to 6 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		180 W (52.55 dBm)
Output power [20]	1 GHz to 5.5 GHz	min. 180 W (52.55 dBm)
	5.5 GHz to 6 GHz	min. 120 W (50.80 dBm)
Output power in High Power mode (R&S®BBA-PK1 option) [20]	1 GHz to 2 GHz	min. 250 W (54.00 dBm)
	2 GHz to 4.7 GHz	min. 210 W (53.24 dBm)
	4.7 GHz to 5.5 GHz	min. 180 W (52.55 dBm)
	5.5 GHz to 6 GHz	min. 125 W (51.00 dBm)
Output power at 1 dB compression [20]	1 GHz to 2.5 GHz	min. 180 W (52.55 dBm)
	2.5 GHz to 4.8 GHz	min. 160 W (52.04 dBm)
	4.8 GHz to 5.5 GHz	min. 150 W (51.75 dBm)
	5.5 GHz to 6 GHz	min. 112 W (50.50 dBm)
Nominal power gain	at 1 GHz	nom. 52.55 dB
Gain flatness	1 GHz to 6 GHz	±4.0 dB
Gain adjustment range		> 20 dB
Harmonics at P1dB and class A	1 GHz to 2.6 GHz	< –20 dBc
	2.6 GHz to 3.2 GHz	< –18 dBc
	3.2 GHz to 6 GHz	< –25 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. –80 dBc, max. –70 dBc
Noise figure at maximum gain	1 GHz to 5 GHz	nom. < 10.0 dB
	5 GHz to 6 GHz	nom. < 10.5 dB
Noise power density	1 GHz to 6 GHz	nom. –107 dBm (1 Hz)

[19] Value for P_{sat} achievable in High Power mode (requires R&S®BBA-PK1 option).

[20] Internal cable insertion loss for RF output on the front: 380 MHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

Adjustable parameters		
Gain adjustment range		> 20 dB
Bias adjustment	with R&S®BBA-PK1 option	continuous adjustment between class A and class AB
Power mode and load tolerance adjustment	with R&S®BBA-PK1 option	continuous adjustment between P_{sat} at VSWR 2:1" (High Power mode) and P1dB at VSWR 6:1 (VSWR mode)

Input		
Nominal input impedance		50 Ω
Input level for nominal output power		0 dBm
Input VSWR	at 50 Ω	max. 2:1
Maximum input level	RF	+7 dBm
	DC	0 V

Output		
Nominal output impedance		50 Ω
Nominal forward output power	at VSWR < 6:1 or set load tolerance	continuous, without foldback
	at VSWR > 6:1 or set load tolerance	continuous, with gradual foldback to approx. 50 % of output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample and detected sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB, see test report for details
Detected sample signal level	detected forward and reflected sample ports, optional	up to 3.0 V DC, see test report for details

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	430 mm × 196 mm × 580 mm (16.93 in × 7.72 in × 22.83 in)
	for rackmounting	19" $^1/_1$, 4 HU
Weight		approx. 35 kg (77 lb)

RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female
Detected sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC ± 10 %, single phase, 50 Hz to 60 Hz ± 6 %
	at 230 V	10.9 A
Maximum AC power		2.5 kVA

General data

Modulation specifications

Modulation capability		AM, FM, φM, PM or OFDM

Cooling specifications

Air cooling		forced air, built-in fans, air entry at front, air exit at rear

Control specifications

Remote control		
Ethernet		RJ-45, 10 Mbit/s/100, auto-negotiation, half/full duplex

Local HMI		
Local display		200 × 48 pixel, monochrome
Manual controls	resting pushbutton	mains switch
	operation pushbuttons	• system standby/on • RF standby/operate • local/remote
	menu pushbuttons	• arrow up, down, left, right • ok • back
LED status information		• system standby/on • RF standby/operate • mute ready • interlock • error • local/remote

Web GUI		
Remote web GUI	via Ethernet	RJ-45, 10 Mbit/s/100 Mbit/s, auto-negotiation, half/full duplex

Environmental specifications

Temperature loading	operating temperature range	0 °C to +40 °C
	storage temperature range	–40 °C to +70 °C
Damp heat		max. +40 °C at 95 % rel. humidity, without condensation
Altitude	operating	up to 2000 m
	storage	up to 4600 m
Mechanical resistance test values of desktop models	vibration, sinusoidal	5 Hz to 55 Hz, displacement 0.15 mm, > 55 Hz to 150 Hz, acceleration 0.5 g, in line with EN 60068-2-6
	vibration, random	effective acceleration ≤ 1.2 g, 10 Hz to 300 Hz, acceleration density 0.003 g^2/Hz, in line with EN 60068-2-64
	shock	18 sawtooth shocks, each 40 g in 11 ms, in line with EN 60068-2-27, MIL-STD-810E method no. 516.4, procedure I
Calibration interval		no calibration needed
Electromagnetic compatibility	immunity	in line with EN 61326-1, table 2, industrial environment

Electromagnetic emissions	overall	in line with EN 55011 (CISPR 11), industrial area, ISM group 1 class A and FCC 47 CFR part 18 §18.305
	conducted emissions	in line with EN 55011, group 1 class A
	radiated emissions from 30 MHz to 18 GHz	equipment for use in shielded areas only, normative limits of EN 55011 group 1, class A and FCC 47 CFR, part 18 §18.305 exceeded: up to 30 dB: for R&S®BBA300-CDE, all power classes
Exposure to electromagnetic fields	all-around the enclosure	in line with the limits of 2014/35, 26. BImSchV, DGUV15 exposure limit 2 (protection of health and safety of workers, consumers and the general public)
Electrical safety		in line with EN 61010-1:2010, IEC 61010-1:2011 + Corr. 2011 (3rd ed.), CAN/CSA-C22.2 no. 61010-1-12, UL 61010-1 3rd edition, May 11, 2012

Protection

RF		
Load VSWR		unlimited
Interlock		1 device interlock, 1 configurable interlock
Input protection against bias voltage	optional	DC block level ≤ 50 V DC

Power supply		
Transient voltage compatibility		category II, in line with IEC 60364-4-443
Short-circuit breaking capacity		automatic all-pole 20 A circuit breaker

Miscellaneous		
Thermal overload		shutdown at thermal overload

General RF specifications

Amplifier type		class A amplifier
	with option adjust operation point and high power (requires R&S®BBA-PK1 option)	class A and AB amplifier

The specified nominal output power is valid for all amplifiers in a 4 HU chassis with RF output at the rear panel and for single band rack models at the RF connection panel.

For single and dual band amplifiers in a 4 HU chassis with RF output at front cable insertion loss reduces the output power:

Cable insertion loss for single band and dual band power amplifiers in 4 HU chassis with RF output at the front panel	0 Hz to 1 GHz	≤ 0.20 dB
	1 GHz to 2 GHz	≤ 0.30 dB
	2 GHz to 3 GHz	≤ 0.40 dB
	3 GHz to 6 GHz	≤ 0.50 dB
	6 GHz to 8 GHz	≤ 0.60 dB

In case of rack integration, the loss due to cables and RF switches needs to be taken into account. The insertion loss of RF switches is specified under “Switching specifications” in this data sheet.

RF switching specifications – input and measurement

RF input switch, R&S®BBA-B110 option		
Switch type		1:2 or 2:1, mechanical
RF input port	at desktop model or rack connection panel	N female
	switch	SMA female
Frequency range		0 Hz to 26.5 GHz
Switching time		< 10 ms
Life		10 000 000 cycles
Insertion loss	0 Hz to 3 GHz	≤ 0.20 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.30 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.40 dB, without cable loss
	12.4 GHz to 18 GHz	≤ 0.50 dB, without cable loss
	18 GHz to 26.5 GHz	≤ 0.70 dB, without cable loss

RF input switch, R&S®BBA-B116 option		
Switch type		1:6, mechanical
RF input port	at rack connection panel	N female
	switch	SMA female
Frequency range		0 Hz to 18 GHz
Switching time		< 15 ms
Life		5 000 000 cycles
Insertion loss	0 Hz to 3 GHz	≤ 0.20 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.30 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.40 dB, without cable loss
	12.4 GHz to 18 GHz	≤ 0.50 dB, without cable loss

RF sample port switch, dual port, R&S®BBA-B142 option		
Switch type		2 × 2:1, mechanical
RF or detected sample ports	at desktop model or rack connection panel	N female
	switches	SMA female
Frequency range		0 Hz to 26.5 GHz
Switching time		< 10 ms
Life		10 000 000 cycles
RF sample signal level		max. 10 dBm
Insertion loss	0 Hz to 3 GHz	≤ 0.20 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.30 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.40 dB, without cable loss
	12.4 GHz to 18 GHz	≤ 0.50 dB, without cable loss
	18 GHz to 26.5 GHz	≤ 0.70 dB, without cable loss

RF sample port switch, dual port, R&S®BBA-B146 option		
Switch type		2 × 6:1, mechanical
RF or detected sample ports	at rack connection panel	N female
	switches	SMA female
Frequency range		0 Hz to 18 GHz
Switching time		< 10 ms
Life		5 000 000 cycles
RF sample signal level		max. 10 dBm
Insertion loss	0 Hz to 3 GHz	≤ 0.20 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.30 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.40 dB, without cable loss
	12.4 GHz to 18 GHz	≤ 0.50 dB, without cable loss

RF switching specifications – output

RF output switch, R&S®BBA-B120 option		
Switch type		2:1 or 1:2, mechanical
RF output port		N female
Frequency range		0 Hz to 12.4 GHz
Switching time		< 15 ms
Life		1 000 000 cycles
Average forward RF power	0 Hz to 1 GHz	max. 700 W × $1/\sqrt{VSWR}$
	1 GHz to 2 GHz	max. 500 W × $1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. 400 W × $1/\sqrt{VSWR}$
	3 GHz to 8 GHz	max. 250 W × $1/\sqrt{VSWR}$
	8 GHz to 12.4 GHz	max. 200 W × $1/\sqrt{VSWR}$
Insertion loss	0 Hz to 1 GHz	≤ 0.15 dB, without cable loss
	1 GHz to 2 GHz	≤ 0.20 dB, without cable loss
	2 GHz to 3 GHz	≤ 0.25 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.35 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.50 dB, without cable loss

RF output switch, R&S®BBA-B121 option		
Switch type		2:2, mechanical
RF output port		$^7/_{16}$ female
Frequency range		0 Hz to 6 GHz
Switching time		< 100 ms
Life		≥ 500 000
Average forward RF power	0 Hz to 1 GHz	max. 2.0 kW × $1/\sqrt{VSWR}$
	1 GHz to 2 GHz	max. 1.4 kW × $1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. 1.1 kW × $1/\sqrt{VSWR}$
	3 GHz to 4 GHz	max. 1.0 kW × $1/\sqrt{VSWR}$
	4 GHz to 5 GHz	max. 0.9 kW × $1/\sqrt{VSWR}$
	5 GHz to 6 GHz	max. 0.8 kW × $1/\sqrt{VSWR}$
Insertion loss	0 Hz to 2 GHz	≤ 0.05 dB, without cable loss
	2 GHz to 5 GHz	≤ 0.10 dB, without cable loss
	5 GHz to 6 GHz	≤ 0.15 dB, without cable loss

RF output switch, R&S®BBA-B122 option		
Switch type		2:2, mechanical
RF output port		$^7/_8$" EIA
Frequency range		0 Hz to 3.5 GHz
Switching time		< 120 ms
Life		≥ 250 000
Average forward RF power	0 Hz to 0.1 GHz	max. 8 kW × $1/\sqrt{VSWR}$
	0.1 GHz to 0.23 GHz	max. 5 kW × $1/\sqrt{VSWR}$
	0.23 GHz to 0.86 GHz	max. 2.5 kW × $1/\sqrt{VSWR}$
	0.86 GHz to 2 GHz	max. 1.8 kW × $1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. 1.4 kW × $1/\sqrt{VSWR}$
	3 GHz to 3.5 GHz	max. 1.3 kW × $1/\sqrt{VSWR}$
Insertion loss	0 Hz to 1 GHz	≤ 0.03 dB, without cable loss
	1 GHz to 2 GHz	≤ 0.05 dB, without cable loss
	2 GHz to 3.5 GHz	≤ 0.20 dB, without cable loss

RF output switch, R&S®BBA-B123 option		
Switch type		2:2, mechanical
RF output port		1 $^5/_8$" EIA
Frequency range		0 Hz to 2 GHz
Switching time		< 120 ms
Life		≥ 250 000
Average forward RF power	0 Hz to 0.1 GHz	max. 19 kW × $1/\sqrt{VSWR}$
	0.1 GHz to 0.23 GHz	max. 12.7 kW × $1/\sqrt{VSWR}$
	0.23 GHz to 0.86 GHz	max. 6.6 kW × $1/\sqrt{VSWR}$
	0.86 GHz to 1.6 GHz	max. 4.8 kW × $1/\sqrt{VSWR}$
	1.6 GHz to 2 GHz	max. 4.3 kW × $1/\sqrt{VSWR}$
Insertion loss	0 Hz to 0.86 GHz	≤ 0.05 dB, without cable loss
	0.86 GHz to 2 GHz	≤ 0.10 dB, without cable loss

RF output switch, R&S®BBA-B126 option		
Switch type		6:1, mechanical
RF output port		N female
Frequency range		0 Hz to 12.4 GHz
Switching time		< 15 ms
Life		≥ 2 000 000 cycles
Average forward RF power	0 Hz to 1 GHz	max. 700 W × $1/\sqrt{VSWR}$
	1 GHz to 2 GHz	max. 500 W × $1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. 400 W × $1/\sqrt{VSWR}$
	3 GHz to 8 GHz	max. 250 W × $1/\sqrt{VSWR}$
	8 GHz to 12.4 GHz	max. 200 W × $1/\sqrt{VSWR}$
Insertion loss	0 Hz to 1 GHz	≤ 0.15 dB, without cable loss
	1 GHz to 2 GHz	≤ 0.20 dB, without cable loss
	2 GHz to 3 GHz	≤ 0.25 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.35 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.5 dB, without cable loss

Fast amplifier mute specifications

Fast amplifier mute, R&S®BBA-K130 option		
External mute signal		TTL
Mute ON delay (amplifier switches to mute mode, RF turns off)		nom. < 8 µs
Mute OFF delay (amplifier leaves mute mode, RF turns on)		nom. < 8 µs
Pulse width	at duty cycle 50 %	nom. ≥ 200µs

Ordering information

R&S®BBA300 single-band power amplifiers

Frequency band from 380 MHz to 6 GHz

Designation	Type	Configuration No.
15 W (20 W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-CDE15
25 W (35W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-CDE25
50 W (75 W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-CDE50
90 W (140 W), air cooled, 4 HU desktop model	R&S®BBA300	BBA300-CDE90
180 W (250 W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-CDE180

Frequency band from 1 GHz to 6 GHz

Designation	Type	Configuration No.
15 W (20 W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-DE15
25 W (35 W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-DE25
50 W (75 W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-DE50
90 W (140 W), air cooled, 4 HU desktop model	R&S®BBA300	BBA300-DE90
180 W (250 W), air-cooled, 4 HU desktop model	R&S®BBA300	BBA300-DE180

Accessories supplied: power cord, user manual on CD.

Options

Designation	Type	Order No.
Hardware options		
GPIB remote control [21]	R&S®BBA-B101	5355.8250.02
PoE switch	R&S®BBA-B102	5355.8243.30
Optical Ethernet remote control	R&S®BBA-B105	5355.8266.03
RF input switch (1:2 or 2:1, N) [22]	R&S®BBA-B110	5355.8866.02
RF input switch (1:6, N)	R&S®BBA-B116	5355.8950.02
RF output switch (2:1 or 1:2, N) [22]	R&S®BBA-B120	5355.8795.02
RF output switch (2:2, $^{7}/_{16}$) [22]	R&S®BBA-B121	5355.8895.02
RF output switch (6:1, N)	R&S®BBA-B126	5355.8995.02
DC block input protection (N)	R&S®BBA-B132	5353.9236.03
RF forward/RF reflected sample ports (N) [22]	R&S®BBA-B140	5355.8837.02
Detected forward/detected reflected sample ports (N) [22]	R&S®BBA-B141	5355.8850.02
Sample port switch (2 × 2:1, N) [22]	R&S®BBA-B142	5355.8872.02
Sample port switch (2 × 6:1, N)	R&S®BBA-B146	5355.8972.02
Frequency range extension for R&S®BBA300, 380 MHz to 6 GHz	R&S®BBA-B211	5352.8607.xx
Software option		
Adjust operation point and high power	R&S®BBA-PK1	5352.8407.xx
Automatic RF on	R&S®BBA-K9	5352.8088.02
Fast amplifier mute	R&S®BBA-K130	5352.8220.02

Service

Designation	Type	Order No.
Upgrade frequency band/RF output power	R&S®BBA-UPGR	on request
Service options		
Service level agreement BASIC, 1 year to 7 years [22, 23]	R&S®SB1-7AMP	5352.2809.02
Service level agreement CUSTOMIZED, up to 10 years, partial depending on regional availability		Please contact your local Rohde & Schwarz sales office.
Service level agreement PREMIUM for desktop models, 1 year to 7 years, depending on regional availability [22]	R&S®SPD1-7AMP	5352.2809.32
Service level agreement PREMIUM for rack systems, 1 year to 7 years, depending on regional availability [22]	R&S®SPR1-7AMP	5352.2809.42
Regular product maintenance, 1 year to 6 years [22]	R&S®SV1-6AMP	5354.6560.22

[21] Variant of order number depends on system configuration.

[22] Internal cable insertion loss for RF input on the front: 1 GHz to 4.2 GHz: 0.4 dB, 4.2 GHz to 5.7 GHz: 0.55 dB, 5.7 GHz to 6 GHz: 0.7 dB.

[23] Type and variant of order number depend on duration of service.

Extras

Designation	Type	Order No.
Rackmounting brackets (pair)	R&S®ZR1-RA02	5355.8208.00
Mounting rails, for R&S®BBA with transport lock (pair)	R&S®ZR1-SLR03	5355.8220.12
Mounting rails, for R&S®BBA without transport lock (pair)	R&S®ZR1-SLR03	5355.8220.13
Mounting rails, for other equipment (pair)	R&S®ZR1-SLR02	5353.9565.02
AC power cord (German plug)	R&S®ZR1-PSEA	5355.8514.02
AC power cord (without plug)	R&S®ZR1-PSEA	5355.8514.03
AC power cord (NEMA 5-15 US plug)	R&S®ZR1-PSEA	5355.8514.04
AC power cord (NEMA L5-30 US plug)	R&S®ZR1-PSEA	5355.8514.05
AC power cord (JIS C8303 Japanese plug)	R&S®ZR1-PSEA	5355.8514.06
AC power cord (PRC3/16 Chinese plug)	R&S®ZR1-PSEA	5355.8514.07
AC power cord (BS13/13 British plug)	R&S®ZR1-PSEA	5355.8514.08
AC power cord (ZA3 South African, Indian plug)	R&S®ZR1-PSEA	5355.8514.09
AC power cord (12G Swiss plug)	R&S®ZR1-PSEA	5355.8514.10
AC power cord (BR/3/20 Brazil plug)	R&S®ZR1-PSEA	5355.8514.11
Rack wheels	R&S®ZR1-RW	5353.9707.03
Rubber wheels, for racks up to 20 HU	R&S®ZR1-RW	5353.9707.04