



产 品 手 册

仪器型号: R&S罗德与施瓦茨宽频放大器BBA300

西安安泰测试科技有限公司

仪器维修|租赁|销售|测试

地址:西安市高新区纬二十六路 369 号

网址: www.agitekservice.com

电话: 400-876-5512

座机: 029-88827159

R&S® BBA300 BROADBAND AMPLIFIER

Specifications



Specifications
Version 06.00

ROHDE & SCHWARZ

Make ideas real



CONTENTS

European directives.....	4
Definitions	5
Frequency band CDE from 380 MHz to 6 GHz	6
R&S®BBA300-CDE15, power class: 15 W P _{1dB} or 20 W P _{sat}	6
R&S®BBA300-CDE25, power class: 25 W P _{1dB} or 35 W P _{sat}	8
R&S®BBA300-CDE50, power class: 50 W P _{1dB} or 75 W P _{sat}	10
R&S®BBA300-CDE90, power class: 90 W P _{1dB} or 140 W P _{sat}	12
R&S®BBA300-CDE180, power class: 180 W P _{1dB} or 250 W P _{sat}	14
R&S®BBA300-CDE300, power class: 300 W P _{1dB} or 450 W P _{sat}	16
Frequency band DE from 1 GHz to 6 GHz.....	18
R&S®BBA300-DE15, power class: 15 W P _{1dB} or 20 W P _{sat}	18
R&S®BBA300-DE25, power class: 25 W P _{1dB} or 35 W P _{sat}	20
R&S®BBA300-DE50, power class: 50 W P _{1dB} or 75 W P _{sat}	22
R&S®BBA300-DE90, power class: 90 W P _{1dB} or 140 W P _{sat}	24
R&S®BBA300-DE180, power class: 180 W P _{1dB} or 250 W P _{sat}	26
R&S®BBA300-DE300, power class: 300 W P _{1dB} or 450 W P _{sat}	28
Frequency band F from 6 GHz to 13 GHz.....	30
R&S®BBA300-F30, power class: 30 W P _{1dB} or 40 W P _{sat}	30
R&S®BBA300-F50, power class: 50 W P _{1dB} or 80 W P _{sat}	32
Frequency band FG from 6 GHz to 18 GHz.....	34
R&S®BBA300-FG30, power class: 30 W P _{1dB} or 40 W P _{sat}	34
R&S®BBA300-FG50, power class: 50 W P _{1dB} or 80 W P _{sat}	36
General data	38
Modulation specifications.....	38
Cooling specifications.....	38
Control specifications	38
Environmental specifications	38
Protection.....	39
General RF specifications.....	39
RF switching specifications – input and measurement.....	40
RF switching specifications – output	41
Fast amplifier mute specifications.....	42

Ordering information	43
R&S®BBA300 single-band power amplifiers	43
Options.....	44
Extras	44
Service	45

European directives

RoHS Europe, Directive 2011/65/EU:

Equipment category 9, fulfilled without any exceptions.

WEEE Europe, Directive 2012/19/EU:

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

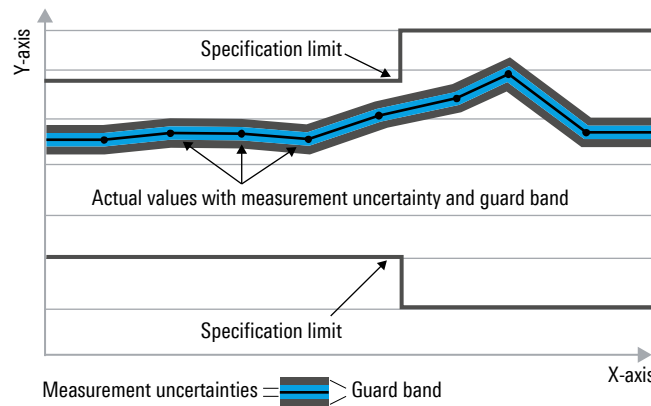
General

Product data applies under the following conditions:

- 15 minutes of 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 $<$, $\leq$, $>$, $\geq$, $\pm$ 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”.

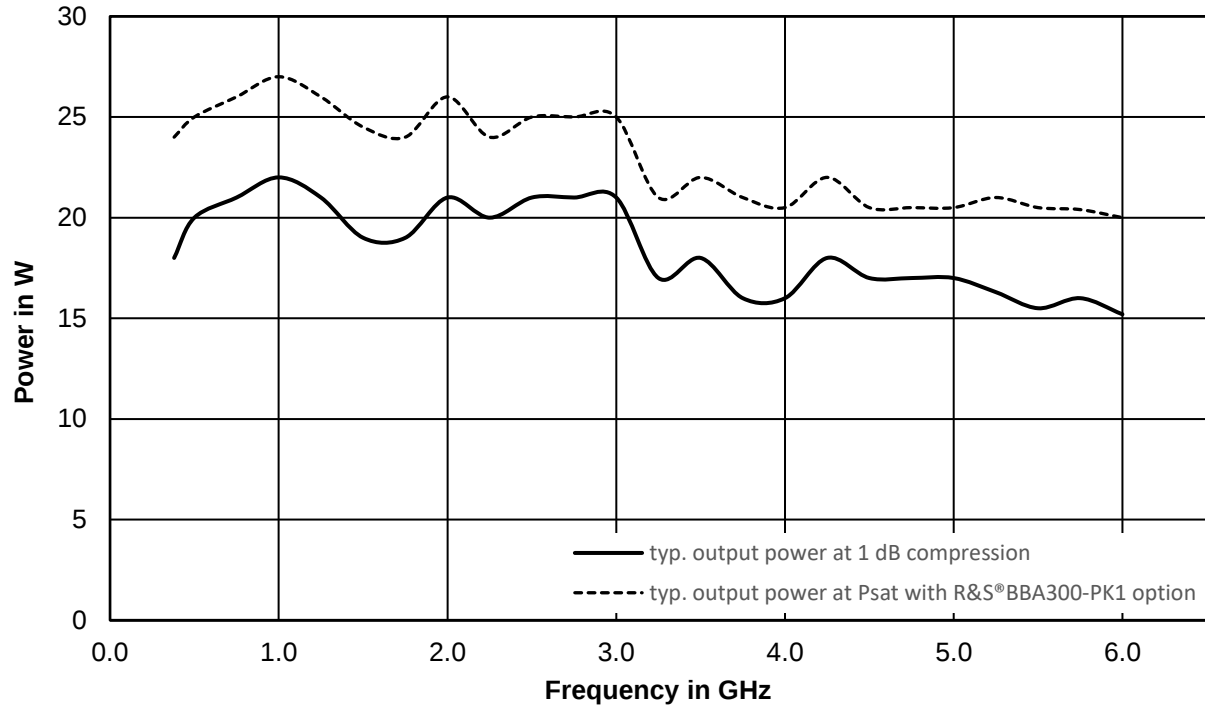
Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

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} with R&S®BBA300-PK1 option



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
Third order intermodulation (TOI)	2-tone at 35.76 dBm/tone, 1 MHz spacing	nom. < -26 dBc
Harmonics at P1dB and class A		< -22 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		nom. 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
Output mismatch tolerance	VSWR < 6:1 or set load tolerance	without foldback
	VSWR > 6:1 or set load tolerance	with gradual foldback to approx. 50 % of nominal output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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)

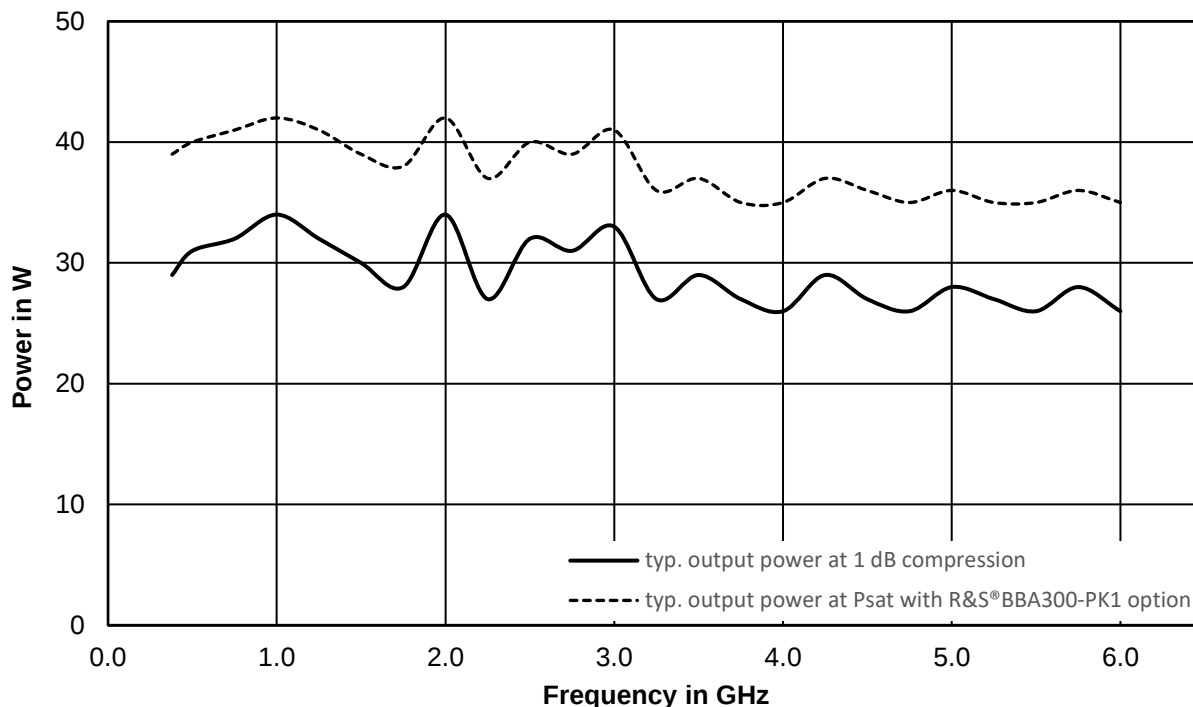
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
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} with R&S®BBA300-PK1 option



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
Third order intermodulation (TOI)	2-tone at 38 dBm/tone, 1 MHz spacing	nom. < -21 dBc
Harmonics at P1dB and class A		< -20 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		nom. 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
Output mismatch tolerance	VSWR < 6:1 or set load tolerance	without foldback
	VSWR > 6:1 or set load tolerance	with gradual foldback to approx. 50 % of nominal output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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)

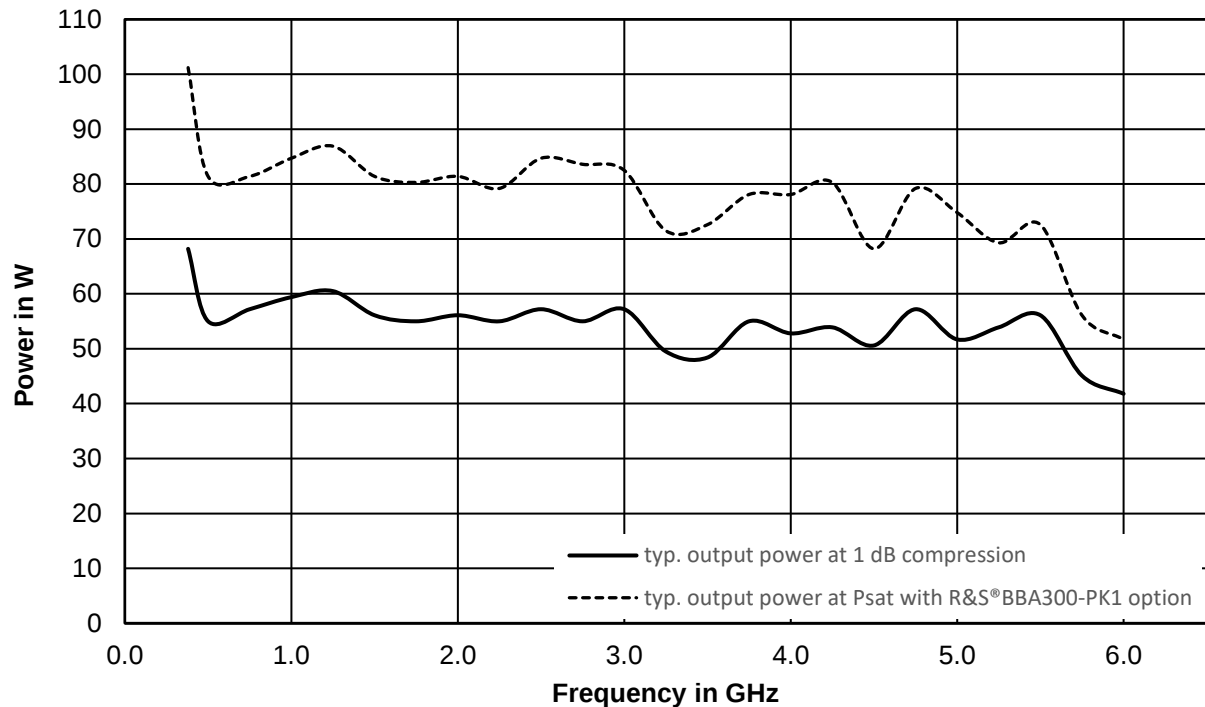
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
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} with R&S®BBA300-PK1 option



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 2.1 GHz	min. 75 W (48.75 dBm)
	> 2.1 GHz to 3.2 GHz	min. 63 W (48.00 dBm)
	> 3.2 GHz to 5.5 GHz	min. 55 W (47.40 dBm)
	> 5.5 GHz to 6 GHz	min. 40 W (46.02 dBm)
Output power at 1 dB compression ⁶	380 MHz to 2.6 GHz	min. 50 W (47.00 dBm)
	> 2.6 GHz to 5.6 GHz (except 3.2 to 3.6 GHz)	min. 45 W (46.50 dBm)
	3.2 GHz to 3.6 GHz	min. 40 W (46.03 dBm)
	> 5.6 GHz to 6 GHz	min. 35 W (45.44 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
Third order intermodulation (TOI)	2-tone at 39.44 dBm/tone, 1 MHz spacing	
	380 MHz to 5.5 GHz	nom. < -27 dBc
	5.5 GHz to 6 GHz	nom. < -19 dBc
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		nom. 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
Output mismatch tolerance	VSWR < 6:1 or set load tolerance	without foldback
	VSWR > 6:1 or set load tolerance	with gradual foldback to approx. 50 % of nominal output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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" $\frac{1}{2}$, 4 HU
Weight		approx. 16 kg (35 lb)

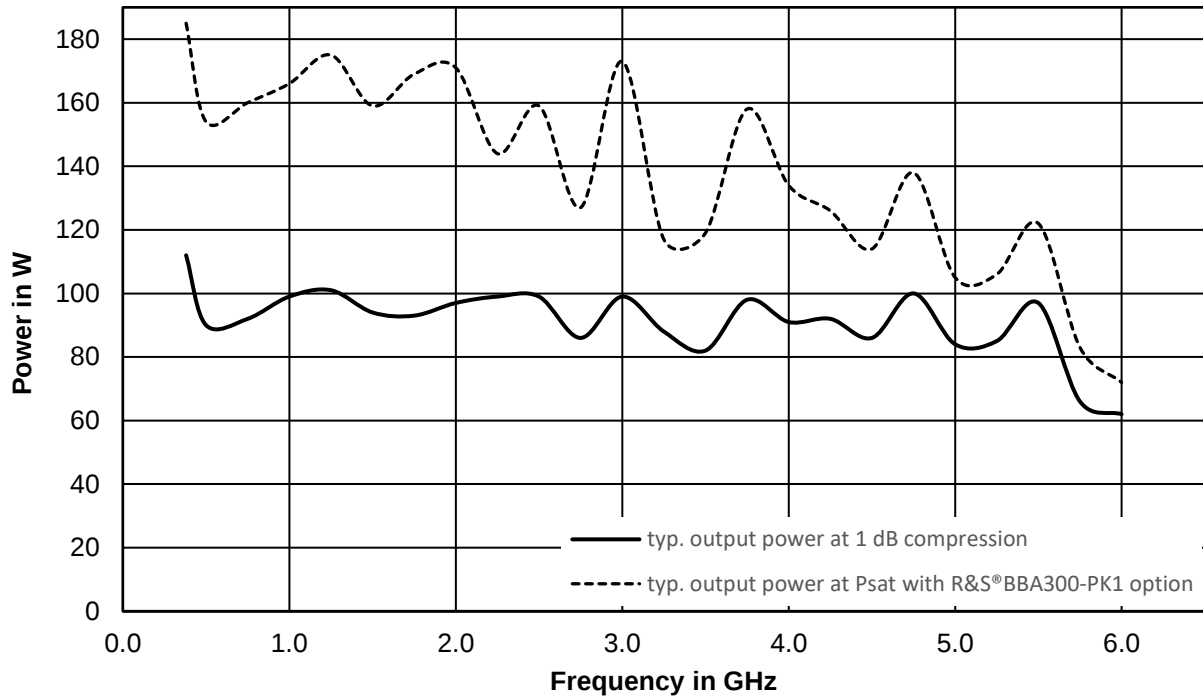
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
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 P_{1dB} or 140 W P_{sat} ⁷

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



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 (47.78 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
Third order intermodulation (TOI)	2-tone at 41.5 dBm/tone, 1 MHz spacing	
	380 MHz to 5.5 GHz	nom. < -27 dBc
	> 5.5 GHz to 6 GHz	nom. < -19 dBc
Harmonics at P _{1dB} 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 P _{1dB} 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		nom. 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
Output mismatch tolerance	VSWR < 6:1 or set load tolerance	without foldback
	VSWR > 6:1 or set load tolerance	with gradual foldback to approx. 50 % of nominal output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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" 1/2, 4 HU
Weight		approx. 25 kg (55 lb)

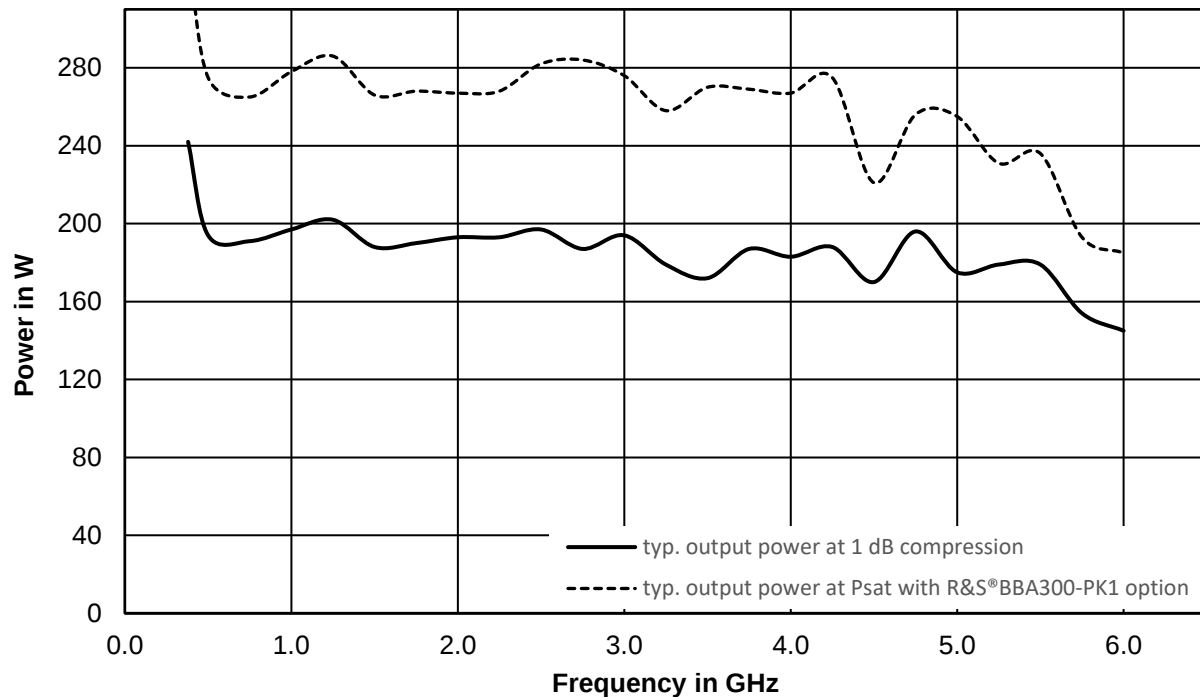
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
Rated current	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} with R&S®BBA300-PK1 option



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 5.6 GHz	min. 185 W (52.67 dBm)
	> 5.6 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 3.2 GHz	min. 250 W (54.00 dBm)
	> 3.2 GHz to 4.4 GHz	min. 220 W (53.42 dBm)
	> 4.4 GHz to 5.6 GHz	min. 200 W (53.00 dBm)
	> 5.6 GHz to 6 GHz	min. 150 W (51.76 dBm)
Output power at 1 dB compression ¹⁰	380 MHz to 2.7 GHz	min. 180 W (52.55 dBm)
	> 2.7 GHz to 5.6 GHz	min. 160 W (52.04 dBm)
	> 5.6 GHz to 6 GHz	min. 120 W (50.80 dBm)
Nominal power gain	at 1 GHz	nom. 52.55 dB
Gain flatness	380 MHz to 6 GHz	< ±4.0 dB
Third order intermodulation (TOI)	2-tone at 44.8 dBm/tone, 1 MHz spacing	
	380 MHz to 5.5 GHz	nom. < -28 dBc
	> 5.5 GHz to 6 GHz	nom. < -20 dBc
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		nom. 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
Output mismatch tolerance	VSWR < 6:1 or set load tolerance	without foldback
	VSWR > 6:1 or set load tolerance	with gradual foldback to approx. 50 % of nominal output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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" $\frac{1}{4}$, 4 HU
Weight		approx. 35 kg (77 lb)

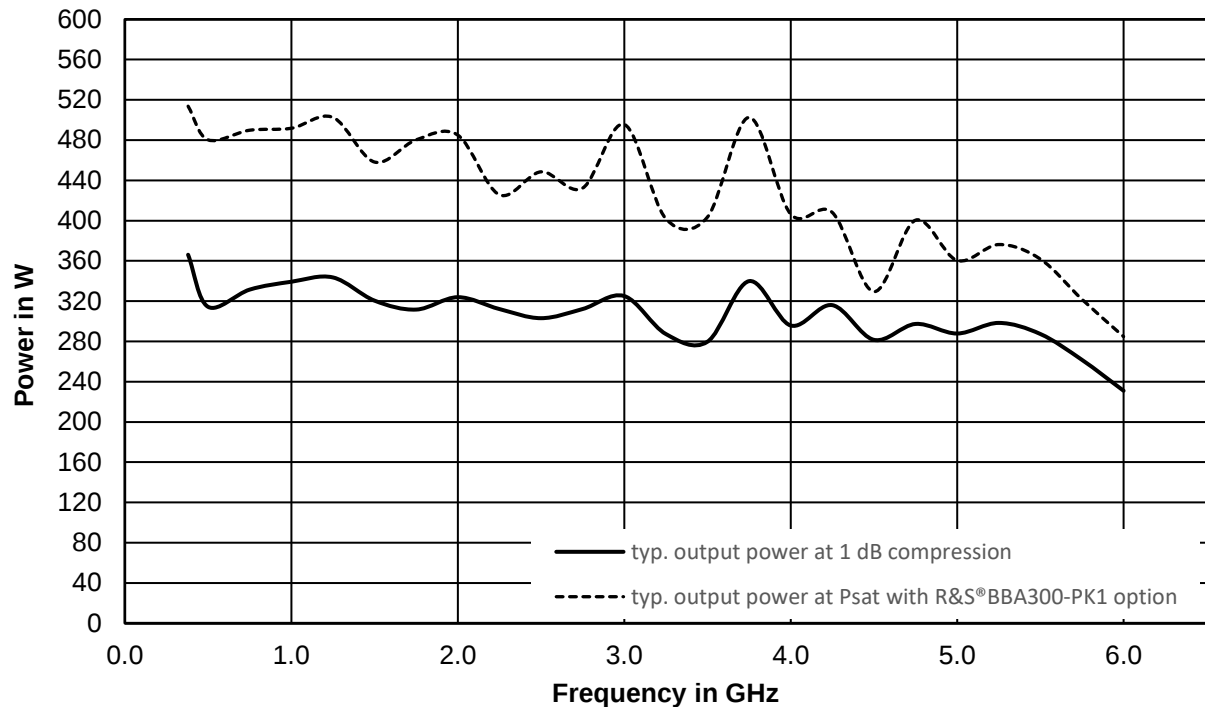
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
Rated current	at 230 V	10.9 A
Maximum AC power		2.5 kVA

R&S®BBA300-CDE300, power class: 300 W P_{1dB} or 450 W P_{sat}¹¹

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



RF specifications

Main parameters		
Frequency range		380 MHz to 6 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		300 W (54.78 dBm)
Output power ¹²	380 MHz to 4.2 GHz	min. 310 W (54.91 dBm)
	> 4.2 GHz to 5.6 GHz	min. 270 W (54.31 dBm)
	> 5.6 GHz to 6 GHz	min. 220 W (53.42 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ¹²	380 MHz to 2 GHz	min. 450 W (56.53 dBm)
	> 2 GHz to 4.2 GHz	min. 370 W (55.68 dBm)
	> 4.2 GHz to 5.6 GHz	min. 300 W (54.78 dBm)
	> 5.6 GHz to 6 GHz	min. 250 W (53.98 dBm)
Output power at 1 dB compression ¹²	380 MHz to 2.2 GHz	min. 300 W (54.78 dBm)
	> 2.2 GHz to 4.8 GHz	min. 260 W (54.15 dBm)
	> 4.8 GHz to 5.6 GHz	min. 230 W (53.62 dBm)
	> 5.6 GHz to 6 GHz	min. 200 W (53.00 dBm)
Nominal power gain	at 1 GHz	nom. 54.78 dB
Gain flatness	380 MHz to 6 GHz	< ±4.5 dB
Third order intermodulation (TOI)	2-tone at 47 dBm/tone, 1 MHz spacing	
	380 MHz to 5.5 GHz	nom. < -29 dBc
	5.5 GHz to 6 GHz	nom. < -20 dBc
Harmonics at P _{1dB} 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 P _{1dB} 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. < 11.5 dB
Noise power density	380 MHz to 6 GHz	nom. -100 dBm (1 Hz)

¹¹ Value for P_{sat} achievable in high power mode (requires R&S®BBA-PK1 option).

¹² Only applies to standard 12 HU systems, additional cable insertion loss is required for larger systems.

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 60 dB

Mechanical specifications

System size		
Dimensions	rack setup	19" $\frac{1}{2}$, 12 HU, depth: 800 mm (31.5 in)
Weight		approx. 100 kg (220 lb)

RF and sample connectors		
RF input port	rear panel	N female
RF output port	rear panel	7/16 DIN female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

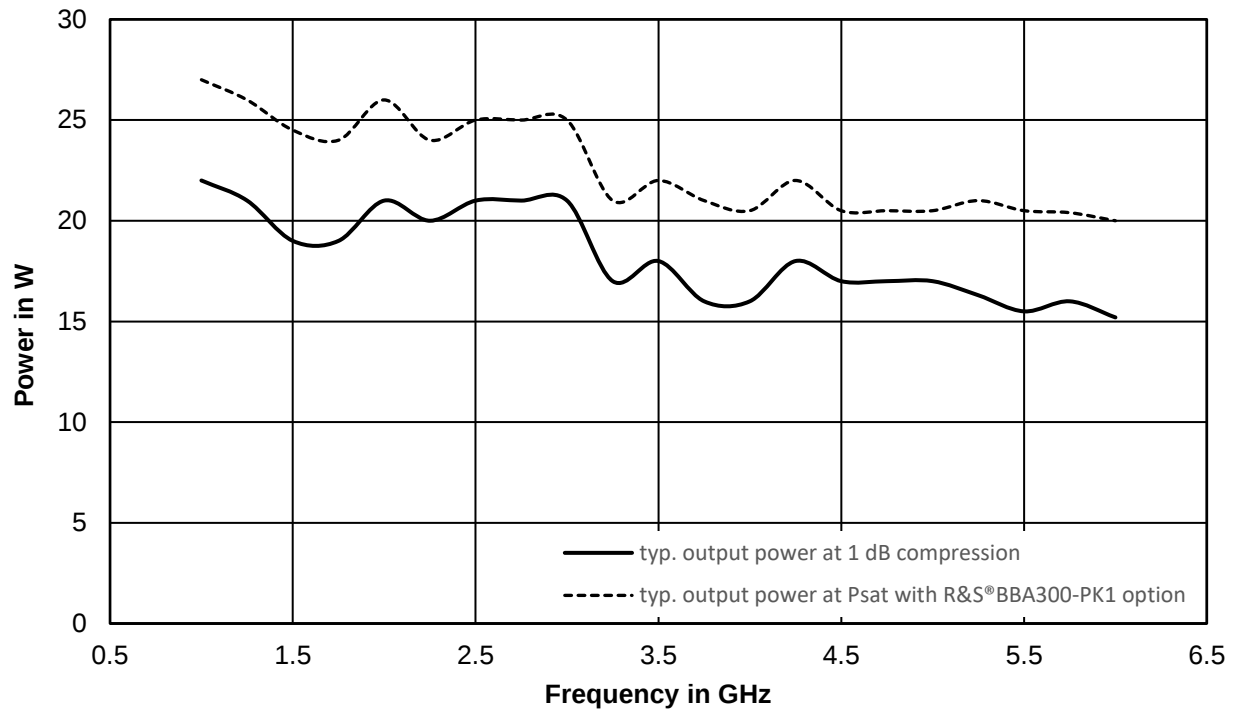
Electrical specifications

AC supply voltage		
Nominal operating voltage range		380 V to 415 V AC $\pm$ 10 %, three-phase, with N, 47 Hz to 63 Hz
		200 V to 240 V AC $\pm$ 10 %, three-phase, 47 Hz to 63 Hz
Rated current	at 230 V per phase	11.3 A 11.3 A 0.4 A
Maximum AC power		5.3 kVA

Frequency band DE from 1 GHz to 6 GHz

R&S®BBA300-DE15, power class: 15 W P1dB or 20 W P_{sat}¹³

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



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 ¹⁴	1 GHz to 6 GHz	min. 15 W (41.76 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ¹⁴	1 GHz to 6 GHz	min. 20 W (43.00 dBm)
Output power at 1 dB compression ¹⁴	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
Third order intermodulation (TOI)	2-tone at 36.76 dBm/tone, 1 MHz spacing	nom. < –26 dBc
Harmonics at P1dB and class A		< –22 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)

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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)

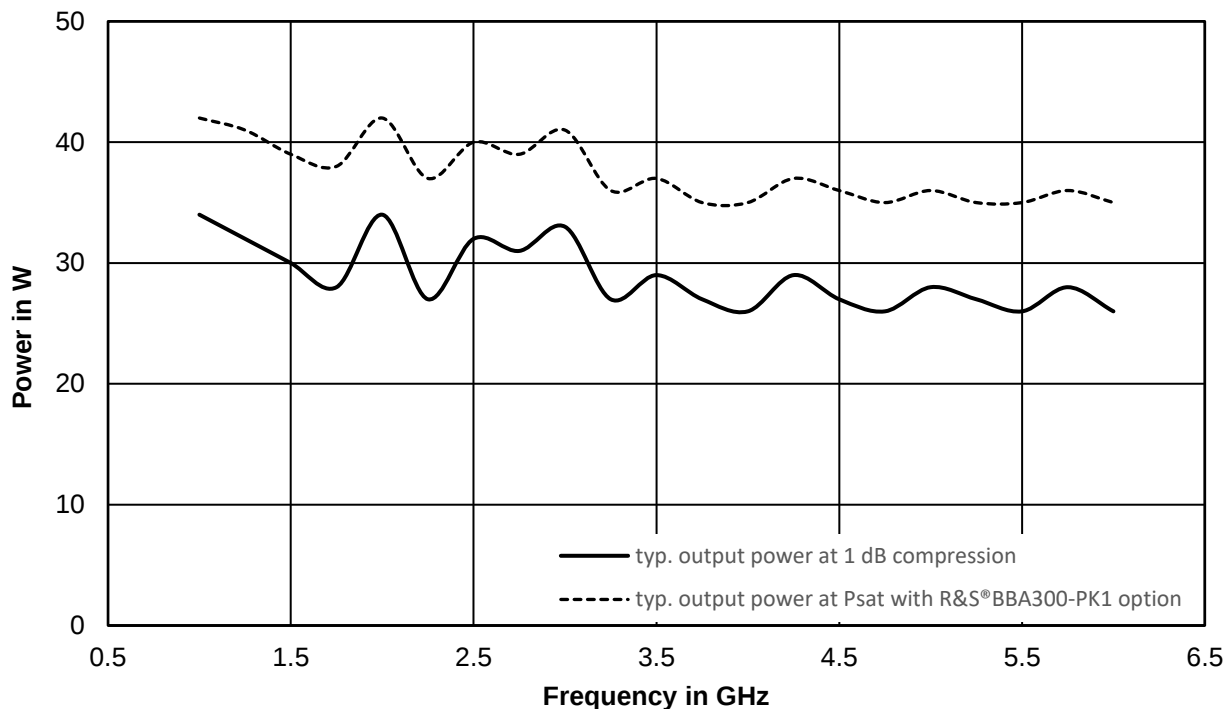
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
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}¹⁵

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



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 ¹⁶	1 GHz to 6 GHz	min. 25 W (44.0 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ¹⁶	1 GHz to 6 GHz	min. 35 W (45.44 dBm)
Output power at 1 dB compression ¹⁶	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
Third order intermodulation (TOI)	2-tone at 38 dBm/tone, 1 MHz spacing	nom. < -21 dBc
Harmonics at P1dB and class A		< -20 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)

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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)

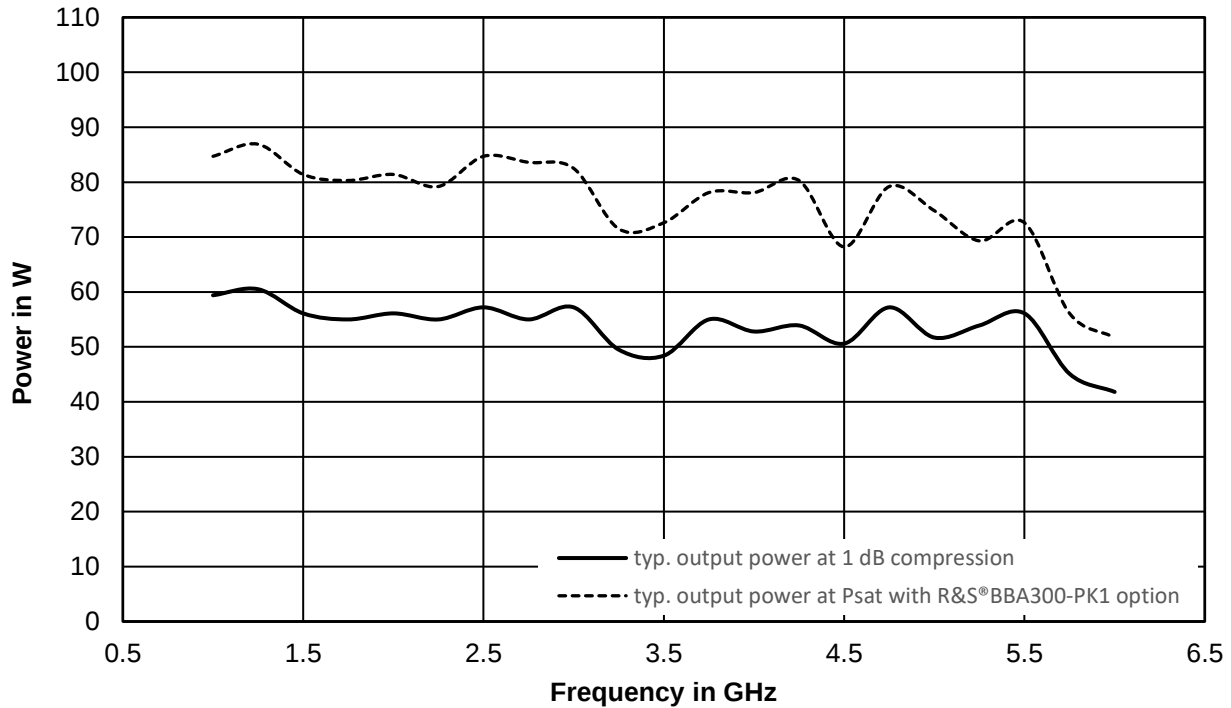
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
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 P_{1dB} or 75 W P_{sat}¹⁷

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



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 ¹⁸	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) ¹⁸	1 GHz to 2.1 GHz	min. 75 W (48.75 dBm)
	> 2.1 GHz to 3.2 GHz	min. 63 W (48.00 dBm)
	> 3.2 GHz to 5.5 GHz	min. 55 W (47.40 dBm)
	> 5.5 GHz to 6 GHz	min. 40 W (46.02 dBm)
Output power at 1 dB compression ¹⁸	1 GHz to 2.6 GHz	min. 50 W (47.00 dBm)
	> 2.6 GHz to 5.6 GHz (except 3.2 to 3.6 GHz)	min. 45 W (46.50 dBm)
	3.2 GHz to 3.6 GHz	min. 40 W (46.03 dBm)
	> 5.6 GHz to 6 GHz	min. 35 W (45.44 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
Third order intermodulation (TOI)	2-tone at 39.44 dBm/tone, 1 MHz spacing	
	1 GHz to 5.5 GHz	nom. < -27 dBc
	> 5.5 GHz to 6 GHz	nom. < -19 dBc
Harmonics at P _{1dB} 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 P _{1dB} 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)

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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" $\frac{1}{2}$, 4 HU
Weight		approx. 16 kg (35 lb)

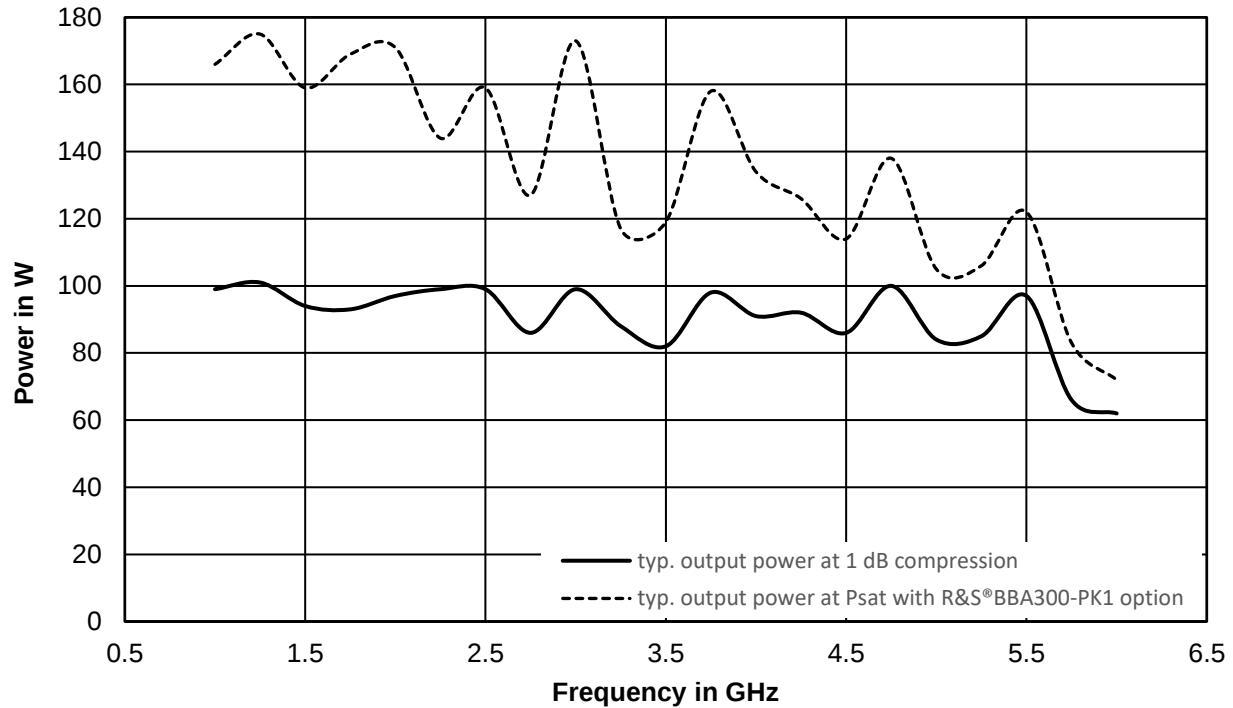
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
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 P_{1dB} or 140 W P_{sat}¹⁹

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



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 ²⁰	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) ²⁰	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 ²⁰	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
Third order intermodulation (TOI)	2-tone at 41.5 dBm/tone, 1 MHz spacing	
	1 GHz to 5.5 GHz	nom. < -27 dBc
	> 5.5 GHz to 6 GHz	nom. < -19 dBc
Harmonics at P _{1dB} 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 P _{1dB} and 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)

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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" $\frac{1}{2}$, 4 HU
Weight		approx. 25 kg (55 lb)

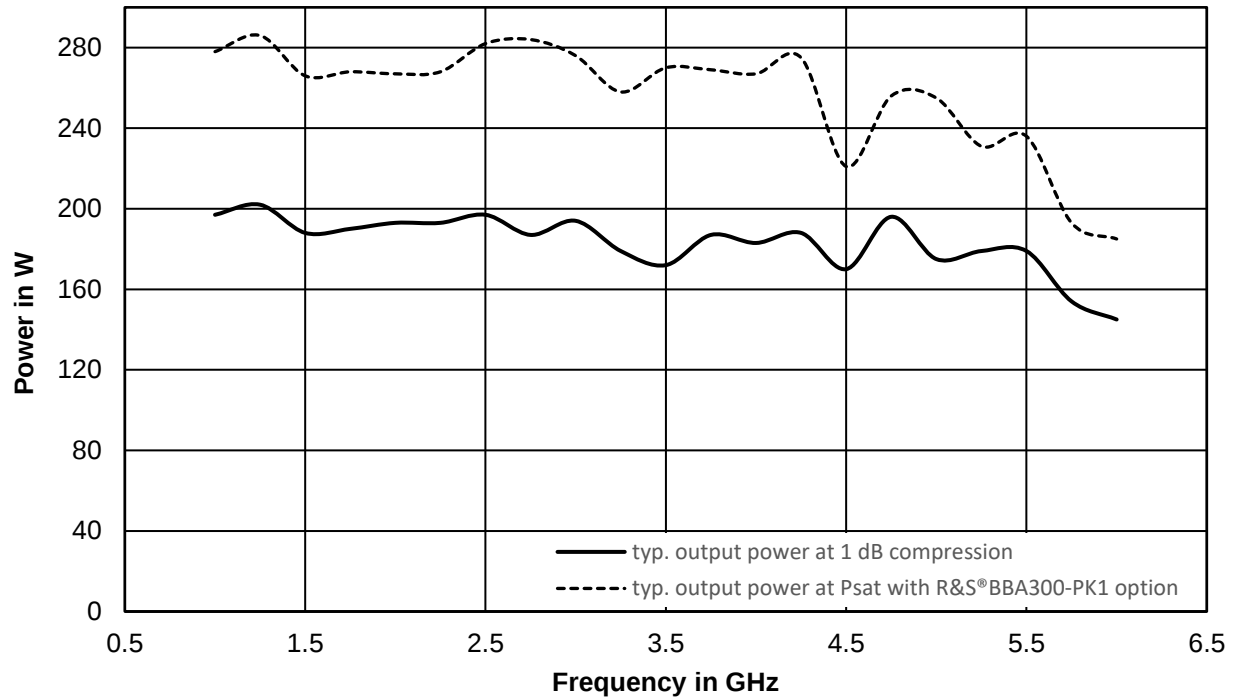
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
Rated current	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}²¹

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



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 ²²	1 GHz to 5.6 GHz	min. 185 W (52.67 dBm)
	> 5.6 GHz to 6 GHz	min. 120 W (50.80 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ²²	1 GHz to 3.2 GHz	min. 250 W (54.00 dBm)
	> 3.2 GHz to 4.4 GHz	min. 220 W (53.42 dBm)
	> 4.4 GHz to 5.6 GHz	min. 200 W (53.00 dBm)
	> 5.6 GHz to 6 GHz	min. 150 W (51.76 dBm)
Output power at 1 dB compression ²²	1 GHz to 2.7 GHz	min. 180 W (52.55 dBm)
	> 2.7 GHz to 5.6 GHz	min. 160 W (52.04 dBm)
	> 5.6 GHz to 6 GHz	min. 120 W (50.80 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
Third order intermodulation (TOI)	2-tone at 44.8 dBm/tone, 1 MHz spacing	
	1 GHz to 5.5 GHz	nom. < -28 dBc
	> 5.5 GHz to 6 GHz	nom. < -20 dBc
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)

²¹ Value for P_{sat} achievable in high power mode (requires R&S®BBA-PK1 option).

²² 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		nom. 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
Output mismatch tolerance	VSWR < 6:1 or set load tolerance	without foldback
	VSWR > 6:1 or set load tolerance	with gradual foldback to approx. 50 % of nominal output power, depending on load impedance
Output mismatch protection, VSWR		100 %, without damage

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 55 dB

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" $\frac{1}{4}$, 4 HU
Weight		approx. 35 kg (77 lb)

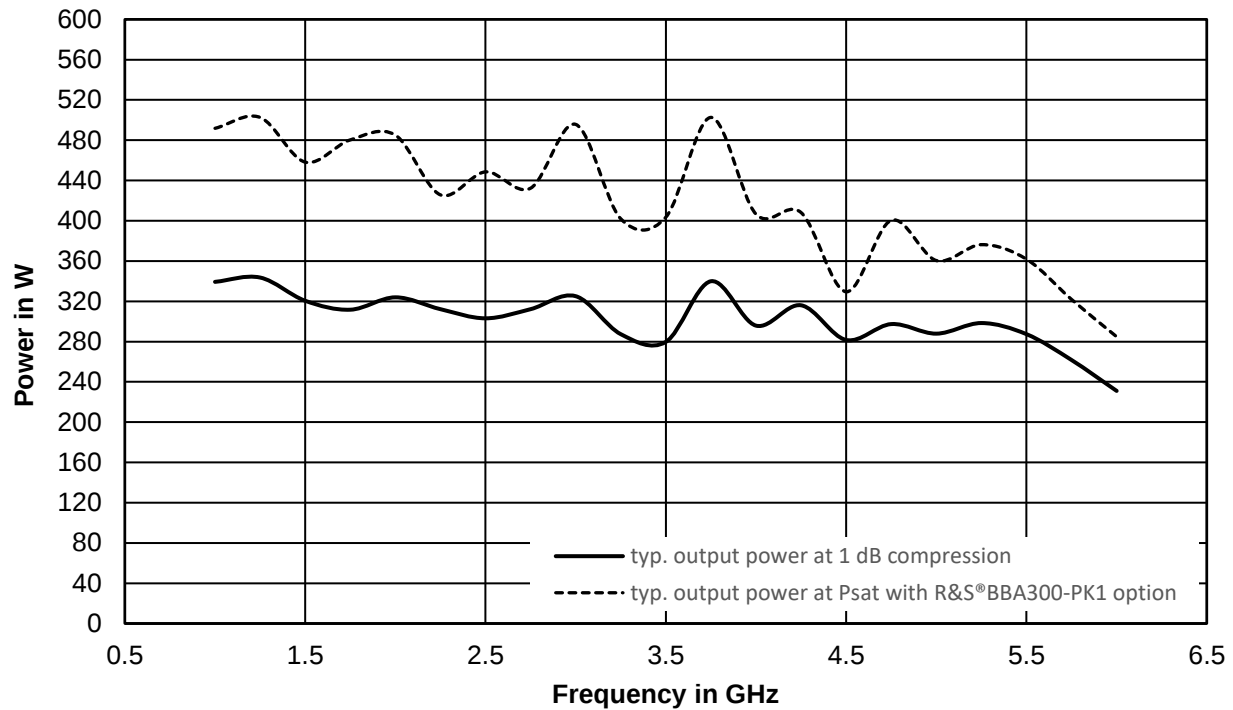
RF and sample connectors		
RF input port	either front panel or rear panel	N female
RF output port	either front panel or rear panel	N female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		200 V to 240 V AC $\pm$ 10 %, single phase, 47 Hz to 63 Hz
Rated current	at 230 V	10.9 A
Maximum AC power		2.5 kVA

R&S®BBA300-DE300, power class: 300 W P1dB or 450 W P_{sat}²³

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



RF specifications

Main parameters		
Frequency range		1 GHz to 6 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		300 W (54.78 dBm)
Output power ²⁴	1 GHz to 4.2 GHz	min. 310 W (54.91 dBm)
	> 4.2 GHz to 5.6 GHz	min. 270 W (54.31 dBm)
	> 5.6 GHz to 6 GHz	min. 220 W (53.42 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ²⁴	1 GHz to 2 GHz	min. 450 W (56.53 dBm)
	> 2 GHz to 4.2 GHz	min. 370 W (55.68 dBm)
	> 4.2 GHz to 5.6 GHz	min. 300 W (54.78 dBm)
	> 5.6 GHz to 6 GHz	min. 250 W (53.98 dBm)
Output power at 1 dB compression ²⁴	1 GHz to 2.2 GHz	min. 300 W (54.78 dBm)
	> 2.2 GHz to 4.8 GHz	min. 260 W (54.15 dBm)
	> 4.8 GHz to 5.6 GHz	min. 230 W (53.62 dBm)
	> 5.6 GHz to 6 GHz	min. 200 W (53.00 dBm)
Nominal power gain	at 1 GHz	nom. 54.78 dB
Gain flatness	1 GHz to 6 GHz	< ±4.5 dB
Third order intermodulation (TOI)	2-tone at 47 dBm/tone, 1 MHz spacing	
	1 GHz to 5.5 GHz	nom. < -29 dBc
	> 5.5 GHz to 6 GHz	nom. < -20 dBc
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. < 11.5 dB
Noise power density	1 GHz to 6 GHz	nom. -100 dBm (1 Hz)

²³ Value for P_{sat} achievable in high power mode (requires R&S®BBA-PK1 option).

²⁴ Only applies to standard 12 HU systems, additional cable insertion loss is required for larger systems.

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 60 dB

Mechanical specifications

System size		
Dimensions	rack setup	19" $\frac{1}{2}$, 12 HU, depth: 800 mm (31.5 in)
Weight		approx. 100 kg (220 lb)

RF and sample connectors		
RF input port	rear panel	N female
RF output port	rear panel	7/16 DIN female
RF sample port	forward output power, optional	N female
	reflected output power, optional	N female

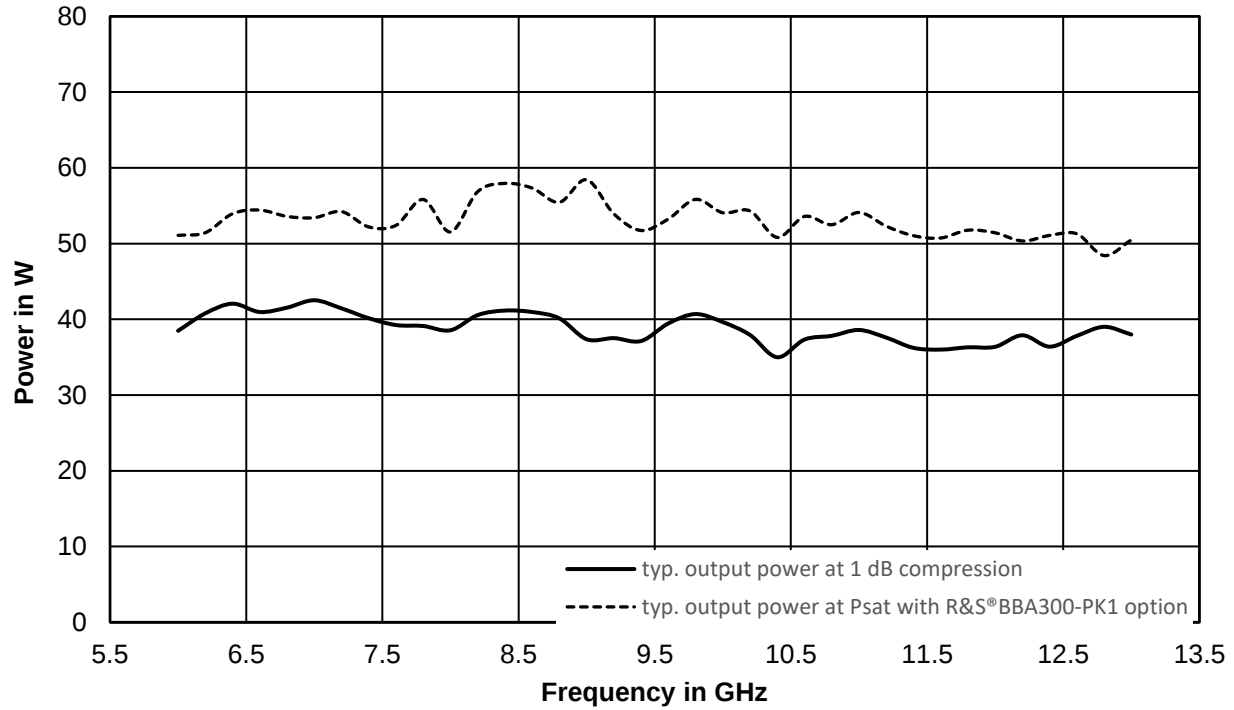
Electrical specifications

AC supply voltage		
Nominal operating voltage range		380 V to 415 V AC $\pm$ 10 %, three-phase, with N, 47 Hz to 63 Hz
		200 V to 240 V AC $\pm$ 10 %, three-phase, 47 Hz to 63 Hz
Rated current	at 230 V per phase	11.3 A 11.3 A 0.4 A
Maximum AC power		5.3 kVA

Frequency band F from 6 GHz to 13 GHz

R&S®BBA300-F30, power class: 30 W P_{1dB} or 40 W P_{sat} ²⁵

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



RF specifications

Main parameters		
Frequency range		6 GHz to 13 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		30 W (44.77 dBm)
Output power ²⁶	6 GHz to 13 GHz	min. 30 W (44.77 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ²⁶	6 GHz to 13 GHz	min. 40 W (46.00 dBm)
Output power at 1 dB compression ²⁶	6 GHz to 13 GHz	min. 30 W (44.77 dBm)
Nominal power gain	at 1 GHz	nom. 44.77 dB
Gain flatness	6 GHz to 13 GHz	< ±3.0 dB
Third order intermodulation (TOI)	2-tone at 38.77 dBm/tone, 1 MHz spacing	
	6 GHz to 13 GHz	nom. < -21 dBc
Harmonics at P _{1dB} and class A	6 GHz to 13 GHz	< -20 dBc
Spurious at P _{1dB} and class A	carrier offset > 100 kHz	nom. -80 dBc, max. -70 dBc
Noise figure at maximum gain	6 GHz to 12 GHz	nom. < 10.0 dB
	> 12 GHz to 13 GHz	nom. < 13.0 dB
Noise power density	6 GHz to 13 GHz	nom. -110 dBm (1 Hz)

²⁵ Value for P_{sat} achievable in high power mode (requires R&S®BBA-PK1 option).

²⁶ Only applies to standard 12HU systems, additional cable insertion loss is required for larger systems.

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 48 dB

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	463 mm × 196 mm × 643 mm (18.22 in × 7.72 in × 25.31 in)
Weight		approx. 23 kg (51 lb)

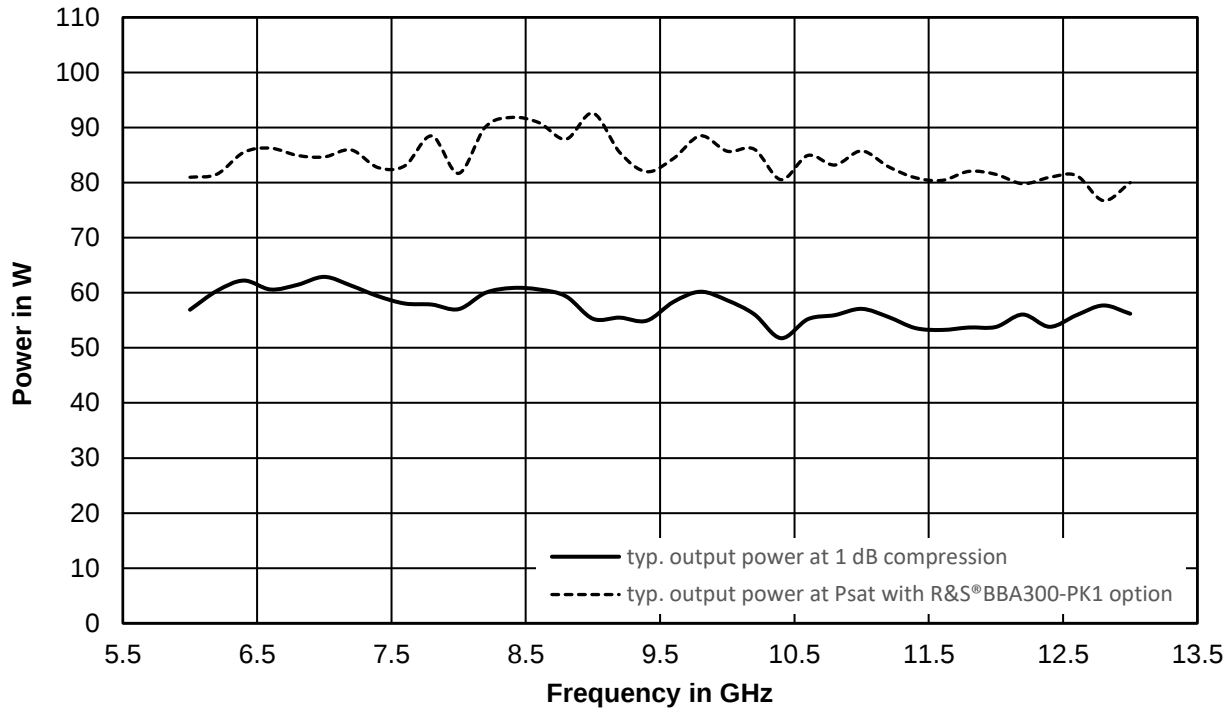
RF and sample connectors		
RF input port	rear panel	precision N female
RF output port	rear panel	precision N female
RF sample port	forward output power, optional	precision N female
	reflected output power, optional	precision N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single-phase, 47 Hz to 63 Hz
Rated current	at 230 V	4.0 A
Maximum AC power		900 VA

R&S®BBA300-F50, power class: 50 W P1dB or 80 W P_{sat} ²⁷

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



RF specifications

Main parameters		
Frequency range		6 GHz to 13 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		50 W (47.00 dBm)
Output power ²⁸	6 GHz to 13.0 GHz	min. 50 W (47.00 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ²⁸	6 GHz to 12.6 GHz	min. 80 W (49.90 dBm)
	12.6 GHz to 13.0 GHz	min. 70 W (48.50 dBm)
Output power at 1 dB compression ²⁸	6 GHz to 13.0 GHz	min. 50 W (47.00 dBm)
Nominal power gain	at 1 GHz	nom. 47.00 dB
Gain flatness	6 GHz to 13 GHz	< ±3.0 dB
Third order intermodulation (TOI)	2-tone at 41.0 dBm/tone, 1 MHz spacing	
	6 GHz to 13 GHz	nom. < -21 dBc
Harmonics at P1dB and class A	6 GHz to 13 GHz	< -20 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. -80 dBc, max. -70 dBc
Noise figure at maximum gain	6 GHz to 12 GHz	nom. < 10.0 dB
	> 12 GHz to 13 GHz	nom. < 13.0 dB
Noise power density	6 GHz to 13 GHz	nom. -110 dBm (1 Hz)

²⁷ Value for P_{sat} achievable in high power mode (requires R&S®BBA-PK1 option).

²⁸ Only applies to standard 12 HU systems, additional cable insertion loss is required for larger systems.

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 48 dB

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	463 mm × 196 mm × 643 mm (18.22 in × 7.72 in × 25.31 in)
Weight		approx. 23 kg (51 lb)

RF and sample connectors		
RF input port	rear panel	precision N female
RF output port	rear panel	precision N female
RF sample port	forward output power, optional	precision N female
	reflected output power, optional	precision N female

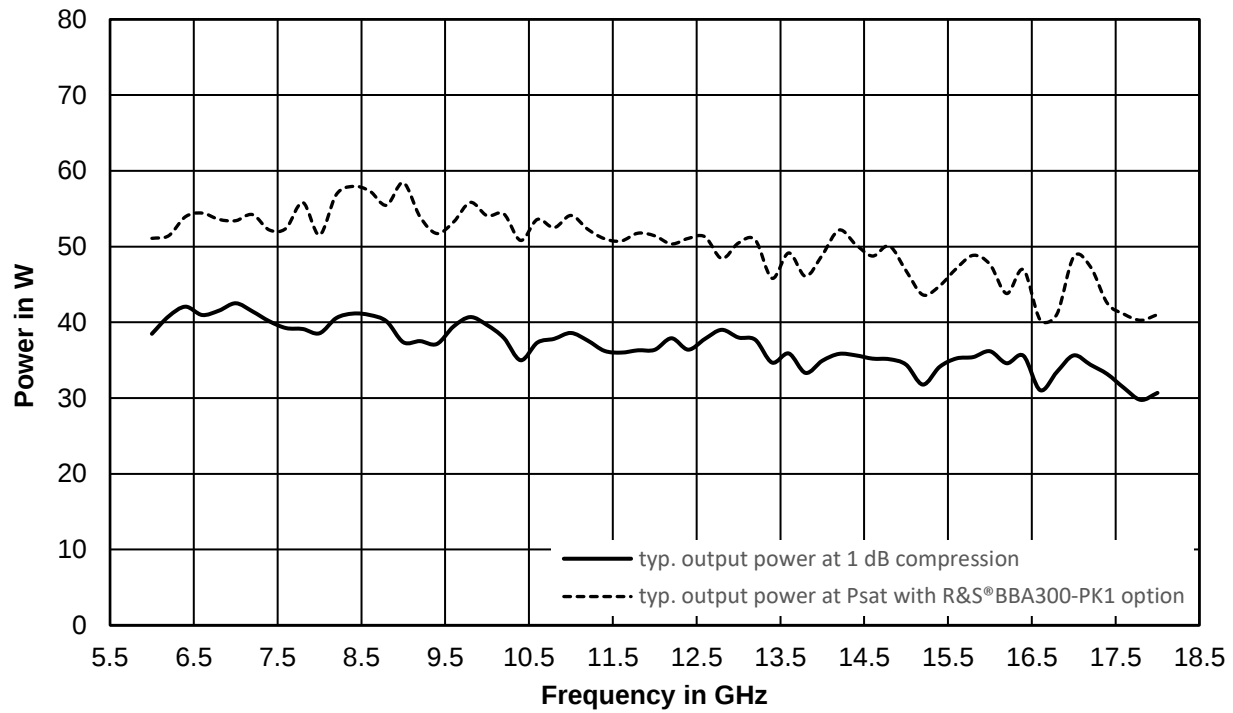
Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single-phase, 47 Hz to 63 Hz
Rated current	at 230 V	4.0 A
Maximum AC power		900 VA

Frequency band FG from 6 GHz to 18 GHz

R&S®BBA300-FG30, power class: 30 W P1dB or 40 W P_{sat}²⁹

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



RF specifications

Main parameters		
Frequency range		6 GHz to 18 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		30 W (44.77 dBm)
Output power ³⁰	6 GHz to 18 GHz	min. 30 W (44.77 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ³⁰	6 GHz to 18 GHz	min. 40 W (46.00 dBm)
Output power at 1 dB compression ³⁰	6 GHz to 18 GHz	min. 30 W (44.77 dBm)
Nominal power gain	at 1 GHz	nom. 44.77 dB
Gain flatness	6 GHz to 18 GHz	< ±3.0 dB
Third order intermodulation (TOI)	2-tone at 38.77 dBm/tone, 1 MHz spacing	
	6 GHz to 18 GHz	nom. < -21 dBc
Harmonics at P1dB and class A	6 GHz to 18 GHz	< -20 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. -80 dBc, max. -70 dBc
Noise figure at maximum gain	6 GHz to 12 GHz	nom. < 10.0 dB
	> 12 GHz to 18 GHz	nom. < 13.0 dB
Noise power density	6 GHz to 18 GHz	nom. -110 dBm (1 Hz)

²⁹ Value for P_{sat} achievable in high power mode (requires R&S®BBA-PK1 option).

³⁰ Only applies to standard 12 HU systems, additional cable insertion loss is required for larger systems.

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 48 dB

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	463 mm × 196 mm × 643 mm (18.22 in × 7.72 in × 25.31 in)
Weight		approx. 23 kg (51 lb)

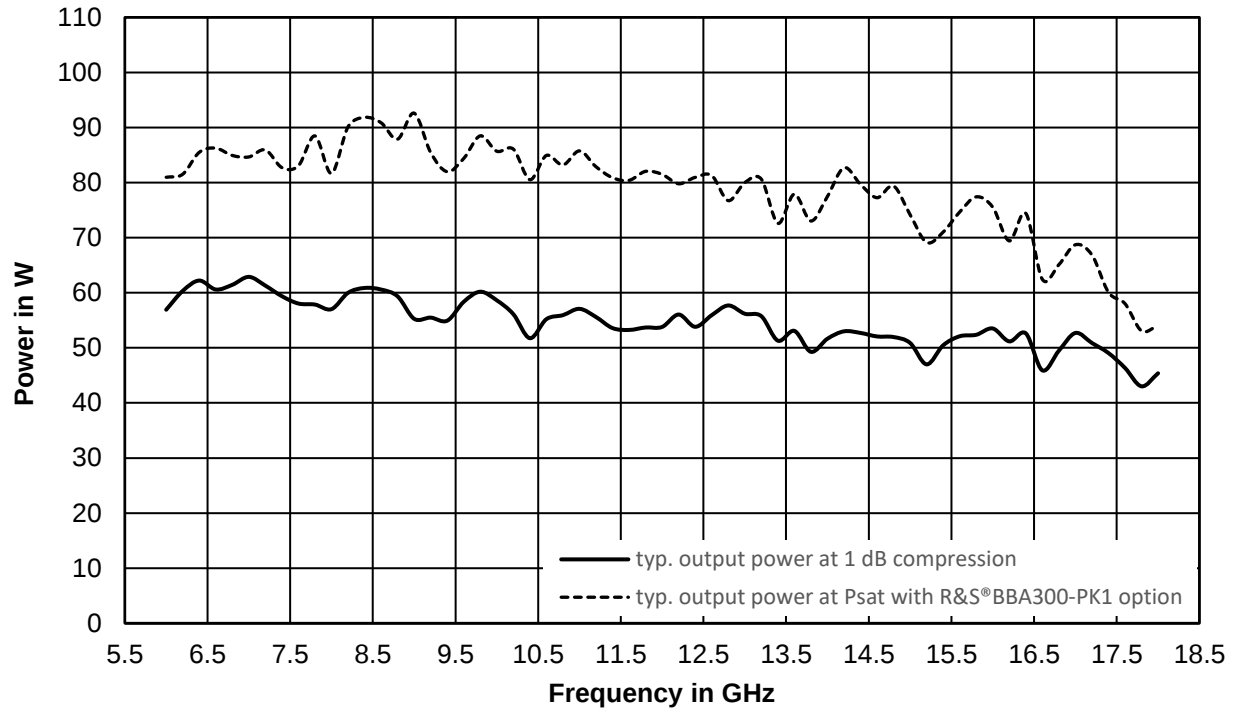
RF and sample connectors		
RF input port	rear panel	precision N female
RF output port	rear panel	precision N female
RF sample port	forward output power, optional	precision N female
	reflected output power, optional	precision N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single-phase, 47 Hz to 63 Hz
Rated current	at 230 V	4.0 A
Maximum AC power		900 VA

R&S®BBA300-FG50, power class: 50 W P1dB or 80 W P_{sat} ³¹

Frequency response at 1 dB compression and P_{sat} with R&S®BBA300-PK1 option



RF specifications

Main parameters		
Frequency range		6 GHz to 18 GHz, instantaneously
Nominal output load		50 Ω
Nominal output power		50 W (47.00 dBm)
Output power ³²	6 GHz to 13.3 GHz	min. 50 W (47.00 dBm)
	13.3 GHz to 18 GHz	min. 40 W (46.00 dBm)
Output power in high power mode (R&S®BBA-PK1 option) ³²	6 GHz to 12.6 GHz	min. 80 W (49.90 dBm)
	12.6 GHz to 15.0 GHz	min. 70 W (48.50 dBm)
	15.0 GHz to 16.0 GHz	min. 63 W (48.00 dBm)
	16.0 GHz to 18.0 GHz	min. 50 W (47.00 dBm)
Output power at 1 dB compression ³²	6 GHz to 13.3 GHz	min. 50 W (47.00 dBm)
	13.3 GHz to 18.0 GHz	min. 40 W (46.00 dBm)
Nominal power gain	at 1 GHz	nom. 47.00 dB
Gain flatness	6 GHz to 18 GHz	< ±3.0 dB
Third order intermodulation (TOI)	2-tone at 40.0 dBm/tone, 1 MHz spacing	
	6 GHz to 18 GHz	nom. < -21 dBc
Harmonics at P1dB and class A	6 GHz to 18 GHz	< -20 dBc
Spurious at P1dB and class A	carrier offset > 100 kHz	nom. -80 dBc, max. -70 dBc
Noise figure at maximum gain	6 GHz to 12 GHz	nom. < 10.0 dB
	> 12 GHz to 18 GHz	nom. < 13.0 dB
Noise power density	6 GHz to 18 GHz	nom. -110 dBm (1 Hz)

³¹ Value for P_{sat} achievable in high power mode (requires R&S®BBA-PK1 option).

³² Only applies to standard 12 HU systems, additional cable insertion loss is required for larger systems.

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

RF sample signals		
RF sample signal coupling factor	RF forward and reflected sample ports, optional	approx. 48 dB

Mechanical specifications

System size		
Dimensions	W × H × D, incl. fans, handles and stand	463 mm × 196 mm × 643 mm (18.22 in × 7.72 in × 25.31 in)
Weight		approx. 23 kg (51 lb)

RF and sample connectors		
RF input port	rear panel	precision N female
RF output port	rear panel	precision N female
RF sample port	forward output power, optional	precision N female
	reflected output power, optional	precision N female

Electrical specifications

AC supply voltage		
Nominal operating voltage range		100 V to 240 V AC $\pm$ 10 %, single-phase, 47 Hz to 63 Hz
Rated current	at 230 V	4.0 A
Maximum AC power		900 VA

General data

Modulation specifications

Modulation capability		AM, FM, ϕ M, 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 % relative 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, 8 Hz to 500 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/DE up to 90 W - for R&S®BBA300-F/FG up to 50 W - up to 65 dB - for R&S®BBA300-CDE/DE up to 300 W
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 (third edition), CAN/CSA-C22.2 no. 61010-1-12, UL 61010-1 third edition, May 11, 2012

Protection

RF		
Load VSWR		unlimited
Interlock ³³		1 automatic interlock, 1 interactive 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 these specifications.

³³ The interlock interface of the R&S®BBA300 is a functional interlock and not a safety interlock. To realize a safety interlock on system level, a second independent safeguard has to be installed on system level.

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 switch	N female SMA female
Frequency range		0 Hz to 18 GHz
Switching time		< 10 ms
Life		10 000 000 cycles
Insertion loss	0 Hz to 3 GHz	≤ 0.15 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.20 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.25 dB, without cable loss
	12.4 GHz to 18 GHz	≤ 0.35 dB, without cable loss

RF input switch, R&S®BBA-B116 option		
Switch type		1:6, mechanical
RF input port	at rack connection panel switch	N female 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 switches	N female SMA female
Frequency range		0 Hz to 18 GHz
Switching time		< 10 ms
Life		10 000 000 cycles
RF sample signal level		max. 10 dBm
Insertion loss	0 Hz to 3 GHz	≤ 0.15 dB, without cable loss
	3 GHz to 8 GHz	≤ 0.20 dB, without cable loss
	8 GHz to 12.4 GHz	≤ 0.25 dB, without cable loss
	12.4 GHz to 18 GHz	≤ 0.35 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 switches	N female 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. $700 \text{ W} \times 1/\sqrt{VSWR}$
	1 GHz to 2 GHz	max. $500 \text{ W} \times 1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. $400 \text{ W} \times 1/\sqrt{VSWR}$
	3 GHz to 8 GHz	max. $250 \text{ W} \times 1/\sqrt{VSWR}$
	8 GHz to 12.4 GHz	max. $200 \text{ W} \times 1/\sqrt{VSWR}$
Insertion loss	0 Hz to 1 GHz	$\leq 0.15 \text{ dB}$, without cable loss
	1 GHz to 2 GHz	$\leq 0.20 \text{ dB}$, without cable loss
	2 GHz to 3 GHz	$\leq 0.25 \text{ dB}$, without cable loss
	3 GHz to 8 GHz	$\leq 0.35 \text{ dB}$, without cable loss
	8 GHz to 12.4 GHz	$\leq 0.50 \text{ dB}$, 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		$\geq 500\,000$ cycles
Average forward RF power	0 Hz to 1 GHz	max. $2.0 \text{ kW} \times 1/\sqrt{VSWR}$
	1 GHz to 2 GHz	max. $1.4 \text{ kW} \times 1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. $1.1 \text{ kW} \times 1/\sqrt{VSWR}$
	3 GHz to 4 GHz	max. $1.0 \text{ kW} \times 1/\sqrt{VSWR}$
	4 GHz to 5 GHz	max. $0.9 \text{ kW} \times 1/\sqrt{VSWR}$
	5 GHz to 6 GHz	max. $0.8 \text{ kW} \times 1/\sqrt{VSWR}$
Insertion loss	0 Hz to 2 GHz	$\leq 0.05 \text{ dB}$, without cable loss
	2 GHz to 5 GHz	$\leq 0.10 \text{ dB}$, without cable loss
	5 GHz to 6 GHz	$\leq 0.15 \text{ dB}$, 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		$\geq 250\,000$ cycles
Average forward RF power	0 Hz to 0.1 GHz	max. $8 \text{ kW} \times 1/\sqrt{VSWR}$
	0.1 GHz to 0.23 GHz	max. $5 \text{ kW} \times 1/\sqrt{VSWR}$
	0.23 GHz to 0.86 GHz	max. $2.5 \text{ kW} \times 1/\sqrt{VSWR}$
	0.86 GHz to 2 GHz	max. $1.8 \text{ kW} \times 1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. $1.4 \text{ kW} \times 1/\sqrt{VSWR}$
	3 GHz to 3.5 GHz	max. $1.3 \text{ kW} \times 1/\sqrt{VSWR}$
Insertion loss	0 Hz to 1 GHz	$\leq 0.03 \text{ dB}$, without cable loss
	1 GHz to 2 GHz	$\leq 0.05 \text{ dB}$, without cable loss
	2 GHz to 3.5 GHz	$\leq 0.20 \text{ dB}$, without cable loss

RF output switch, R&S®BBA-B123 option		
Switch type		2:2, mechanical
RF output port		$1 \frac{5}{8}"$ EIA
Frequency range		0 Hz to 2 GHz
Switching time		< 120 ms
Life		$\geq 250\,000$ cycles
Average forward RF power	0 Hz to 0.1 GHz	max. $19 \text{ kW} \times 1/\sqrt{VSWR}$
	0.1 GHz to 0.23 GHz	max. $12.7 \text{ kW} \times 1/\sqrt{VSWR}$
	0.23 GHz to 0.86 GHz	max. $6.6 \text{ kW} \times 1/\sqrt{VSWR}$
	0.86 GHz to 1.6 GHz	max. $4.8 \text{ kW} \times 1/\sqrt{VSWR}$
	1.6 GHz to 2 GHz	max. $4.3 \text{ kW} \times 1/\sqrt{VSWR}$
Insertion loss	0 Hz to 0.86 GHz	$\leq 0.05 \text{ dB}$, without cable loss
	0.86 GHz to 2 GHz	$\leq 0.10 \text{ dB}$, without cable loss

RF output switch, R&S®BBA-B125 option		
Switch type		2:1, mechanical
RF output port		precision N female
Frequency range		0 Hz to 18.0 GHz
Switching time		< 20 ms
Life		≥ 2 000 000 cycles
Average forward RF power	0 Hz to 6 GHz	max. $170 \text{ W} \times 1/\sqrt{VSWR}$
	6 GHz to 12 GHz	max. $120 \text{ W} \times 1/\sqrt{VSWR}$
	12 GHz to 18 GHz	max. $100 \text{ W} \times 1/\sqrt{VSWR}$
Insertion loss	0 Hz to 6 GHz	≤ 0.15 dB, without cable loss
	6 GHz to 12 GHz	≤ 0.25 dB, without cable loss
	12 GHz to 18 GHz	≤ 0.35 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. $700 \text{ W} \times 1/\sqrt{VSWR}$
	1 GHz to 2 GHz	max. $500 \text{ W} \times 1/\sqrt{VSWR}$
	2 GHz to 3 GHz	max. $400 \text{ W} \times 1/\sqrt{VSWR}$
	3 GHz to 8 GHz	max. $250 \text{ W} \times 1/\sqrt{VSWR}$
	8 GHz to 12.4 GHz	max. $200 \text{ W} \times 1/\sqrt{VSWR}$
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 50 % duty cycle	nom. ≥ 200 μs

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
300 W (450 W), air-cooled, 12 HU, rack model	R&S®BBA300	BBA300-CDE300

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
300 W (450 W), air-cooled, 12 HU, rack model	R&S®BBA300	BBA300-DE300

Frequency band from 6 GHz to 13 GHz

Designation	Type	Configuration No.
30 W (40 W), air-cooled, 4 HU, desktop model	R&S®BBA300	BBA300-F30
50 W (80 W), air-cooled, 4 HU, desktop model	R&S®BBA300	BBA300-F50

Frequency band from 6 GHz to 18 GHz

Designation	Type	Configuration No.
30 W (40 W), air-cooled, 4 HU, desktop model	R&S®BBA300	BBA300-FG30
50 W (80 W), air-cooled, 4 HU, desktop model	R&S®BBA300	BBA300-FG50

Accessories supplied: power cord, user manual on CD.

Options

Designation	Type	Order No.
Hardware options		
GPIO remote control	R&S®BBA-B101	5355.8250.02 ³⁴
PoE switch	R&S®BBA-B102	5355.8243.30
Optical Ethernet remote control	R&S®BBA-B105	5355.8266.13
RF input switch (1:2 or 2:1, N) ³⁵	R&S®BBA-B110	5355.8866.17 ³⁴
RF input switch (1:6, N)	R&S®BBA-B116	5355.8950.12
RF output switch (2:1 or 1:2, N) ³⁵	R&S®BBA-B120	5355.8795.15 ³⁴
RF output switch (2:2, 7/16) ³⁵	R&S®BBA-B121	5355.8895.12 ³⁴
RF output switch (2:1 or 1:2, N) ³⁵	R&S®BBA-B125	5355.8795.25 ³⁴
RF output switch (6:1, N)	R&S®BBA-B126	5355.8995.12
DC block input protection (N)	R&S®BBA-B132	5353.9236.03
Sample ports, for forward and reflected RF power (N) ³⁵	R&S®BBA-B140	5355.8837.02 ³⁴
Sample ports, for forward and reflected RF power (N) ³⁵	R&S®BBA-B141	5355.8850.02 ³⁴
Sample port switch (2 × 2:1, N) ³⁵	R&S®BBA-B142	5355.8872.18 ³⁴
Sample port switch (2 × 6:1, N)	R&S®BBA-B146	5355.8972.12
Transparent I/O	R&S®BBA-B160	5355.8889.02 ³⁴
10" touchscreen	R&S®BBA-B200	Contact your local Rohde & Schwarz sales office.
Frequency extension, 380 MHz to 6 GHz, for R&S®BBA300-DE	R&S®BBA-B211	Contact your local Rohde & Schwarz sales office.
Frequency extension, 6 GHz to 18 GHz, for R&S®BBA300-F	R&S®BBA-B212	Contact your local Rohde & Schwarz sales office.
Software options		
Setting bias point and high power	R&S®BBA-PK1	5352.8407.14 ³⁴
Automatic RF on	R&S®BBA-K9	5352.8088.02
Fast amplifier mute	R&S®BBA-K130	5352.8220.02

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

³⁴ The last two digits of the order number vary depending on the system configuration.

³⁵ 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.

Service

Service level agreements

Rohde & Schwarz offers maintenance and support services to maximize and protect the investment of customers' Rohde & Schwarz products. Details are given in the "Service Levels Description for Rohde & Schwarz Broadband Amplifiers" document (PD 3607.6467.92).

Calibration information

An optional calibration can be ordered for the R&S®BBA300. Note that the simple acceptance rule is selected for the declaration of conformity (cf. ILAC-G8:09/2019, section 4.2.1).

System upgrades

Upgrades in frequency band and/or RF output power are available on request.

Service at Rohde & Schwarz
You're in great hands

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

Rohde & Schwarz

The Rohde & Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems and networks & cybersecurity. Founded 90 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and 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

Rohde & Schwarz training

www.training.rohde-schwarz.com

Rohde & Schwarz customer support

www.rohde-schwarz.com/support

