BANDPASS FILTERS

Bandpass and low pass filters are applied between the output of a broadcast transmitter and the antenna to suppress spurious emissions.
For analogue “combined” transmitters the filters must suppress the harmonics of vision and sound carrier.
For DTV transmitters the filters are used to limit the out-of-channel emissions according to the various mask specifications (ATSC, DAB, DVB-T and ISDB-T).

SPINNER offers coaxial filters, dual-mode wave guide filters, dielectric filters and low pass filters for the frequency ranges band 3, UHF and band L for the following applications:

- 8 MHz DVB-T and DVB-T2 extended
- 8 MHz analog TV
- 7 MHz DVB-T and DVB-T2
- 7 MHz analog TV
- 6 MHz DVB-T, DVB-T2, ISDB-T and ATSC
- 6 MHz analogue TV
- 1.54 MHz DAB and T-DMB

In the catalog you can find filter data for the most common applications. However, alternative filter tunings can be made for other mask requirements, applications and bandwidths. Please do not hesitate to contact us.

The filter tuning (pass band and stop band insertion loss, matching and variation of group delay time) is fixed in a tuning specification (e.g. AS6121).
It is mandatory to specify in every order this tuning specification together with the frequency to assure that the filter is tuned in the factory as agreed.

All bandpass filters can be integrated into multi-channel combiners where they simultaneously provide the isolation between transmitters and mask filtering (please see the chapter multi-channel combiners).

The „Environmental Conditions for Broadcast Products“ listed in the annex must be obeyed during operation, transport and storage.
The maximum rating of the filter depends on the environmental conditions like temperature, cooling and height above sea level. The majority of filters can be operated up to 2300 m above sea level with the power specified in the data sheet. For stations at higher altitude the power has to be reduced as shown in the „Environmental Conditions for Broadcast Products”.
For some filters with liquid cooling the derating has to be applied above 500 m as shown in the data sheets.
The input and output ports of all bandpass filters end inside the resonators with an open or a short. So these filters block DC and low frequencies.

Most bandpass filters are equipped with cross couplings to achieve steeper slopes for mask filtering. Inside multi-channel combiners the cross couplings are used to enable adjacent channels operation.

VHF / BAND 3, COAXIAL BANDPASS FILTER

Part number	Frequency in MHz	Average input power	Typ. application	Number / Size of cavities
BN 61 63 65	167 - 254	≤ 2.7 kW	ATV	4/150
BN 61 63 64	167 - 254	≤ 7.1 kW	ATV	4/150
BN 61 71 15	223 - 240	≤ 300 W	DAB/T-DMB	6/170
BN 61 71 16	174 - 240	≤ 500 W	DAB/T-DMB	6/100
BN 61 71 71	170 - 240	≤ 1.5 kW	DAB/T-DMB	6/150
BN 61 71 44	170 - 240	≤ 1.6 kW	DAB/T-DMB	6/150
BN 61 71 45	215 - 240	≤ 1.6 kW	DAB/T-DMB	6/150
BN 61 71 83	170 - 240	≤ 1.6 kW	DAB/T-DMB	8/150
BN 61 71 11	170 - 240	≤ 3.0 kW	DAB/T-DMB	6/200
BN 61 71 10	170 - 240	≤ 5.1 kW	DAB/T-DMB	6/200
BN 61 71 08	170 - 240	≤ 3.0 kW	DAB/T-DMB	6/200
BN 61 71 09	170 - 240	≤ 5.1 kW	DAB/T-DMB	6/200
BN 61 71 13	170 - 240	≤ 3.1 kW	DAB/T-DMB	8/200
BN 61 71 12	170 - 240	≤ 5.1 kW	DAB/T-DMB	8/200
BN 61 71 90	174 - 230	≤ 1.1 kW	DTV	6/100
BN 61 71 26	174 - 230	≤ 4.0 kW	DTV	6/150
BN 61 71 91	174 - 230	≤ 3.5 kW	DTV	8/150
BN 61 71 93	174 - 230	≤ 3.5 kW	DTV	10/150

UHF COAXIAL BANDPASS FILTER

Part number	Frequency in MHz	Average input power 6 MHz	8 MHz	Typ. application	Number / Size of cavities
BN 61 65 07	470 - 860	≤ 40 W	≤ 50 W	DTV/ATV	4/34
BN 61 65 01	470 - 860	≤ 100 W	≤ 100 W	DTV	6/38
BN 61 66 60	470 - 860	≤ 100 W	≤ 130 W	DTV	6/40
BN 61 66 61	470 - 860	≤ 100 W	≤ 130 W	DTV	8/40
BN 61 65 66	470 - 860	≤ 300 W	≤ 375 W	DTV	6/60
BN 61 65 68	470 - 860	≤ 300 W	≤ 375 W	DTV	8/60
BN 61 64 02	470 - 860	≤ 600 W	≤ 750 W	DTV	6/84
BN 61 64 03	470 - 860	≤ 600 W	≤ 750 W	DTV	8/84
BN 61 66 63	470 - 860	≤ 1.3 kW	≤ 1.6 kW	DTV	6/120
BN 61 66 64	470 - 860	≤ 1.3 kW	≤ 1.6 kW	DTV	8/120
BN 61 64 04	470 - 860	≤ 5.0 kW	≤ 5.0 kW	ATV	4/150
BN 61 65 72	470 - 803	≤ 2.25 kW	–	ATSC	6/150
BN 61 65 18	470 - 860	≤ 2.0 kW	≤ 2.5 kW	DTV	6/150
BN 61 65 42	470 - 860	≤ 1.6 kW	≤ 2.0 kW	DTV	8/150
BN 61 66 65	470 - 860	≤ 3.0 kW	≤ 3.75 kW	DTV	6/170
BN 61 66 65	470 - 860	≤ 6.0 kW	≤ 7.5 kW	DTV	6/170

UHF COAXIAL BANDPASS FILTER

Part number	Frequency in MHz	Average input power 6 MHz	8 MHz	Typ. application	Number / Size of cavities
BN 61 66 66	470 - 860	≤ 3.0 kW	≤ 3.75 kW	DTV	8/170
BN 61 66 66	470 - 860	≤ 5.0 kW	≤ 6.25 kW	DTV	8/170
BN 61 64 09	470 - 860	≤ 6.0 kW	≤ 7.5 kW	ATV	4/200
BN 61 64 09	470 - 860	≤ 11.2 kW	≤ 14 kW	ATV	4/200
BN 61 65 71	470 - 803	≤ 4.5 kW	–	ATSC	6/200
BN 61 65 70	470 - 803	≤ 10.0 kW	–	ATSC	6/200
BN 61 65 40	470 - 860	≤ 4.0 kW	≤ 5.0 kW	DTV	6/200
BN 61 65 50	470 - 860	≤ 10.0 kW	≤ 12.5 kW	DTV	6/200
BN 61 65 44	470 - 860	≤ 3.2 kW	≤ 4.0 kW	DTV	8/200
BN 61 65 54	470 - 860	≤ 10.0 kW	≤ 12.5 kW	DTV	8/200
BN 61 66 69	470 - 790	≤ 6.75 kW	≤ 18.0 kW	DTV	6/230
BN 61 66 70	470 - 790	≤ 6.75 kW	≤ 16.5 kW	DTV	8/230

BAND L BANDPASS FILTERS WITH DUAL MODE WAVE GUIDE RESONATORS

Part number	Frequency in MHz	Average input power	Typ. application	Number / Size of cavities
BN 61 65 11 **BN 61 65 12**	1452 - 1468 1468 - 1492	≤ 1.2 kW	DAB / T-DMB	4/DM
BN 61 65 13 **BN 61 65 14**	1452 - 1468 1468 - 1492	≤ 1.6 kW	DAB / T-DMB	4/DM

BAND L BANDPASS FILTERS WITH DIELECTRIC RESONATORS

Part number	Frequency in MHz	Average input power	Typ. application	Number / Size of cavities
BN 61 65 16	1452 - 1492	≤ 400 W	DAB / T-DMB	4/DE

UHF LOW-PASS FILTERS

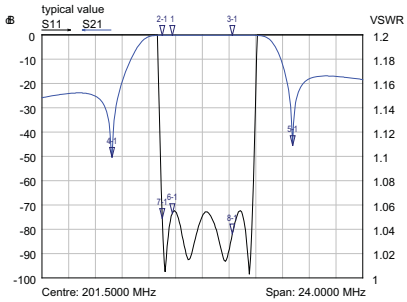
Part number	Frequency in MHz	Average input power	Typ. application	Design
BN 61 63 95	330 - 960	≤ 1.0 kW	DTV / ATV	coaxial
BN 61 64 52	470 - 862	≤ 2.0 kW	DTV / ATV	SWS

ANNEX

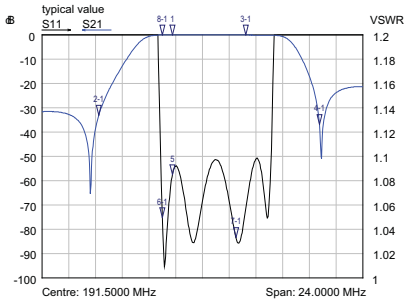
Accessories for Liquid Cooling	

2.7 KW - 7.1 KW BAND 3 ATV BANDPASS FILTER

- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation horizontally or vertically



Typical diagram AS4013

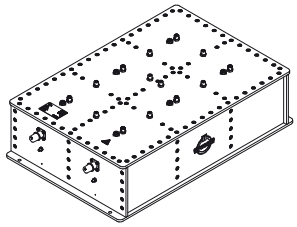


Typical diagram AS4010

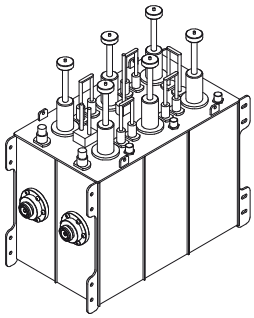
Part number **Connectors**	**BN 61 63 65** **7-16 female**	**BN 61 63 64** **1 5/8" EIA**
Frequency range	167 - 254 MHz	
Number / Size of cavities	**4 / 150**	
Mask filtering	ATV	ATV
Average input power	**≤ 2.7 kW ≡ 3.5/0.35 kW BN 61 63 65** **≤ 7.1 kW ≡ 10.0/1.0 kW BN 61 63 64**	**≤ 2.7 kW ≡ 3.5/0.35 kW BN 61 63 65** **≤ 7.1 kW ≡ 10.0/1.0 kW BN 61 63 64**
Tuning instruction	Standard D: AS4027 Standard I: AS4019	Standard M: AS4013 Standard B: AS4010
Insertion loss & Mask filtering (alternative tuning on request)	$f_{(V)} - \Delta$ > 30.0 dB $f_{(V) - 0.75\ MHz}$ ≤ 0.20 dB $f_{(V)}$ ≤ 0.20 dB $f_{(S)} = f_{(V)} + \Delta$ ≤ 0.20 dB $f_{(V)} + 2\Delta$ > 30.0 dB	$f_{(V)} - \Delta$ > 30.0 dB $f_{(V) - 0.75\ MHz}$ ≤ 0.25 dB $f_{(V)}$ ≤ 0.25 dB $f_{(S)} = f_{(V)} + \Delta$ ≤ 0.25 dB $f_{(V)} + 2\Delta$ > 30.0 dB
VSWR (pass band range)	$f_{(V) - 0.75\ MHz}$ ≤ 1.15 $f_{(V)}$ ≤ 1.10 $f_{(S)} = f_{(V)} + \Delta$ ≤ 1.10	$f_{(V) - 0.75\ MHz}$ ≤ 1.15 $f_{(V)}$ ≤ 1.10 $f_{(S)} = f_{(V)} + \Delta$ ≤ 1.10
Group delay variation	$\Delta\tau \leq 30$ ns	$\Delta\tau \leq 30$ ns
Temperature stability	≤ 2 kHz / K	
Connectors	7-16 female	1 5/8" EIA
Dimensions (L x W x H) mm	323 x 295 x 745	408 x 347 x 762
Weight	ca. 38 kg	ca. 38 kg
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

300 W - 500 W BAND 3 DAB / T-DMB BANDPASS FILTER

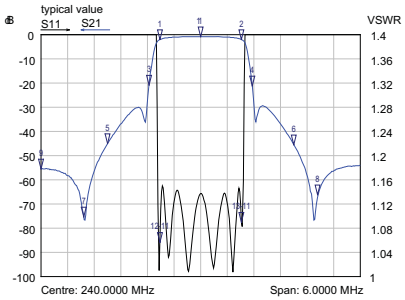
- mask filter for DAB and T-DMB
- for 1.54 MHz block bandwidth
- with cross coupling (notch function)
- tuneable within band 3 (BN 617115 with tuning kits)
- temperature compensated
- DC block
- installation horizontally or vertically



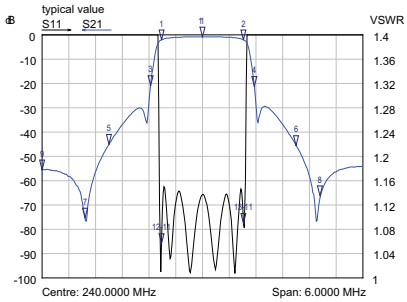
BN 61 71 15 C1015



BN 61 71 16 C1025



Typical diagram AS6353

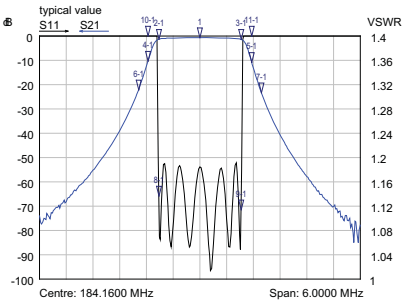


Typical diagram AS6033

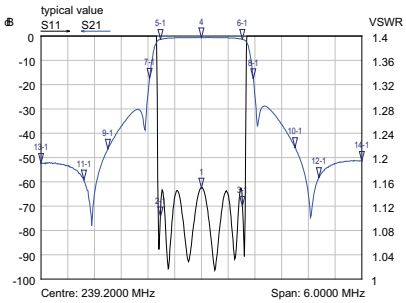
Part number	**BN 61 71 15 C1015**	**BN 61 71 16 C1025**
Frequency range	223 - 240 MHz	174 - 240 MHz
Number / Size of cavities	**6 / 170**	**6 / 100**
Harmonics attenuation	≥ 60 dB for f ≤ 720 MHz	≥ 50 dB for f ≤ 500 MHz
Mask filtering	DAB / T-DMB @1.54 MHz ($\hat{U}/U_{rms}$ = 13 dB)	
Average input power	**≤ 300 W**	**≤ 600 W**
Tuning instruction	AS6353	AS6033
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.9 dB $f_0 \pm 0.77$ ≤ 2.2 dB $f_0 \pm 0.97$ ≥ 15 dB $f_0 \pm 1.75$ ≥ 45 dB $f_0 \pm 2.20$ ≥ 50 dB $f_0 \pm 3.00$ ≥ 50 dB	f_0 ≤ 0.9 dB $f_0 \pm 0.77$ ≤ 2.2 dB $f_0 \pm 0.97$ ≥ 15 dB $f_0 \pm 1.75$ ≥ 45 dB $f_0 \pm 2.20$ ≥ 53 dB $f_0 \pm 3.00$ ≥ 53 dB
VSWR (pass band range)	≤ 1.15	≤ 1.15
Group delay variation	$\Delta\tau \leq 1200$ ns	$\Delta\tau \leq 1200$ ns
Temperature stability	≤ 1 kHz / K	≤ 1 kHz / K
Connectors	N female	7-16 female
Dimensions (L x W x H) mm	581 x 378 x 178	416 x 214 x 442
Weight	ca. 25 kg	ca. 25 kg
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

1.5 KW - 1.6 KW BAND 3 DAB / T-DMB BANDPASS FILTER

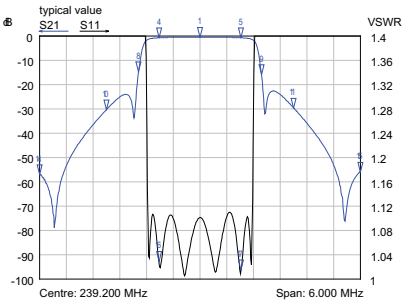
- mask filter for DAB and T-DMB
- for 1.54 MHz block bandwidth
- tuneable within band 3
- temperature compensated
- DC block
- installation standing



Typical diagram AS6010



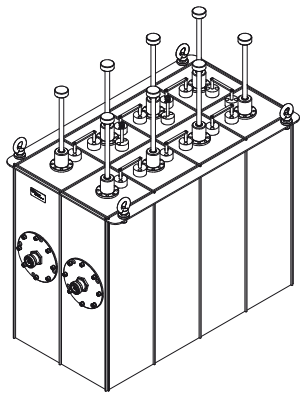
Typical diagram AS6137



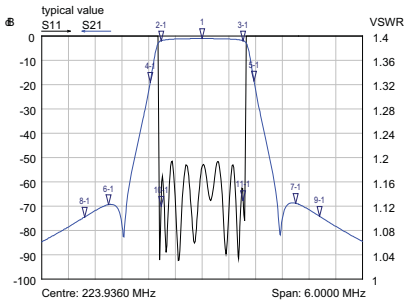
Typical diagram AS6149

Part number **Filter design**	**BN 61 71 71** **without cross coupling**	**BN 61 71 44** **with cross coupling**	**BN 61 71 45** **with cross coupling**
Frequency range	170 - 240 MHz		215 - 240 MHz
Number / Size of cavities	**6 / 150**		
Harmonics attenuation	≥ 50 dB for f ≤ 500 MHz		
Mask filtering	DAB / T-DMB @1.54 MHz ($\hat{U}/U_{rms}$ = 13 dB)		
Average input power	**≤ 1.5 kW**	**≤ 1.6 kW**	**≤ 1.6 kW**
Tuning instruction	AS6010	AS6137	AS 6149
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.9 dB f_0 ± 0.77 ≤ 1.5 dB f_0 ± 0.97 ≥ 8.0 dB f_0 ± 1.75 ≥ 43.0 dB f_0 ± 2.20 ≥ 53.0 dB f_0 ± 3.00 ≥ 73.0 dB	f_0 ≤ 0.65 dB f_0 ± 0.77 ≤ 1.50 dB f_0 ± 0.97 ≥ 15.0 dB f_0 ± 1.75 ≥ 45.0 dB f_0 ± 2.20 ≥ 58.0 dB f_0 ± 3.00 ≥ 50.0 dB	f_0 ≤ 0.55 dB f_0 ± 0.77 ≤ 0.80 dB f_0 ± 0.97 n.d. f_0 ± 1.75 ≥ 15.0 dB f_0 ± 2.20 ≥ 40.0 dB f_0 ± 3.00 ≥ 50.0 dB
VSWR (pass band range)	≤ 1.22	≤ 1.15	≤ 1.15
Group delay variation	Δτ ≤ 700 ns	Δτ ≤ 1000 ns	Δτ ≤ 400 ns
Temperature stability	≤ 1 kHz / K		
Connectors	7-16 female		
Dimensions (L x W x H) mm	465 x 326 x 680	461 x 326 x 680	495 x 325 x 476
Weight	ca. 40 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

1.6 KW BAND 3 DAB / T-DMB BANDPASS FILTERS



- mask filter for DAB and T-DMB
- for 1.54 MHz block bandwidth
- with cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation standing

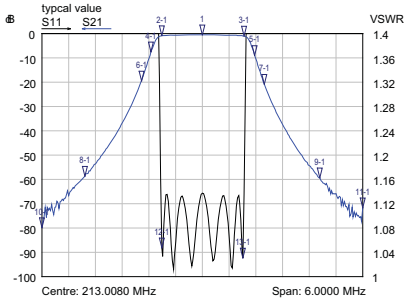


Typical diagram AS8027

Part number	**BN 61 71 83**
Frequency range	170 - 240 MHz
Number / Size of cavities	**8 / 150**
Harmonics attenuation	≥ 50 dB for f ≤ 500 MHz
Mask filtering	DAB / T-DMB @1.54 MHz ($\hat{U}/U_{rms}$ = 13 dB)
Average input power	**≤ 1.6 kW**
Tuning instruction	AS8027
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 1.20 dB $f_0 \pm 0.77$ ≤ 2.10 dB $f_0 \pm 0.97$ ≥ 15.0 dB $f_0 \pm 1.75$ ≥ 45.0 dB $f_0 \pm 2.20$ ≥ 65.0 dB $f_0 \pm 3.00$ ≥ 80.0 dB
VSWR (pass band range)	≤ 1.2
Group delay variation	$\Delta\tau \leq 1000$ ns
Temperature stability	≤ 1 kHz / K
Connectors	7-16 female
Dimensions (L x W x H) mm	615 x 347 x 680
Weight	ca. 60 kg
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“

3 KW - 5.1 KW BAND 3 DAB / T-DMB BANDPASS FILTERS

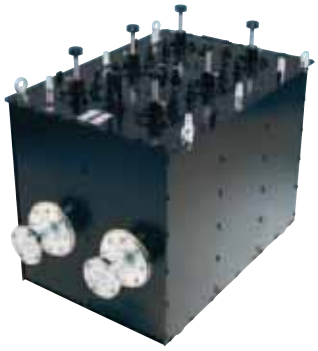
- mask filter for DAB and T-DMB
- for 1.54 MHz block bandwidth
- without cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation standing
- natural or liquid cooling



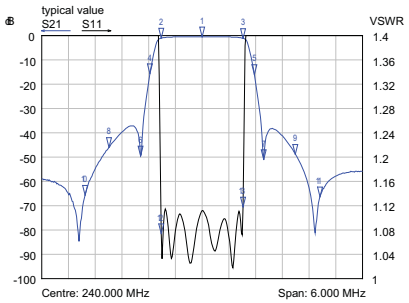
Typical diagram AS6029

Part number **Cooling**	**BN 61 71 11** **natural cooling**	**BN 61 71 10** **liquid cooling**
Frequency range	170 - 240 MHz	
Number / Size of cavities	**6 / 200**	
Harmonics attenuation	≥ 50 dB for f ≤ 500 MHz	
Mask filtering	DAB / T-DMB @1.54 MHz ($\hat{U}/U_{rms}$ = 13 dB)	
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	**≤ 3.0 kW**	**≤ 5.1 kW @ 0 - 500 m** **≤ 4.5 kW @ 1400 m** **≤ 4.0 kW @ 2100 m** **≤ 3.5 kW @ 2800 m** **≤ 3.0 kW @ 3600 m**
Tuning instruction	AS6029	
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.65 dB $f_0 \pm 0.77$ ≤ 1.10 dB $f_0 \pm 0.97$ ≥ 8.00 dB $f_0 \pm 1.15$ ≥ 16.0 dB $f_0 \pm 1.75$ ≥ 43.0 dB $f_0 \pm 2.20$ ≥ 53.0 dB $f_0 \pm 3.00$ ≥ 73.0 dB	
VSWR (pass band range)	≤ 1.15	
Group delay variation	Δτ ≤ 800 ns	
Temperature stability	≤ 2 kHz / K	
Connectors	1 5/8" EIA	
Dimensions (L x W x H) mm	710 x 450 x 680	
Weight	ca. 82 kg	
Coolant / Flow rate	–	mix: glycol and water BN 15 45 67 / ≥ 3 l/min
Temperature of the coolant	–	20 °C - 60 °C
Cooling interface	–	for hose with inner width 3/4"
Material of cooling	–	stainless steel
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

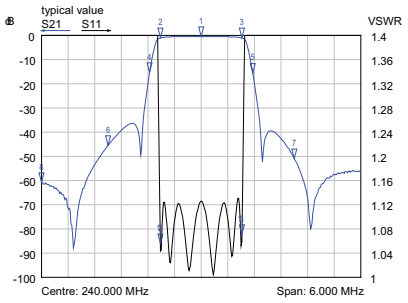
3 KW - 5.1 KW BAND 3 DAB / T-DMB BANDPASS FILTERS



- mask filter for DAB and T-DMB
- for 1.54 MHz block bandwidth
- with cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation standing
- natural or liquid cooling



Typical diagram AS6019

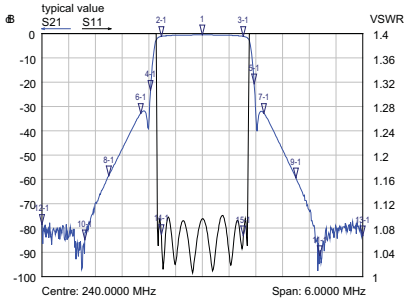


Typical diagram AS6087

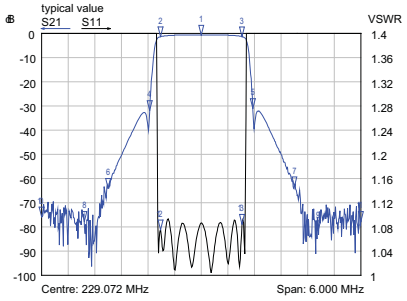
Part number **Cooling**	**BN 61 71 08** **natural cooling**	**BN 61 71 09** **liquid cooling**
Frequency range	170 - 240 MHz	
Number / Size of cavities	**6 / 200**	
Harmonics attenuation	≥ 50 dB for f ≤ 500 MHz	
Mask filtering	DAB / T-DMB @1.54 MHz ($\hat{U}/U_{rms}$ = 13 dB)	
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	**≤ 3.0 kW**	**≤ 5.1 kW @ 0 - 500 m** **≤ 4.5 kW @ 1400 m** **≤ 4.0 kW @ 2100 m** **≤ 3.5 kW @ 2800 m** **≤ 3.0 kW @ 3600 m**
Tuning instruction	AS6019	AS6087
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.55 dB f_0 ± 0.77 ≤ 1.20 dB f_0 ± 0.97 ≥ 12.0 dB f_0 ± 1.15 ≥ 30.0 dB f_0 ± 1.75 ≥ 40.0 dB f_0 ± 2.20 ≥ 55.0 dB f_0 ± 3.00 ≥ 55.0 dB	f_0 ≤ 0.50 dB f_0 ± 0.77 ≤ 1.30 dB f_0 ± 0.97 ≥ 15.0 dB f_0 ± 1.15 n.d. f_0 ± 1.75 ≥ 45.0 dB f_0 ± 2.20 ≥ 50.0 dB f_0 ± 3.00 ≥ 50.0 dB
VSWR (pass band range)	≤ 1.15	≤ 1.15
Group delay variation	Δτ ≤ 1000 ns	Δτ ≤ 1200 ns
Temperature stability	≤ 2 kHz / K	
Connectors	1 5/8" EIA	
Dimensions (L x W x H) mm	710 x 450 x 680	
Weight	ca. 82 kg	
Coolant / Flow rate	–	mix: glycol and water BN 15 45 67 / ≥ 3 l/min
Temperature of the coolant	–	20 °C - 60 °C
Cooling interface	–	for hose with inner width 3/4"
Material of cooling	–	stainless steel
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

3 KW - 5.1 KW BAND 3 DAB / T-DMB BANDPASS FILTERS

- mask filter for DAB and T-DMB
- for 1.54 MHz block bandwidth
- with cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation standing
- natural or liquid cooling



Typical diagram AS8042

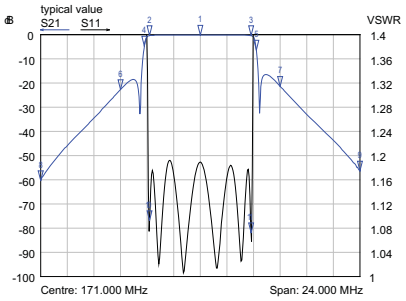


Typical diagram AS8075

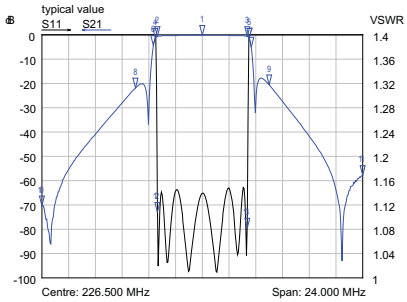
Part number **Cooling**	**BN 61 71 13** **natural cooling**	**BN 61 71 12** **liquid cooling**
Frequency range	170 - 240 MHz	
Number / Size of cavities	**8 / 200**	
Harmonics attenuation	≥ 50 dB for f ≤ 500 MHz	
Mask filtering	DAB / T-DMB @1.54 MHz ($\hat{U}/U_{rms}$ = 13 dB)	
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	**≤ 3.1 kW**	**≤ 5.1 kW @ 0 - 500 m** **≤ 4.5 kW @ 1400 m** **≤ 4.0 kW @ 2100 m** **≤ 3.5 kW @ 2800 m** **≤ 3.0 kW @ 3600 m**
Tuning instruction	AS8042	AS8075
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.60 dB f_0 ± 0.77 ≤ 1.20 dB f_0 ± 0.97 ≥ 15.0 dB f_0 ± 1.15 ≥ 30.0 dB f_0 ± 1.75 ≥ 50.0 dB f_0 ± 2.20 ≥ 65.0 dB f_0 ± 3.00 ≥ 65.0 dB	f_0 ≤ 0.65 dB f_0 ± 0.77 ≤ 1.45 dB f_0 ± 0.97 ≥ 28.0 dB f_0 ± 1.15 n.d. f_0 ± 1.75 ≥ 61.0 dB f_0 ± 2.20 ≥ 67.0 dB f_0 ± 3.00 ≥ 70.0 dB
VSWR (pass band range)	≤ 1.10	≤ 1.10
Group delay variation	Δτ ≤ 1200 ns	Δτ ≤ 1300 ns
Temperature stability	≤ 2 kHz / K	
Connectors	1 5/8" EIA	
Dimensions (L x W x H) mm	882 x 450 x 678	
Weight	ca. 105 kg	
Coolant / Flow rate	–	mix: glycol and water BN 15 45 67 / ≥ 3 l/min
Temperature of the coolant	–	20 °C - 60 °C
Cooling interface	–	for hose with inner width 3/4"
Material of cooling	–	stainless steel
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

900 W - 1100 W BAND 3 DTV BANDPASS FILTER

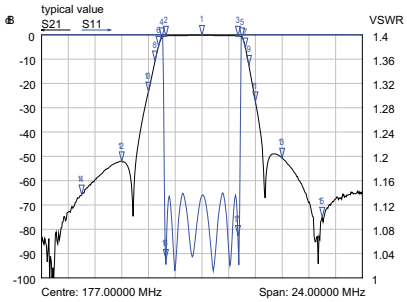
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation standing



Typical diagram AS6164



Typical diagram AS6162

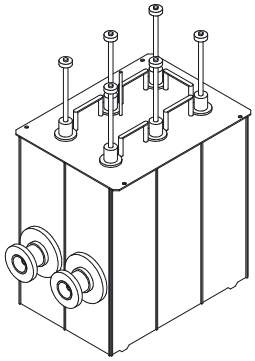


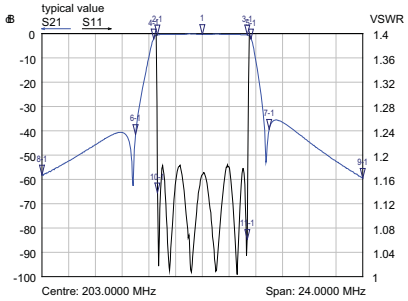
Typical diagram AS6161

Part number	**BN 61 71 90 C0010**		
Frequency range	174 - 230 MHz		
Number / Size of cavities	**6 / 100**		
Harmonics attenuation	≥ 50 dB for f ≤ 500 MHz		
Mask filtering	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	DVB-T @ 7 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @ 6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 1.1 kW**	**≤ 1.0 kW**	**≤ 900 W**
Tuning instruction	AS6164	AS6162	AS6161
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.25 dB f_0 ± 0.3805 ≤ 0.65 dB f_0 ± 4.20 ≥ 4.00 dB f_0 ± 6.00 ≥ 20.0 dB f_0 ± 12.0 ≥ 55.0 dB	f_0 ≤ 0.25 dB f_0 ± 3.35 ≤ 0.70 dB f_0 ± 3.50 ≥ 1.20 dB f_0 ± 3.65 ≥ 4.00 dB f_0 ± 5.00 ≥ 20.0 dB f_0 ± 12.0 ≥ 55.0 dB	f_0 ≤ 0.30 dB f_0 ± 2.69 ≤ 0.50 dB f_0 ± 3.00 ≥ 1.10 dB f_0 ± 3.50 ≥ 8.00 dB f_0 ± 4.00 ≥ 15.0 dB f_0 ± 6.00 ≥ 30.0 dB f_0 ± 9.00 ≥ 64.0 dB
VSWR (pass band range)	≤ 1.22	≤ 1.17	≤ 1.15
Group delay variation	$\Delta\tau$ ≤ 350 ns	$\Delta\tau$ ≤ 350 ns	$\Delta\tau$ ≤ 220 ns
Temperature stability	≤ 2 kHz / K		
Connectors	7-16 female		
Dimensions (L x W x H) mm	382 x 244 x 590		
Weight	ca. 25 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

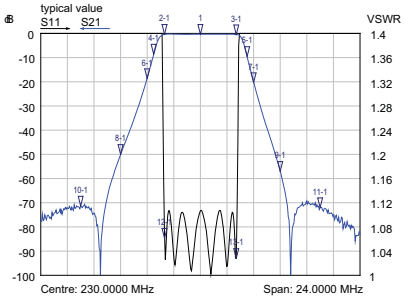
2.5 KW - 4 KW BAND 3 DTV BANDPASS FILTERS

- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation standing





Typical diagram AS6044

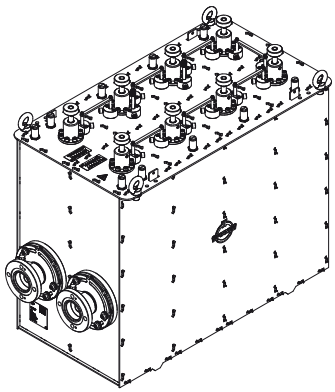


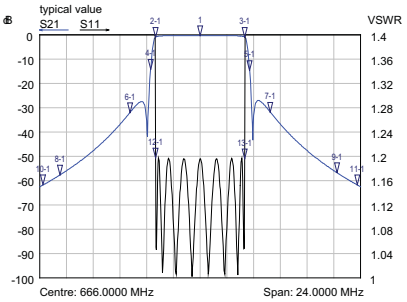
Typical diagram AS6079

Part number **Connectors**	**BN 61 71 26** **7-16 female**	**BN 61 71 26 C0010** **1 5/8" EIA**
Frequency range	174 - 230 MHz	
Number / Size of cavities	**6 / 150**	
Mask filtering	DVB-T @7 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 2.5 kW BN 61 71 26** **≤ 4.0 kW BN 61 71 26 C0010**	**≤ 2.5 kW BN 61 71 26** **≤ 3.6 kW BN 61 71 26 C0010**
Tuning instruction	AS6044	AS6079
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.30 dB $f_0 \pm 3.35$ ≤ 0.60 dB $f_0 \pm 3.50$ ≥ 0.70 dB $f_0 \pm 3.65$ ≥ 2.00 dB $f_0 \pm 5.00$ ≥ 35.0 dB $f_0 \pm 12.0$ ≥ 55.0 dB	f_0 ≤ 0.35 dB $f_0 \pm 2.69$ ≤ 0.60 dB $f_0 \pm 3.00$ ≥ 1.30 dB $f_0 \pm 3.50$ ≥ 5.00 dB $f_0 \pm 4.00$ ≥ 11.0 dB $f_0 \pm 6.00$ ≥ 30.0 dB $f_0 \pm 9.00$ ≥ 65.0 dB
VSWR (pass band range)	≤ 1.20	≤ 1.15
Group delay variation	$\Delta\tau \leq 300$ ns	$\Delta\tau \leq 200$ ns
Temperature stability	≤ 2 kHz / K	
Connectors	7-16 female	1 5/8" EIA
Dimensions (L x W x H) mm	461 x 326 x 681	512 x 326 x 684
Weight	ca. 42 kg	
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

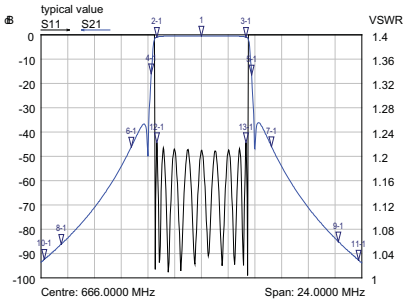
3.5 KW BAND 3 DTV BANDPASS FILTERS

- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within band 3
- temperature compensated
- DC block
- installation standing





Typical diagram AS8049

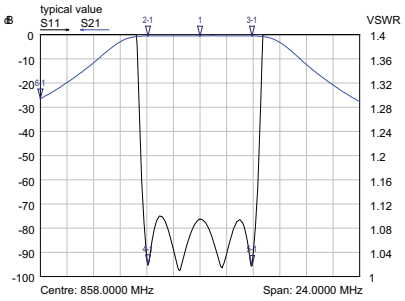


Typical diagram AS1001

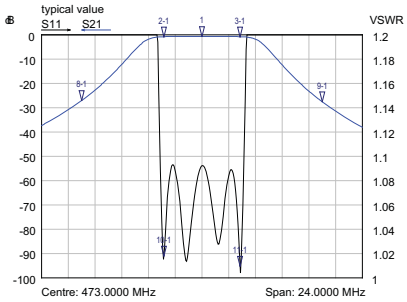
Part number **Cavities**	**BN 61 71 91** **8 cavities**	**BN 61 71 93** **10 cavities**
Frequency range	174 - 230 MHz	
Number / Size of cavities	**8 / 150**	**10 / 150**
Mask filtering	DVB-T @7 MHz ($\hat{U}/U_{rms}$ = 13 dB)	DVB-T @7 MHz ($\hat{U}/U_{rms}$ = 13 dB)
Average input power	**≤ 3.5 kW**	**≤ 3.5 kW**
Tuning instruction	AS8049	AS1001
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.35 dB $f_0 \pm 3.35$ ≤ 0.85 dB $f_0 \pm 3.70$ ≥ 15.0 dB $f_0 \pm 5.25$ ≥ 30.0 dB $f_0 \pm 10.50$ ≥ 50.0 dB $f_0 \pm 11.75$ ≥ 55.0 dB	f_0 ≤ 0.50 dB $f_0 \pm 3.35$ ≤ 1.60 dB $f_0 \pm 3.70$ ≥ 15.0 dB $f_0 \pm 5.25$ ≥ 40.0 dB $f_0 \pm 10.50$ ≥ 65.0 dB $f_0 \pm 11.75$ ≥ 70.0 dB
VSWR (pass band range)	≤ 1.20	≤ 1.22
Group delay variation	$\Delta\tau \leq 600$ ns	$\Delta\tau \leq 800$ ns
Temperature stability	≤ 2 kHz / K	
Connectors	1 5/8" EIA	
Dimensions (L x W x H) mm	650 x 326 x 680	804 x 348 x 683
Weight	ca. 68 kg	ca. 89 kg
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

40 W - 50 W UHF DTV BANDPASS FILTERS

- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- without cross coupling
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically



Typical diagram AS4054

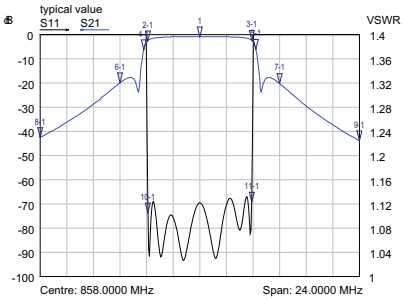


Typical diagram AS4029

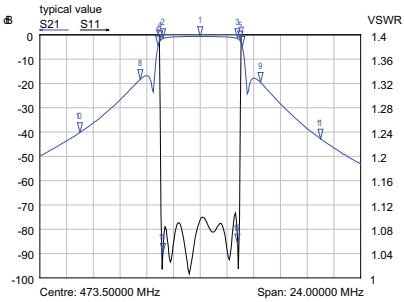
Part number	**BN 61 65 07**	
Frequency range	470 - 860 MHz	
Number / Size of cavities	**4 / 34**	
Harmonics attenuation	≥ 50 dB for f ≤ 1500 MHz	
TV standard	DVB-T or ATV @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	DVB-T or ATV @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)
Average input power	**≤ 50 W**	**≤ 40 W**
Tuning instruction	AS4054	AS4029
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.7 dB ≤ 0.6 dB $f_0 \pm 3.805$ ≤ 0.8 dB ≤ 0.7 dB $f_0 \pm 3.885$ ≤ 0.8 dB ≤ 0.7 dB $f_0 \pm 12.0$ ≥ 17 dB	470 MHz 803 MHz f_0 ≤ 0.8 dB ≤ 0.7 dB $f_0 \pm 2.855$ ≤ 0.9 dB ≤ 0.8 dB $f_0 \pm 9.0$ ≥ 25 dB
VSWR (pass band range)	≤ 1.10	≤ 1.10
Group delay variation	$\Delta\tau \leq 100$ ns	$\Delta\tau \leq 30$ ns
Temperature stability	≤ 10 kHz / K	
Connectors	N female	
Dimensions (L x W x H) mm	277 x 44 x 135	
Weight	ca. 2 kg	
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

100 W UHF DTV BANDPASS FILTERS

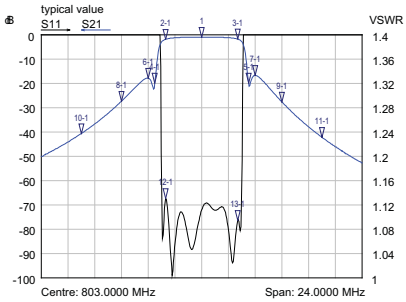
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically



Typical diagram AS6214



Typical diagram AS6180

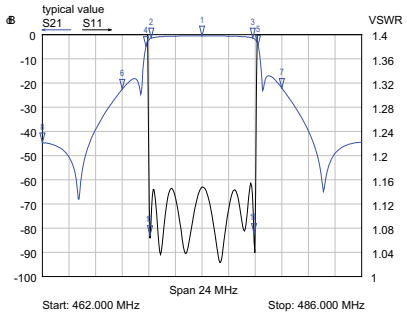


Typical diagram AS6074

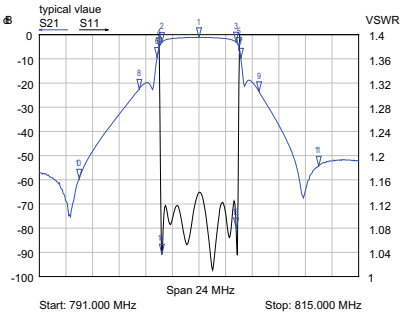
Part number **Connector**	**BN 61 65 01** **7-16 female**	**BN 61 65 01 C0004** **N female**
Frequency range	470 - 860 MHz	
Number / Size of cavities	**6 / 38**	
Harmonics attenuation	≥ 60 dB for f ≤ 1340 MHz	
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB) / ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 100 W**	**≤ 100 W**
Tuning instruction	AS6214	AS6180 / AS6074
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.7 dB ≤ 0.9 dB f_0 ± 3.805 ≤ 1.7 dB ≤ 2.2 dB f_0 ± 3.885 ≤ 2.0 dB ≤ 2.5 dB f_0 ± 4.2 ≥ 5 dB f_0 ± 6.0 ≥ 17 dB f_0 ± 12.0 ≥ 38 dB	470 MHz 803 MHz f_0 ≤ 0.8 dB ≤ 1.3 dB f_0 ± 2.79 ≤ 1.7 dB ≤ 3.4 dB f_0 ± 3.00 ≥ 2 dB f_0 ± 3.15 ≥ 5 dB f_0 ± 4.5 ≥ 17 dB f_0 ± 9.0 ≥ 38 dB f_0 ± 15.0 ≥ 48 dB 470 MHz 803 MHz f_0 ≤ 0.9 dB ≤ 1.1 dB f_0 ± 2.69 ≤ 1.6 dB ≤ 1.9 dB f_0 ± 3.0 ≤ 2.8 dB ≤ 3.0 dB f_0 ± 3.5 ≥ 10 dB f_0 ± 4.0 ≥ 15 dB f_0 ± 6.0 ≥ 26 dB f_0 ± 9.0 ≥ 38 dB
VSWR (pass band range)	≤ 1.15	≤ 1.15
Group delay variation	Δτ ≤ 300 ns	Δτ ≤ 500 ns / Δτ ≤ 200 ns
Temperature stability	≤ 3 kHz / K	
Connectors	7-16 female	N female
Dimensions (L x W x H) mm	340 x 185 x 44	
Weight	ca. 3 kg	
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

100 W - 130 W UHF DTV BANDPASS FILTERS

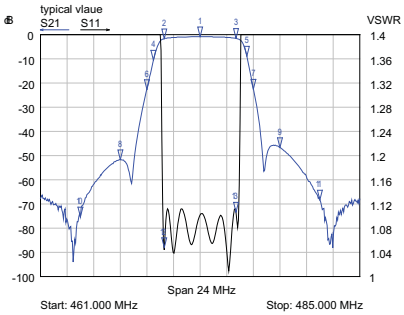
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design



Typical diagram AS6361



Typical diagram AS6368

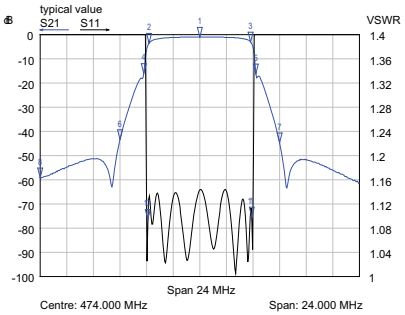


Typical diagram AS6362

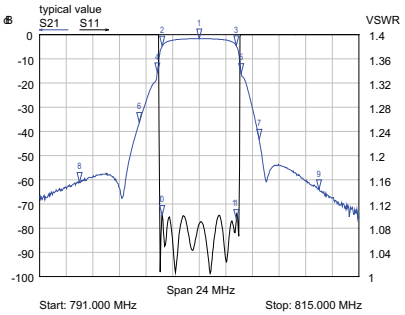
Part number **Connector**	**BN 61 66 60 C1025** **7-16 female**		
Frequency range	470 - 860 MHz		
Number / Size of cavities	**6 / 40**		
Harmonics attenuation	≥ 50 dB for f ≤ 1400 MHz		
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 130 W**	**≤ 100 W**	**≤ 100 W**
Tuning instruction	AS6361	AS6368	AS6362
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.7 dB ≤ 0.9 dB f_0 ± 3.805 ≤ 1.9 dB ≤ 2.4 dB f_0 ± 3.885 ≤ 2.2 dB ≤ 2.7 dB f_0 ± 4.2 ≥ 4 dB f_0 ± 6.0 ≥ 20 dB f_0 ± 12.0 ≥ 40 dB	470 MHz 803 MHz f_0 ≤ 1.0 dB ≤ 1.3 dB f_0 ± 2.79 ≤ 2.6 dB ≤ 3.2 dB f_0 ± 3.00 ≥ 4 dB f_0 ± 3.15 ≥ 8 dB f_0 ± 4.50 ≥ 22 dB f_0 ± 9.00 ≥ 50 dB f_0 ± 15.0 ≥ 50 dB	470 MHz 803 MHz f_0 ≤ 1.2 dB ≤ 1.7 dB f_0 ± 2.69 ≤ 2.2 dB ≤ 2.6 dB f_0 ± 3.25 ≥ 4 dB f_0 ± 3.50 ≥ 8 dB f_0 ± 4.0 ≥ 15 dB f_0 ± 6.0 ≥ 40 dB f_0 ± 9.0 ≥ 65 dB
VSWR (pass band range)	≤ 1.15	≤ 1.15	≤ 1.15
Group delay variation	$\Delta\tau$ ≤ 350 ns	$\Delta\tau$ ≤ 350 ns	$\Delta\tau$ ≤ 200 ns
Temperature stability	≤ 2 kHz / K		
Connectors	7-16 female		
Dimensions (L x W x H) mm	185 x 170 x 94		
Weight	ca. 2.8 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

100 W - 120 W UHF DTV BANDPASS FILTERS

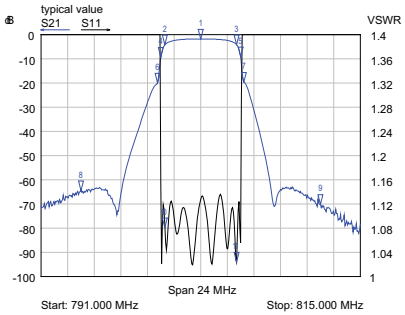
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design



Typical diagram AS8131



Typical diagram AS8133

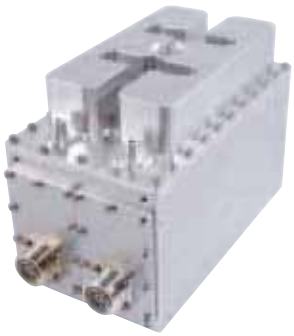


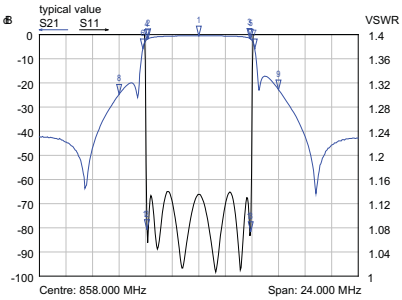
Typical diagram AS8132

Part number **Connector**	**BN 61 66 61 C1025** **7-16 female**		
Frequency range	470 - 860 MHz		
Number / Size of cavities	**8 / 40**		
Harmonics attenuation	≥ 50 dB for f ≤ 1400 MHz		
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 120 W**	**≤ 100 W**	**≤ 100 W**
Tuning instruction	AS8131	AS8133	AS8132
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 1.1 dB ≤ 1.5 dB f_0 ± 3.805 ≤ 3.6 dB ≤ 5.2 dB f_0 ± 3.885 ≤ 4.4 dB ≤ 5.8 dB f_0 ± 4.2 ≥ 15 dB f_0 ± 6.0 ≥ 40 dB f_0 ± 12.0 ≥ 55 dB	470 MHz 803 MHz f_0 ≤ 1.4 dB ≤ 1.75 dB f_0 ± 2.79 ≤ 4.4 dB ≤ 5.00 dB f_0 ± 3.15 ≥ 15 dB f_0 ± 4.50 ≥ 30 dB f_0 ± 9.00 ≥ 55 dB f_0 ± 15.0 ≥ 65 dB	470 MHz 803 MHz f_0 ≤ 1.5 dB ≤ 1.9 dB f_0 ± 2.69 ≤ 3.8 dB ≤ 4.4 dB f_0 ± 3.25 ≥ 5 dB f_0 ± 3.50 ≥ 18 dB f_0 ± 9.0 ≥ 64 dB
VSWR (pass band range)	≤ 1.15	≤ 1.11	≤ 1.15
Group delay variation	Δτ ≤ 600 ns	Δτ ≤ 500 ns	Δτ ≤ 400 ns
Temperature stability	≤ 2 kHz / K		
Connectors	7-16 female		
Dimensions (L x W x H) mm	230 x 170 x 94		
Weight	ca. 3.5 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

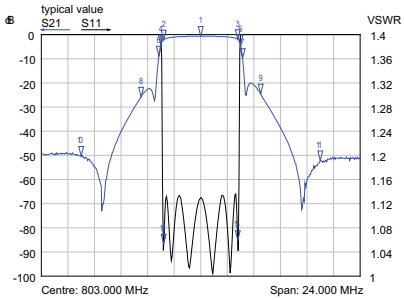
300 W - 375 W UHF DTV BANDPASS FILTERS

- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design

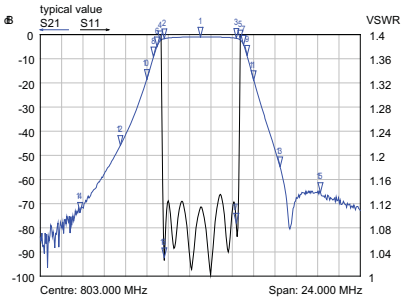




Typical diagram AS6201



Typical diagram AS6192

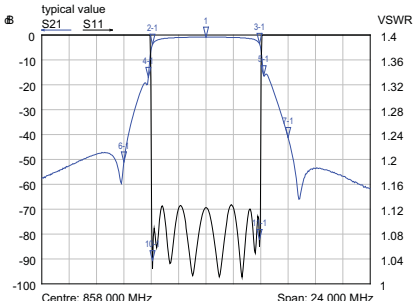


Typical diagram AS6257

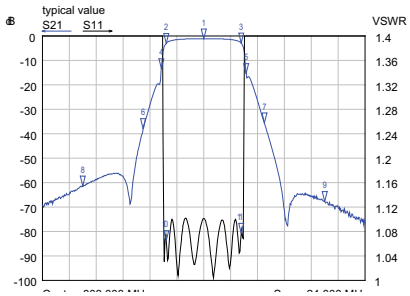
Part number	**BN 61 65 66 C1025**					
Frequency range	470 - 860 MHz					
Number / Size of cavities	**6 / 60**					
Harmonics attenuation	≥ 50 dB for f ≤ 1200 MHz					
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)	
Average input power	**≤ 375 W**		**≤ 300 W**		**≤ 300 W**	
Tuning instruction	AS6201		AS6192		AS6257	
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz	860 MHz	470 MHz	803 MHz	470 MHz	803 MHz
	f_0	≤ 0.45 dB	≤ 0.55 dB	f_0	≤ 0.6 dB	≤ 0.75 dB	f_0	≤ 0.7 dB	≤ 1.0 dB
	$f_0 \pm 3.805$	≤ 1.25 dB	≤ 1.75 dB	$f_0 \pm 2.79$	≤ 1.6 dB	≤ 2.20 dB	$f_0 \pm 2.69$	≤ 1.4 dB	≤ 1.7 dB
	$f_0 \pm 3.885$	≤ 1.45 dB	≤ 2.00 dB	$f_0 \pm 3.00$	≥ 4 dB		$f_0 \pm 3.0$	≤ 2.6 dB	≤ 2.7 dB
	$f_0 \pm 4.2$	≥ 4 dB		$f_0 \pm 3.15$	≥ 8 dB		$f_0 \pm 3.25$	≥ 4 dB	
	$f_0 \pm 6.0$	≥ 20 dB		$f_0 \pm 4.50$	≥ 23 dB		$f_0 \pm 3.5$	≥ 8 dB	
	$f_0 \pm 12.0$	≥ 40 dB		$f_0 \pm 9.00$	≥ 48 dB		$f_0 \pm 4.0$	≥ 15 dB	
				$f_0 \pm 15.0$	≥ 50 dB		$f_0 \pm 6.0$	≥ 40 dB	
							$f_0 \pm 9.0$	≥ 65 dB	
VSWR (pass band range)	≤ 1.15		≤ 1.15		≤ 1.15	
Group delay variation	$\Delta\tau \leq 350$ ns		$\Delta\tau \leq 350$ ns		$\Delta\tau \leq 200$ ns	
Temperature stability	≤ 2 kHz / K					
Connectors	7-16 female					
Dimensions (L x W x H) mm	260 x 129 x 175					
Weight	ca. 6 kg					
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“					

300 W - 375 W UHF DTV BANDPASS FILTERS

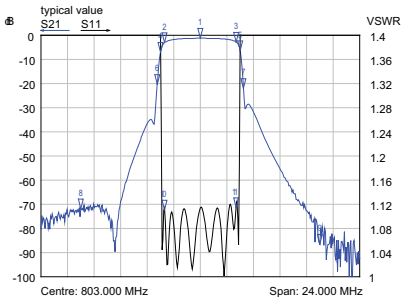
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design



Typical diagram AS8087



Typical diagram AS8095

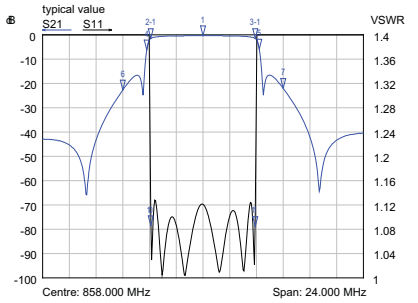


Typical diagram AS8084

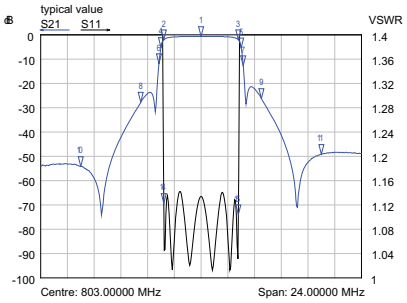
Part number	**BN 61 65 68 C1025**		
Frequency range	470 - 860 MHz		
Number / Size of cavities	**8 / 60**		
Harmonics attenuation	≥ 50 dB for f ≤ 1200 MHz		
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 375 W**	**≤ 300 W**	**≤ 300 W**
Tuning instruction	AS8087	AS8095	AS8084
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.65 dB ≤ 0.90 dB $f_0 \pm 3.805$ ≤ 2.25 dB ≤ 3.05 dB $f_0 \pm 3.885$ ≤ 2.95 dB ≤ 3.75 dB $f_0 \pm 4.2$ ≥ 15 dB $f_0 \pm 6.0$ ≥ 40 dB $f_0 \pm 12.0$ ≥ 55 dB	470 MHz 803 MHz f_0 ≤ 0.75 dB ≤ 1.05 dB $f_0 \pm 2.79$ ≤ 2.15 dB ≤ 3.00 dB $f_0 \pm 3.15$ ≥ 15 dB $f_0 \pm 4.5$ ≥ 30 dB $f_0 \pm 9.0$ ≥ 55 dB	470 MHz 803 MHz f_0 ≤ 0.9 dB ≤ 1.2 dB $f_0 \pm 2.69$ ≤ 2.25 dB ≤ 2.75 dB $f_0 \pm 3.0$ ≥ 4 dB $f_0 \pm 3.25$ ≥ 18 dB $f_0 \pm 9.0$ ≥ 64 dB
VSWR (pass band range)	≤ 1.15	≤ 1.11	≤ 1.15
Group delay variation	$\Delta\tau \leq 660$ ns	$\Delta\tau \leq 500$ ns	$\Delta\tau \leq 420$ ns
Temperature stability	≤ 2 kHz / K		
Connectors	7-16 female		
Dimensions (L x W x H) mm	322 x 129 x 175		
Weight	ca. 7.6 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

600 W - 750 W UHF DTV BANDPASS FILTERS

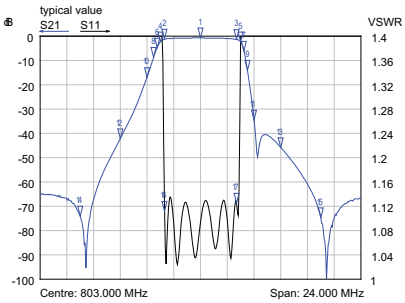
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design



Typical diagram AS6186



Typical diagram AS6182

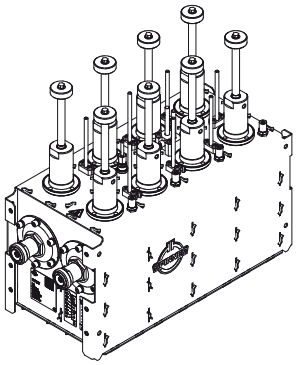


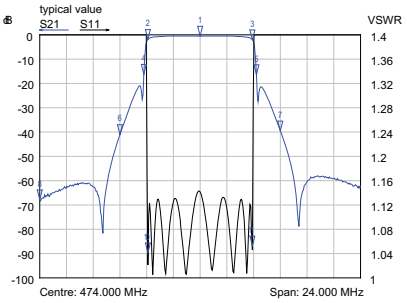
Typical diagram AS6156

Part number	**BN 61 64 02**					
Frequency range	470 - 860 MHz					
Number / Size of cavities	**6 / 84**					
Harmonics attenuation	≥ 50 dB for f ≤ 950 MHz					
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)	
Average input power	**≤ 750 W**		**≤ 600 W**		**≤ 600 W**	
Tuning instruction	AS6186		AS6182		AS6156	
Insertion loss & Mask filtering (alternative tuning on request)		470 MHz 860 MHz		470 MHz 803 MHz		470 MHz 803 MHz
	f_0	≤ 0.4 dB ≤ 0.5 dB	f_0	≤ 0.5 dB ≤ 0.7 dB	f_0	≤ 0.6 dB ≤ 0.80 dB
	f_0 ± 3.805	≤ 1.1 dB ≤ 1.4 dB	f_0 ± 2.79	≤ 1.5 dB ≤ 2.1 dB	f_0 ± 2.69	≤ 1.0 dB ≤ 1.45 dB
	f_0 ± 3.885	≤ 1.2 dB ≤ 1.5 dB	f_0 ± 3.00	≥ 4 dB	f_0 ± 3.0	≤ 1.8 dB ≤ 2.35 dB
	f_0 ± 4.2	≥ 4 dB	f_0 ± 3.15	≥ 8 dB	f_0 ± 3.25	≥ 4 dB
	f_0 ± 6.0	≥ 20 dB	f_0 ± 4.5	≥ 23 dB	f_0 ± 3.5	≥ 8 dB
	f_0 ± 12.0	≥ 40 dB	f_0 ± 9.0	≥ 48 dB	f_0 ± 4.0	≥ 15 dB
			f_0 ± 15.0	≥ 50 dB	f_0 ± 6.0	≥ 40 dB
					f_0 ± 9.0	≥ 65 dB
VSWR (pass band range)	≤ 1.15		≤ 1.15		≤ 1.15	
Group delay variation	Δτ ≤ 330 ns		Δτ ≤ 500 ns		Δτ ≤ 200 ns	
Temperature stability	≤ 2 kHz / K					
Connectors	7-16 female					
Dimensions (L x W x H) mm	328 x 174 x 377					
Weight	ca. 11 kg					
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“					

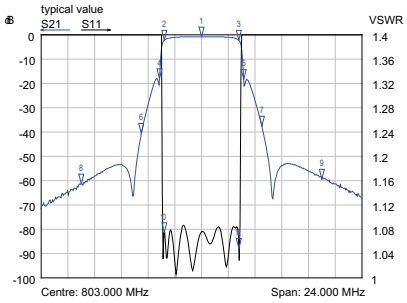
600 W - 750 W UHF DTV BANDPASS FILTERS

- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design

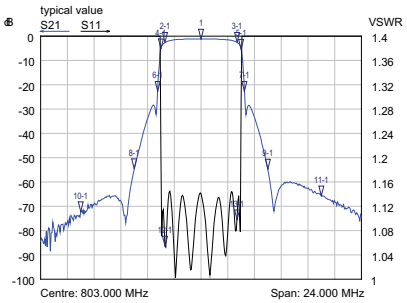




Typical diagram AS8068



Typical diagram AS8091

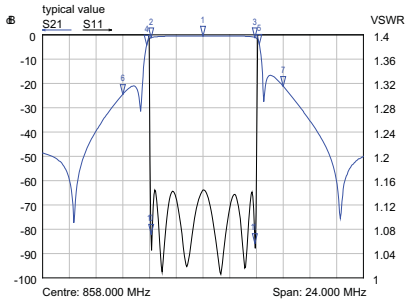


Typical diagram AS8051

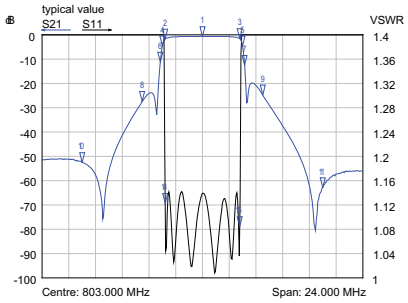
Part number	**BN 61 64 03**					
Frequency range	470 - 860 MHz					
Number / Size of cavities	**8 / 84**					
Harmonics attenuation	≥ 50 dB for f ≤ 950 MHz					
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)	
Average input power	**≤ 750 W**		**≤ 600 W**		**≤ 600 W**	
Tuning instruction	AS8068		AS8091		AS8051	
Insertion loss & Mask filtering (alternative tuning on request)		470 MHz 860 MHz		470 MHz 803 MHz		470 MHz 803 MHz
	f_0	≤ 0.5 dB ≤ 0.65 dB	f_0	≤ 0.6 dB ≤ 1.2 dB	f_0	≤ 0.8 dB ≤ 1.2 dB
	f_0 ± 3.805	≤ 1.7 dB ≤ 2.10 dB	f_0 ± 2.79	≤ 1.7 dB ≤ 3.0 dB	f_0 ± 2.69	≤ 1.8 dB ≤ 2.6 dB
	f_0 ± 3.885	≤ 2.0 dB ≤ 2.50 dB	f_0 ± 3.15	≥ 15 dB	f_0 ± 3.00	≥ 3 dB
	f_0 ± 4.20	≥ 15 dB	f_0 ± 4.50	≥ 30 dB	f_0 ± 3.25	≥ 18 dB
	f_0 ± 6.00	≥ 40 dB	f_0 ± 9.00	≥ 55 dB	f_0 ± 9.00	≥ 64 dB
	f_0 ± 12.0	≥ 55 dB				
VSWR (pass band range)	≤ 1.15		≤ 1.11		≤ 1.15	
Group delay variation	Δτ ≤ 600 ns		Δτ ≤ 500 ns		Δτ ≤ 400 ns	
Temperature stability	≤ 2 kHz / K					
Connectors	7-16 female					
Dimensions (L x W x H) mm	411 x 174 x 377					
Weight	ca. 14 kg					
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“					

1.3 KW - 1.6 KW UHF DTV BANDPASS FILTER

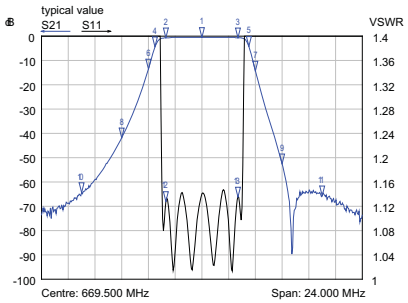
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design



Typical diagram AS6224



Typical diagram AS6229

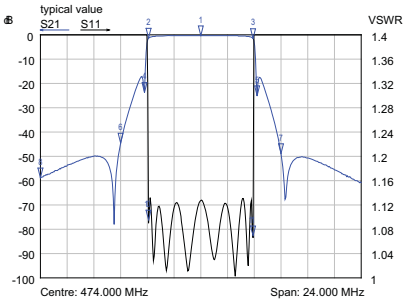


Typical diagram AS6228

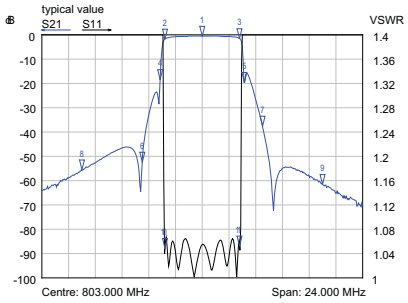
Part number **Connectors**	**BN 61 66 63 C1031** **1 5/8" SMS unflanged**	**BN 61 66 63 C1033** **1 5/8" EIA**
Frequency range	470 - 860 MHz	
Number / Size of cavities	**6 / 120**	
Harmonics attenuation	≥ 50 dB for f ≤ 1100 MHz	
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 1.6 kW**	**≤ 1.3 kW**	**≤ 1.3 kW**
Tuning instruction	AS6224	AS6229	AS6228
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.3 dB ≤ 0.4 dB $f_0 \pm 3.805$ ≤ 0.8 dB ≤ 1.1 dB $f_0 \pm 3.885$ ≤ 0.9 dB ≤ 1.3 dB $f_0 \pm 4.2$ ≥ 4 dB $f_0 \pm 6.0$ ≥ 20 dB $f_0 \pm 12.0$ ≥ 40 dB	470 MHz 803 MHz f_0 ≤ 0.35 dB ≤ 0.5 dB $f_0 \pm 2.79$ ≤ 1.10 dB ≤ 1.4 dB $f_0 \pm 3.00$ ≥ 3 dB $f_0 \pm 3.15$ ≥ 5 dB $f_0 \pm 4.50$ ≥ 17 dB $f_0 \pm 9.00$ ≥ 38 dB $f_0 \pm 15.0$ ≥ 48 dB	470 MHz 803 MHz f_0 ≤ 0.40 dB ≤ 0.55 dB $f_0 \pm 2.69$ ≤ 0.55 dB ≤ 1.30 dB $f_0 \pm 3.5$ ≥ 3 dB $f_0 \pm 4.0$ ≥ 8 dB $f_0 \pm 6.0$ ≥ 30 dB $f_0 \pm 9.0$ ≥ 65 dB
VSWR (pass band range)	≤ 1.15	≤ 1.15	≤ 1.15
Group delay variation	$\Delta\tau \leq 350$ ns	$\Delta\tau \leq 450$ ns	$\Delta\tau \leq 250$ ns
Temperature stability	≤ 2 kHz / K		
Connectors	1 5/8" SMS unflanged	1 5/8" EIA	
Dimensions (L x W x H) mm	463 x 300 x 277	480 x 300 x 277	
Weight	ca. 20 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

1.3 KW - 1.6 KW UHF DTV BANDPASS FILTER

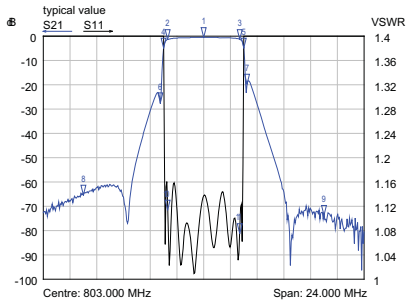
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design



Typical diagram AS8112



Typical diagram AS8117



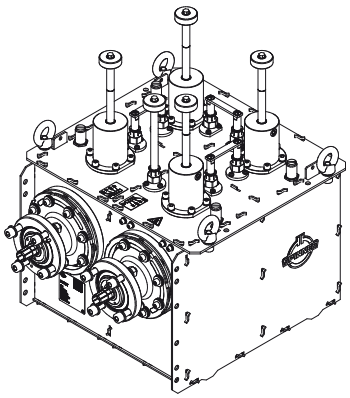
Typical diagram AS8115

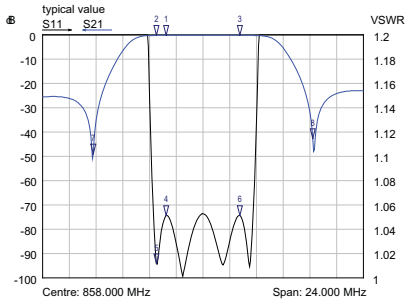
Part number **Connectors**	**BN 61 66 64 C1031** **1 5/8" SMS unflanged**	**BN 61 66 64 C1033** **1 5/8" EIA**
Frequency range	470 - 860 MHz	
Number / Size of cavities	**8 / 120**	
Harmonics attenuation	≥ 50 dB for f ≤ 1100 MHz	
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)
Average input power	**≤ 1.6 kW**	**≤ 1.3 kW**
Tuning instruction	AS8112	AS8117
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.4 dB ≤ 0.5 dB f_0 ± 3.805 ≤ 1.4 dB ≤ 1.9 dB f_0 ± 3.885 ≤ 1.5 dB ≤ 2.3 dB f_0 ± 4.2 ≥ 15 dB f_0 ± 6.0 ≥ 40 dB f_0 ± 12.0 ≥ 55 dB	470 MHz 803 MHz f_0 ≤ 0.45 dB ≤ 0.6 dB f_0 ± 2.79 ≤ 1.20 dB ≤ 1.7 dB f_0 ± 3.15 ≥ 15 dB f_0 ± 4.5 ≥ 30 dB f_0 ± 9.0 ≥ 55 dB
VSWR (pass band range)	≤ 1.15	≤ 1.09
Group delay variation	Δτ ≤ 550 ns	Δτ ≤ 600 ns
Temperature stability	≤ 2 kHz / K	
Connectors	1 5/8" SMS unflanged	1 5/8" EIA
Dimensions (L x W x H) mm	584 x 300 x 277	600 x 300 x 277
Weight	ca. 22 kg	
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

Part number **Connectors**	**BN 61 66 64 C1033** **1 5/8" EIA**
ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)	
≤ 1.3 kW	
AS8115	
470 MHz 803 MHz f_0 ≤ 0.5 dB ≤ 0.6 dB f_0 ± 2.69 ≤ 1.2 dB ≤ 1.5 dB f_0 ± 3.00 ≥ 4 dB f_0 ± 3.25 ≥ 18 dB f_0 ± 9.0 ≥ 64 dB	
≤ 1.15	
Δτ ≤ 400 ns	

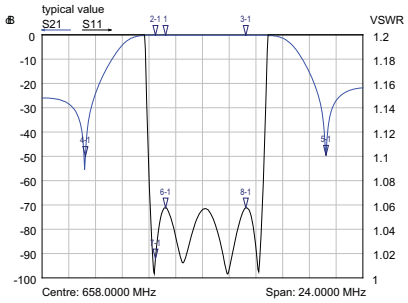
5 KW UHF ATV BANDPASS FILTER

- mask filter for ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically

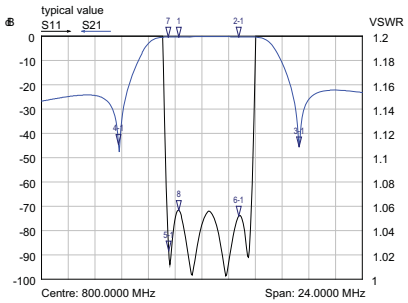




Typical diagram AS4025



Typical diagram AS4017

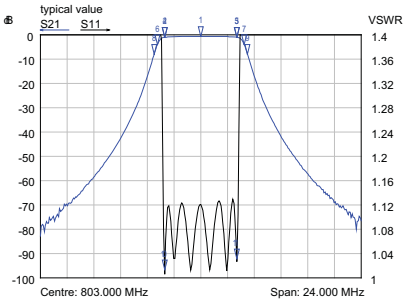


Typical diagram AS4024

Part number	**BN 61 64 04**		
Frequency range	470 - 860 MHz		
Number / Size of cavities	**4 / 150**		
Harmonics attenuation	≥ 40 dB for f ≤ 860 MHz		
Mask filtering	ATV 8 MHz	ATV 8 MHz	ATV 6 MHz
Average input power	**≤ 5 kW ≡ 7/0.7 kW**	**≤ 5 kW ≡ 7/0.7 kW**	**≤ 5 kW ≡ 7/0.7 kW**
Tuning instruction	Standard G: AS4025 Standard K: AS4015	Standard I: AS4017	Standard M, N: AS4024
Insertion loss & Mask filtering (alternative tuning on request)	$f_{(V)} - \Delta$ > 30.0 dB $f_{(V) - 0.75\ MHz}$ ≤ 0.35 dB $f_{(V)}$ ≤ 0.25 dB $f_{(S)} = f_{(V)} + \Delta$ ≤ 0.25 dB $f_{(V)} + 2\Delta$ > 30.0 dB	$f_{(V)} - \Delta$ > 30.0 dB $f_{(V) - 0.75\ MHz}$ ≤ 0.35 dB $f_{(V)}$ ≤ 0.30 dB $f_{(S)} = f_{(V)} + \Delta$ ≤ 0.30 dB $f_{(V)} + 2\Delta$ > 30.0 dB	$f_{(V)} - \Delta$ > 40.0 dB $f_{(V) - 0.75\ MHz}$ ≤ 0.35 dB $f_{(V)}$ ≤ 0.30 dB $f_{(S)} = f_{(V)} + \Delta$ ≤ 0.30 dB $f_{(V)} + 2\Delta$ > 40.0 dB
VSWR (pass band range)		$f_{(V) - 0.75\ MHz}$ ≤ 1.10 $f_{(V)}$ ≤ 1.06 $f_{(S)} = f_{(V)} + \Delta$ ≤ 1.06	
Group delay variation		$\Delta\tau \leq 50$ ns	
Temperature stability	≤ 2 kHz / K		
Connectors	1 5/8" EIA male		
Dimensions (L x W x H) mm	387 x 326 x 412		
Weight	ca. 22 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

2.25 KW UHF DTV BANDPASS FILTER

- mask filter for ATSC
- for 6, 7 and 8 MHz channel bandwidth
- without cross coupling
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically

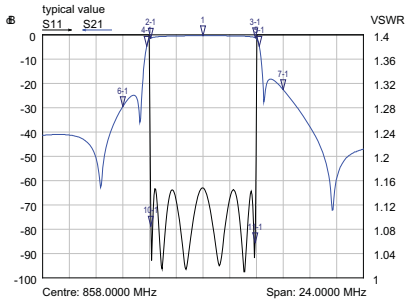


Typical diagram AS6081

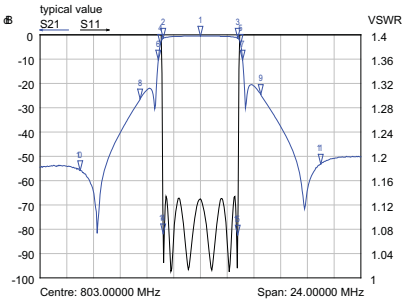
Part number	**BN 61 65 72**
Frequency range	470 - 860 MHz
Number / Size of cavities	**6 / 150**
Harmonics attenuation	≥ 50 dB for f ≤ 860 MHz
TV standard	ATSC @6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 2.25 kW**
Tuning instruction	AS6081
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 803 MHz f_0 ≤ 0.55 dB ≤ 0.75 dB $f_0 \pm 2.69$ ≤ 0.80 dB ≤ 1.00 dB $f_0 \pm 3.00$ ≤ 2.00 dB ≤ 2.30 dB $f_0 \pm 3.25$ ≥ 3 dB $f_0 \pm 3.50$ ≥ 8 dB $f_0 \pm 4.00$ ≥ 15 dB $f_0 \pm 6.00$ ≥ 40 dB $f_0 \pm 9.00$ ≥ 65 dB
VSWR (pass band range)	≤ 1.15
Group delay variation	$\Delta\tau \leq 200$ ns
Temperature stability	≤ 2 kHz / K
Connectors	1 5/8" EIA male
Dimensions (L x W x H) mm	528 x 326 x 411
Weight	ca. 29 kg
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“

2.0 KW - 2.5 KW UHF DTV BANDPASS FILTER

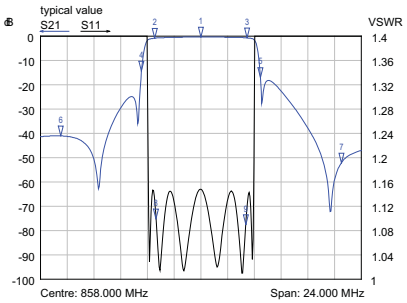
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically



Typical diagram AS6193



Typical diagram AS6184

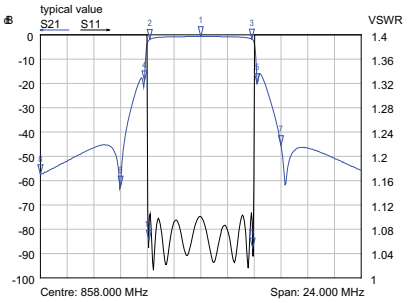


Typical diagram AS6289

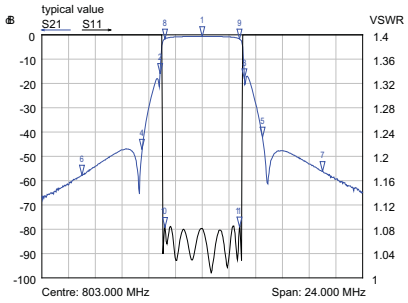
Part number	**BN 61 65 18 C0010**		
Frequency range	470 - 860 MHz		
Number / Size of cavities	**6 / 150**		
Harmonics attenuation	≥ 50 dB for f ≤ 860 MHz		
TV standard	DVB-T @8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	DVB-T @7 MHz ($\hat{U}/U_{rms}$ = 13 dB)
Average input power	**≤ 2.5 kW**	**≤ 2 kW**	**≤ 2.25 kW**
Tuning instruction	AS6193	AS6184	AS6289
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.30 dB ≤ 0.45 dB f_0 ± 3.805 ≤ 0.75 dB ≤ 1.20 dB f_0 ± 3.885 ≤ 0.95 dB ≤ 1.40 dB f_0 ± 4.2 ≥ 4 dB f_0 ± 6.0 ≥ 20 dB f_0 ± 12.0 ≥ 40 dB	470 MHz 803 MHz f_0 ≤ 0.4 dB ≤ 0.6 dB f_0 ± 2.79 ≤ 1.1 dB ≤ 1.5 dB f_0 ± 3.00 ≥ 3.5 dB f_0 ± 3.15 ≥ 8.0 dB f_0 ± 4.5 ≥ 23 dB f_0 ± 9.0 ≥ 48 dB f_0 ± 15.0 ≥ 50 dB	470 MHz 803 MHz f_0 ≤ 0.35 dB ≤ 0.50 dB f_0 ± 3.2 ≤ 0.55 dB ≤ 0.85 dB f_0 ± 4.2 ≥ 13 dB f_0 ± 10.5 ≥ 38 dB
VSWR (pass band range)	≤ 1.15	≤ 1.15	≤ 1.15
Group delay variation	Δτ ≤ 350 ns	Δτ ≤ 500 ns	Δτ ≤ 150 ns
Temperature stability	≤ 2 kHz / K		
Connectors	1 5/8" EIA		
Dimensions (L x W x H) mm	497 x 326 x 411		
Weight	ca. 28 kg		
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

1.6 KW - 2.0 KW UHF DTV BANDPASS FILTER

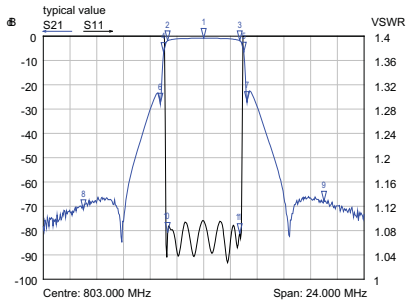
- mask filter for ATV and DTV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically



Typical diagram AS8071



Typical diagram AS8096

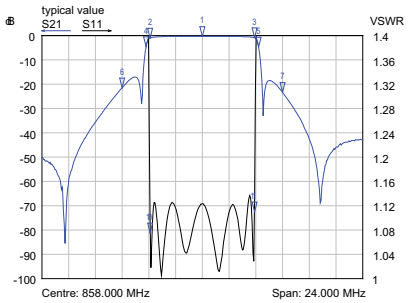


Typical diagram AS8094

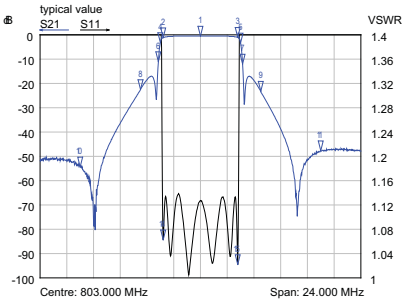
Part number **Connector**	**BN 61 65 42 C0010** **1 5/8" EIA**		**BN 61 65 42 C0011** **7-16 female**	
Frequency range	470 - 860 MHz			
Number / Size of cavities	**8 / 150**			
Harmonics attenuation	≥ 50 dB for f ≤ 860 MHz			
TV standard	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ISDB-T @ 6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @ 6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power	**≤ 2 kW**		**≤ 1.6 kW**	**≤ 1.6 kW**
Tuning instruction	AS8071		AS8096	AS8094
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz / 860 MHz		470 MHz / 803 MHz	470 MHz / 803 MHz
	f_0	≤ 0.4 dB / ≤ 0.65 dB	f_0	≤ 0.50 dB / ≤ 0.70 dB	f_0	≤ 0.70 dB / ≤ 0.90 dB
	$f_0 \pm 3.805$	≤ 1.5 dB / ≤ 2.10 dB	$f_0 \pm 2.79$	≤ 1.30 dB / ≤ 1.75 dB	$f_0 \pm 2.69$	≤ 1.50 dB / ≤ 2.00 dB
	$f_0 \pm 3.885$	≤ 1.7 dB / ≤ 2.40 dB	$f_0 \pm 3.15$	≥ 15 dB	$f_0 \pm 3.00$	≥ 4 dB
	$f_0 \pm 4.2$	≥ 15 dB	$f_0 \pm 4.5$	≥ 30 dB	$f_0 \pm 3.25$	≥ 18 dB
	$f_0 \pm 6.0$	≥ 40 dB	$f_0 \pm 9.0$	≥ 55 dB	$f_0 \pm 9.0$	≥ 64 dB
	$f_0 \pm 12.0$	≥ 55 dB				
VSWR (pass band range)	≤ 1.15		≤ 1.11		≤ 1.10	
Group delay variation	Δτ ≤ 700 ns		Δτ ≤ 500 ns		Δτ ≤ 400 ns	
Temperature stability	≤ 2 kHz / K					
Connectors	1 5/8" EIA		7-16 female			
Dimensions (L x W x H) mm	639 x 326 x 411		675 x 326 x 411			
Weight	ca. 36 kg					
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“					

3 KW - 7.5 KW UHF DTV BANDPASS FILTER

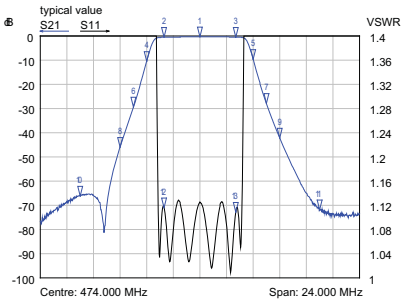
- mask filter for DTV and ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design
- natural or liquid cooling



Typical diagram AS6217



Typical diagram AS6222

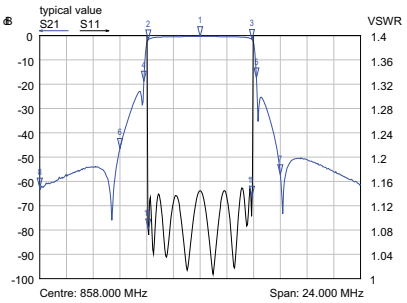


Typical diagram AS6221

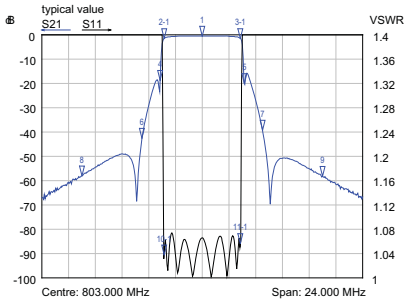
Part number / Connectors **Cooling**	**BN 61 66 65 C1031 1 5/8" SMS unflanged** **BN 61 66 65 C1033 1 5/8" EIA** **natural cooling**			**BN 61 66 65 C2041 3 1/8" SMS unflanged** **BN 61 66 65 C2043 3 1/8" EIA** **liquid cooling**		
Frequency range	470 - 860 MHz					
Number / Size of cavities	**6 / 170**					
Harmonics attenuation	≥ 50 dB for f ≤ 1000 MHz					
Mask filtering	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)			ISDB-T @ 6 MHz ($\hat{U}/U_{rms}$ = 13 dB)			ATSC @ 6 MHz ($\hat{U}/U_{rms}$ = 11 dB)	
Average input power	**≤ 3.75 kW natural cooling** **≤ 7.50 kW liquid cooling**			**≤ 3.0 kW natural cooling** **≤ 6.0 kW liquid cooling**			**≤ 3.0 kW natural cooling** **≤ 6.0 kW liquid cooling**	
Tuning instruction	AS6217			AS6222			AS6221	
Insertion loss & Mask filtering (alternative tuning on request)		470 MHz	860 MHz		470 MHz	803 MHz		470 MHz 803 MHz
	f_0	≤ 0.25 dB	≤ 0.35 dB	f_0	≤ 0.40 dB	≤ 0.50 dB	f_0	≤ 0.40 dB ≤ 0.50 dB
	f_0 ± 3.805	≤ 0.75 dB	≤ 0.90 dB	f_0 ± 2.79	≤ 1.05 dB	≤ 1.25 dB	f_0 ± 2.69	≤ 0.60 dB ≤ 0.75 dB
	f_0 ± 3.885	≤ 0.90 dB	≤ 1.00 dB	f_0 ± 3.00	≥ 3dB		f_0 ± 3.50	≥ 3 dB
	f_0 ± 4.2	≥ 4 dB		f_0 ± 3.15	≥ 5 dB		f_0 ± 4.00	≥ 8 dB
	f_0 ± 6.0	≥ 20 dB		f_0 ± 4.5	≥ 17 dB		f_0 ± 6.00	≥ 30 dB
	f_0 ± 12.0	≥ 40 dB		f_0 ± 9.0	≥ 38 dB		f_0 ± 9.00	≥ 65 dB
				f_0 ± 15.0	≥ 48 dB			
VSWR (pass band range)	≤ 1.15			≤ 1.15			≤ 1.15	
Group delay variation	Δτ ≤ 350 ns			Δτ ≤ 400 ns			Δτ ≤ 150 ns	
Temperature stability	≤ 2 kHz / K							
Dimensions (L x W x H) mm	602 x 448 x 271 BN 61 66 65 C1031 617 x 448 x 271 BN 61 66 65 C1033			606 x 448 x 271 BN 61 66 65 C2041 630 x 448 x 271 BN 61 66 65 C2043				
Weight	ca. 36 kg							
Coolant / Flow rate	–			mix: glycol and water BN 15 45 67 / ≥ 3 l/min				
Temperature of the coolant	–			10 °C - 55 °C				
Cooling interface	–			aluminium tube 12 mm x 1 mm unflanged				
Cooling accessories	–			see appendix				
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“							

3 KW - 6.25 KW UHF DTV BANDPASS FILTER

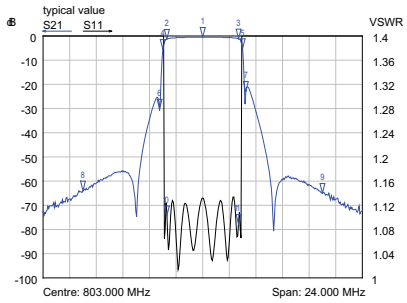
- mask filter for DTV and ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- DC block
- installation horizontally or vertically
- low profile design
- natural or liquid cooling



Typical diagram AS8100



Typical diagram AS8104

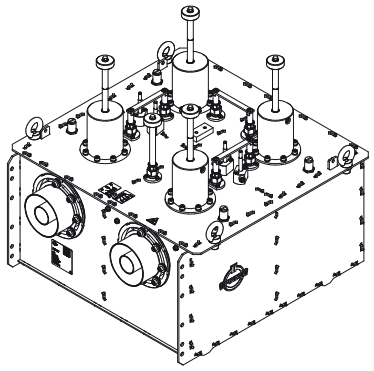


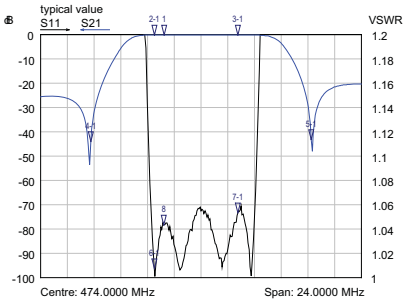
Typical diagram AS8103

Part number / Connectors **Cooling**	**BN 61 66 66 C1031 1 5/8" SMS unflanged** **BN 61 66 66 C1033 1 5/8" EIA** **natural cooling**		**BN 61 66 66 C2041 3 1/8" SMS unflanged** **BN 61 66 66 C2043 3 1/8" EIA** **liquid cooling**			
Frequency range	470 - 860 MHz					
Number / Size of cavities	**8 / 170**					
Harmonics attenuation	≥ 50 dB for f ≤ 1000 MHz					
Mask filtering	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ISDB-T @ 6 MHz ($\hat{U}/U_{rms}$ = 13 dB)		ATSC @ 6 MHz ($\hat{U}/U_{rms}$ = 11 dB)	
Average input power	**≤ 3.75 kW natural cooling** **≤ 6.25 kW liquid cooling**		**≤ 3.0 kW natural cooling** **≤ 5.0 kW liquid cooling**		**≤ 3.0 kW natural cooling** **≤ 5.0 kW liquid cooling**	
Tuning instruction	AS8100		AS8104		AS8103	
Insertion loss & Mask filtering (alternative tuning on request)		470 MHz 860 MHz		470 MHz 803 MHz		470 MHz 803 MHz
	f_0	≤ 0.35 dB ≤ 0.45 dB	f_0	≤ 0.4 dB ≤ 0.5 dB	f_0	≤ 0.45 dB ≤ 0.55 dB
	f_0 ± 3.805	≤ 1.10 dB ≤ 1.80 dB	f_0 ± 2.79	≤ 1.3 dB ≤ 1.7 dB	f_0 ± 2.69	≤ 1.05 dB ≤ 1.40 dB
	f_0 ± 3.885	≤ 1.40 dB ≤ 2.00 dB	f_0 ± 3.15	≥ 12 dB	f_0 ± 3.00	≥ 4 dB
	f_0 ± 4.2	≥ 15 dB	f_0 ± 4.5	≥ 28 dB	f_0 ± 3.25	≥ 18 dB
	f_0 ± 6.0	≥ 40 dB	f_0 ± 9.0	≥ 54 dB	f_0 ± 9.00	≥ 64 dB
	f_0 ± 12.0	≥ 55 dB				
VSWR (pass band range)	≤ 1.15		≤ 1.09		≤ 1.15	
Group delay variation	Δτ ≤ 700 ns		Δτ ≤ 650 ns		Δτ ≤ 500 ns	
Temperature stability	≤ 2 kHz / K					
Dimensions (L x W x H) mm	773 x 448 x 271 BN 61 66 66 C1031 789 x 448 x 271 BN 61 66 66 C1033		778 x 448 x 271 BN 61 66 66 C2041 801 x 448 x 271 BN 61 66 66 C2043			
Weight	ca. 46 kg					
Coolant / Flow rate	–		mix: glycol and water BN 15 45 67 / ≥ 3 l/min			
Temperature of the coolant	–		10 °C - 55 °C			
Cooling interface	–		aluminium tube 12 mm x 1 mm unflanged			
Cooling accessories	–		see appendix			
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“					

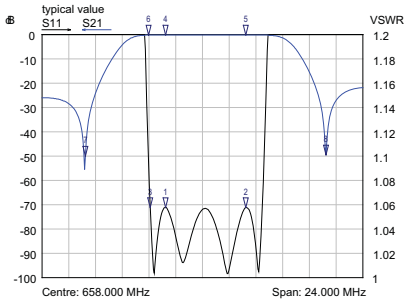
6 KW - 14 KW UHF ATV BANDPASS FILTER

- mask filter for ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- installation horizontally or vertically
- DC block
- natural or liquid cooling

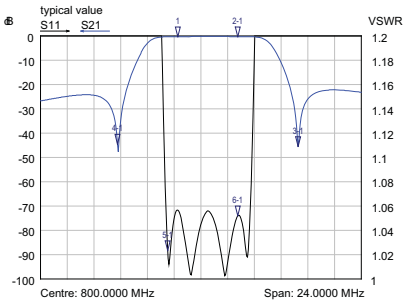




Typical diagram AS4009



Typical diagram AS4018

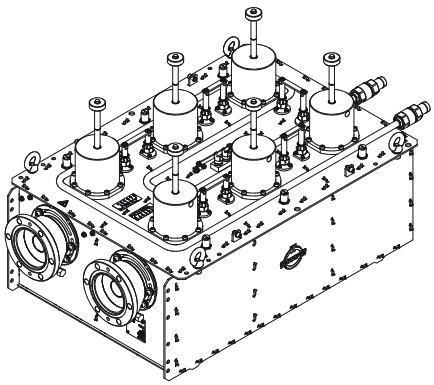


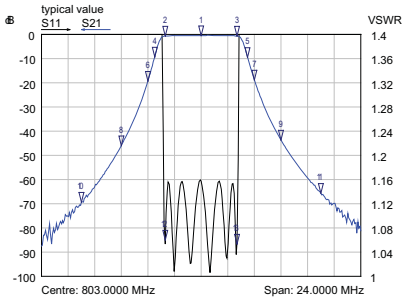
Typical diagram AS4033

Part number / Connectors **Cooling**	**BN 61 64 09** **3 1/8" SMS unflanged** **BN 61 64 09 C0002** **3 1/8" EIA** **natural cooling**		**BN 61 64 09 C0020** **3 1/8" SMS unflanged** **BN 61 64 09 C0022** **3 1/8" EIA** **liquid cooling**	
Frequency range	470 - 860 MHz			
Number / Size of cavities	**4 / 200**			
Harmonics attenuation	≥ 40 dB for f ≤ 800 MHz			
Mask filtering	ATV 8 MHz		ATV 8 MHz	ATV 6 MHz
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	natural cooling **≤ 7.5 kW** liquid cooling **≤ 14 kW** @ 0 - 500 m **≤ 12 kW** @ 1600 m **≤ 10 kW** @ 2600 m **≤ 8 kW** @ 3800 m		natural cooling **≤ 7.5 kW** liquid cooling **≤ 14 kW** @ 0 - 500 m **≤ 12 kW** @ 1600 m **≤ 10 kW** @ 2600 m **≤ 8 kW** @ 3800 m	natural cooling **≤ 6 kW** liquid cooling **≤ 11.2 kW** @ 0 - 600 m **≤ 10 kW** @ 1300 m **≤ 8 kW** @ 2600 m **≤ 6 kW** @ 4000 m
Tuning instruction (alternative tuning on request)	Standard G: AS4009		Standard I: AS4018 Standard K: AS4014	Standard M: AS4033
	470 MHz 860 MHz		470 MHz 860 MHz	470 MHz 860 MHz
	$f_{(V)} - \Delta$ > 40.0 dB > 40.0 dB		$f_{(V)} - \Delta$ > 40.0 dB > 40.0 dB	$f_{(V)} - \Delta$ > 40.0 dB > 40.0 dB
	$f_{(V) - 0.75\ MHz}$ ≤ 0.15 dB ≤ 0.20 dB		$f_{(V) - 0.75\ MHz}$ ≤ 0.20 dB ≤ 0.20 dB	$f_{(V) - 0.75\ MHz}$ ≤ 0.25 dB ≤ 0.25 dB
	$f_{(V)}$ ≤ 0.15 dB ≤ 0.20 dB		$f_{(V)}$ ≤ 0.20 dB ≤ 0.20 dB	$f_{(V)}$ ≤ 0.25 dB ≤ 0.25 dB
	$f_{(S)} = f_{(V)} + \Delta$ ≤ 0.15 dB ≤ 0.20 dB		$f_{(S)} = f_{(V)} + \Delta$ ≤ 0.20 dB ≤ 0.20 dB	$f_{(S)} = f_{(V)} + \Delta$ ≤ 0.25 dB ≤ 0.25 dB
	$f_{(V)} + 2\Delta$ > 40.0 dB > 40.0 dB		$f_{(V)} + 2\Delta$ > 40.0 dB > 40.0 dB	$f_{(V)} + 2\Delta$ > 40.0 dB > 40.0 dB
VSWR (pass band range)	$f_{(V) - 0.75\ MHz}$ ≤ 1.06 $f_{(V)}$ ≤ 1.06 $f_{(S)} = f_{(V)} + \Delta$ ≤ 1.06			
Group delay variation	Δτ ≤ 50 ns			
Temperature stability	≤ 2 kHz / K			
Dimensions (L x W x H) mm	463 x 450 x 442 BN 61 64 09 487 x 450 x 442 BN 61 64 09 C0002		463 x 450 x 442 BN 61 64 09 C0020 487 x 450 x 442 BN 61 64 09 C0022	
Weight	ca. 35 kg		ca. 35 kg	
Coolant / Flow rate	–		mix: glycol and water BN 15 45 67 / ≥ 3 l/min	
Temperature of the coolant	–		20 °C - 60 °C	
Cooling interface	–		for hose with inner width 3/4"	
Material of cooling	–		stainless steel pipe	
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“			

4.5 KW - 10 KW UHF DTV BANDPASS FILTER

- mask filter for ATSC
- for 6, 7 and 8 MHz channel bandwidth
- without cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- installation horizontally or vertically
- DC block
- natural or liquid cooling



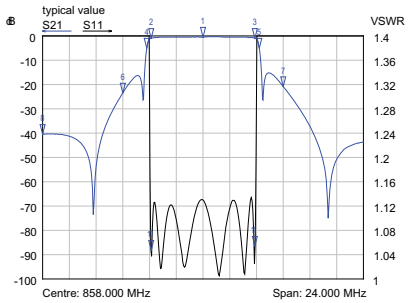


Typical diagram AS6082

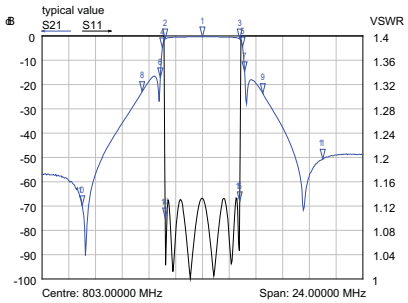
Part number / Connetors Cooling	**BN 61 65 71 1 5/8" EIA male natural cooling**	**BN 61 65 70 3 1/8" EIA liquid cooling**
Frequency range	470 - 810 MHz	
Number / Size of cavities	**6 / 200**	
Harmonics attenuation	≥ 50 dB for f ≤ 860 MHz	
Mask filtering	ATSC @ 6 MHz (Ü/Urms=11 dB)	
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	**≤ 4.5 kW**	**≤ 10 kW @ 0 - 600 m ≤ 8 kW @ 2000 m ≤ 6 kW @ 3400 m**
Tuning instruction	AS6082	
Insertion loss & Mask filtering (alternative tuning on request)	473 MHz 803 MHz f_0 ≤ 0.4 dB ≤ 0.60 dB f_0 ± 2.69 ≤ 0.6 dB ≤ 0.80 dB f_0 ± 3.00 ≤ 1.5 dB ≤ 1.75 dB f_0 ± 4.00 ≥ 15 dB f_0 ± 6.00 ≥ 40 dB f_0 ± 9.00 ≥ 65 dB	
VSWR (pass band range)	≤ 1.17	
Group delay variation	Δτ ≤ 200 ns	
Temperature stability	≤ 2 kHz / K	
Dimensions (L x W x H) mm	702 x 450 x 450	772 x 450 x 450
Weight	ca. 48 kg	ca. 48 kg
Coolant / Flow rate	–	mix: glycol and water BN 15 45 67 / ≥ 3 l/min
Temperature of the coolant	–	20 °C - 60 °C
Cooling interface	–	for hose with inner width 3/4"
Material of cooling	–	stainless steel pipe
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

4 KW - 12.5 KW UHF DTV BANDPASS FILTER

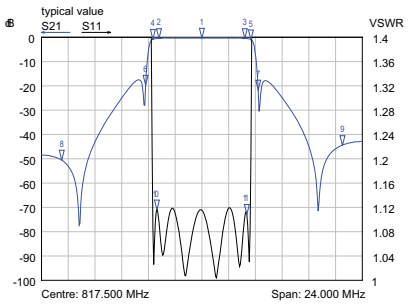
- mask filter for DTV and ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- installation horizontally or vertically
- DC block
- natural or liquid cooling



Typical diagram AS6194



Typical diagram AS6185

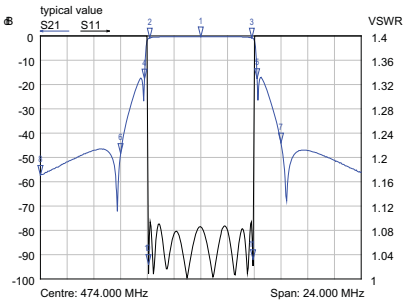


Typical diagram AS6290

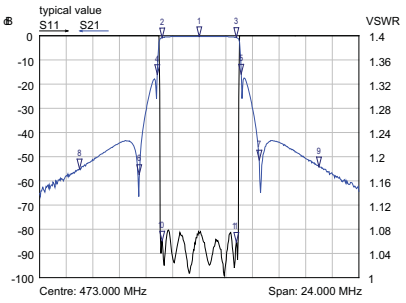
Part number / Connectors	**BN 61 65 40 C0010 1 5/8" EIA**		**BN 61 65 50 C0020 3 1/8" SMS unflanged** **BN 61 65 50 C0021 1 5/8" EIA** **BN 61 65 50 C0022 3 1/8" EIA male**
Cooling	**natural cooling**		**liquid cooling**
Frequency range	470 - 860 MHz		
Number / Size of cavities	**6 / 200**		
Harmonics attenuation	≥ 50 dB for f ≤ 860 MHz		
Mask filtering	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @ 6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	DVB-T @ 7 MHz ($\hat{U}/U_{rms}$ = 13 dB)
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	natural cooling **≤ 5 kW** liquid cooling 1 5/8" input **≤ 7 kW** liquid cooling 3 1/8" input **≤ 12.5 kW** @ 0 - 500 m **≤ 10 kW** @ 2000 m **≤ 8 kW** @ 3200 m	natural cooling **≤ 4 kW** liquid cooling 1 5/8" input **≤ 7 kW** liquid cooling 3 1/8" input **≤ 10 kW** @ 0 - 500 m **≤ 8 kW** @ 2000 m **≤ 6 kW** @ 3400 m	natural cooling **≤ 4.5 kW** liquid cooling 1 5/8" input **≤ 7 kW** liquid cooling 3 1/8" input **≤ 10 kW** @ 0 - 500 m **≤ 8 kW** @ 2000 m **≤ 6 kW** @ 3400 m
Tuning instruction	AS6194	AS6185	AS6290
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.20 dB ≤ 0.35 dB $f_0 \pm 3.805$ ≤ 0.60 dB ≤ 0.90 dB $f_0 \pm 3.885$ ≤ 0.75 dB ≤ 1.05 dB $f_0 \pm 4.2$ ≥ 4 dB $f_0 \pm 6.0$ ≥ 20 dB $f_0 \pm 12.0$ ≥ 40 dB	470 MHz 803 MHz f_0 ≤ 0.3 dB ≤ 0.45 dB $f_0 \pm 2.79$ ≤ 0.9 dB ≤ 1.30 dB $f_0 \pm 3.00$ ≥ 4 dB $f_0 \pm 3.15$ ≥ 8 dB $f_0 \pm 4.5$ ≥ 23 dB $f_0 \pm 9.0$ ≥ 48 dB $f_0 \pm 15.0$ ≥ 50 dB	470 MHz 820 MHz f_0 ≤ 0.20 dB ≤ 0.30 dB $f_0 \pm 3.2$ ≤ 0.35 dB ≤ 0.45 dB $f_0 \pm 4.2$ ≥ 13 dB $f_0 \pm 10.5$ ≥ 38 dB
VSWR (pass band range)	≤ 1.15	≤ 1.15	≤ 1.15
Group delay variation	Δτ ≤ 350 ns	Δτ ≤ 500 ns	Δτ ≤ 150 ns
Temperature stability	≤ 2 kHz / K		
Dimensions (L x W x H) mm	671 x 450 x 440		666 x 450 x 440 BN 61 65 50 C0020 671 x 450 x 440 BN 61 65 50 C0021 690 x 450 x 440 BN 61 65 50 C0022
Weight	ca. 47 kg		ca. 56 kg
Coolant / Flow rate	–		mix: glycol and water BN 15 45 67 / ≥ 3 l/min
Temperature of the coolant	–		20 °C - 60 °C
Cooling interface	–		for hose with inner width 3/4"
Material of cooling	–		stainless steel pipe
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

3.2 KW - 12.5 KW UHF DTV BANDPASS FILTER

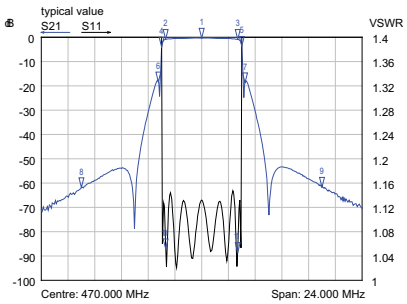
- mask filter for DTV and ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- installation horizontally or vertically
- DC block
- natural or liquid cooling



Typical diagram AS8067



Typical diagram AS8074

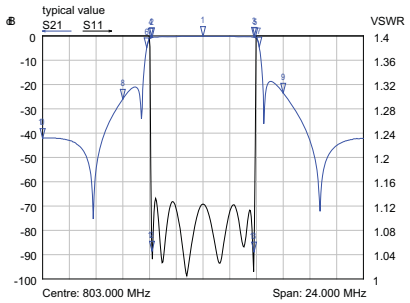


Typical diagram AS8066

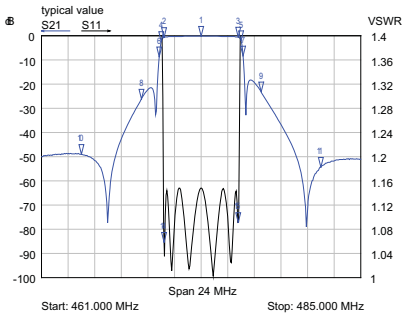
Part number / Connectors	**BN 61 65 44 C0010 1 5/8" EIA**		**BN 61 65 54 C0020 3 1/8" SMS unflanged** **BN 61 65 54 C0021 1 5/8" EIA** **BN 61 65 54 C0022 3 1/8" EIA male**
Cooling	**natural cooling**		**liquid cooling**
Frequency range	470 - 860 MHz		
Number / Size of cavities	**8 / 200**		
Harmonics attenuation	≥ 50 dB for f ≤ 860 MHz		
Mask filtering	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @ 6 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ATSC @ 6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	natural cooling **≤ 4 kW** liquid cooling 1 5/8" input **≤ 7 kW** liquid cooling 3 1/8" input **≤ 12.5 kW** @ 0 - 500 m **≤ 10 kW** @ 2000 m **≤ 8 kW** @ 3200 m	natural cooling **≤ 3.2 kW** liquid cooling 1 5/8" input **≤ 7 kW** liquid cooling 3 1/8" input **≤ 10 kW** @ 0 - 500 m **≤ 8 kW** @ 2000 m **≤ 6 kW** @ 3400 m	natural cooling **≤ 3.2 kW** liquid cooling 1 5/8" input **≤ 7 kW** liquid cooling 3 1/8" input **≤ 10 kW** @ 0 - 500 m **≤ 8 kW** @ 2000 m **≤ 6 kW** @ 3400 m
Tuning instruction	AS8067	AS8074	AS8066
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 860 MHz f_0 ≤ 0.3 dB ≤ 0.4 dB $f_0 \pm 3.805$ ≤ 0.9 dB ≤ 1.3 dB $f_0 \pm 3.885$ ≤ 1.4 dB ≤ 1.6 dB $f_0 \pm 4.2$ ≥ 15 dB $f_0 \pm 6.0$ ≥ 40 dB $f_0 \pm 12.0$ ≥ 55 dB	470 MHz 803 MHz f_0 ≤ 0.35 dB ≤ 0.4 dB $f_0 \pm 2.79$ ≤ 1.10 dB ≤ 1.4 dB $f_0 \pm 3.15$ ≥ 15 dB $f_0 \pm 4.5$ ≥ 30 dB $f_0 \pm 9.0$ ≥ 55 dB	470 MHz 820 MHz f_0 ≤ 0.4 dB ≤ 0.45 dB $f_0 \pm 2.69$ ≤ 0.9 dB ≤ 1.20 dB $f_0 \pm 3.00$ ≥ 4 dB $f_0 \pm 3.25$ ≥ 18 dB $f_0 \pm 9.00$ ≥ 64 dB
VSWR (pass band range)	≤ 1.10	≤ 1.09	≤ 1.10
Group delay variation	Δτ ≤ 700 ns	Δτ ≤ 500 ns	Δτ ≤ 400 ns
Temperature stability	≤ 2 kHz / K		
Dimensions (L x W x H) mm	874 x 450 x 440		869 x 450 x 440 BN 61 65 54 C0020 874 x 450 x 440 BN 61 65 54 C0021 943 x 450 x 440 BN 61 65 54 C0022
Weight	ca. 59 kg		ca. 64 kg
Coolant / Flow rate	–		mix: glycol and water BN 15 45 67 / ≥ 3 l/min
Temperature of the coolant	–		20 °C - 60 °C
Cooling interface	–		for hose with inner width 3/4"
Material of cooling	–		stainless steel pipe
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“		

6.75 KW - 18 KW UHF DTV BANDPASS FILTER

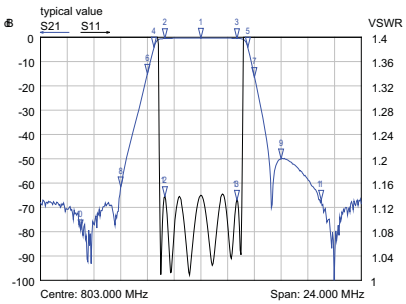
- mask filter for DTV and ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- installation horizontally or vertically
- DC block
- natural or liquid cooling



Typical diagram AS6303



Typical diagram AS6365

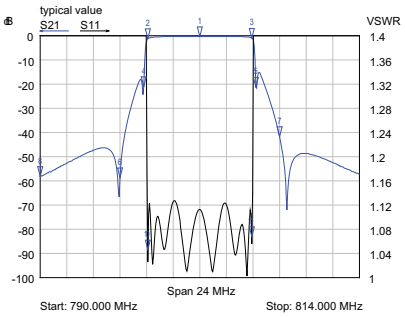


Typical diagram AS6308

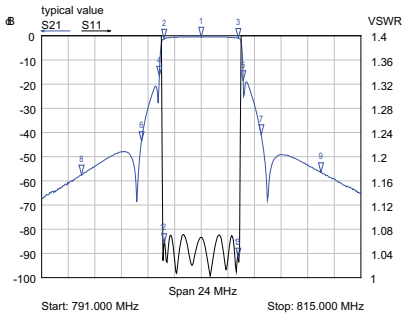
Part number / Connectors **Cooling**	**BN 61 66 69 C1041 3 1/8" SMS unflanged** **BN 61 66 69 C1043 3 1/8" EIA** **natural cooling**			**BN 61 66 69 C2041 3 1/8" SMS unflanged** **BN 61 66 69 C2043 3 1/8" EIA** **liquid cooling**		
Frequency range	470 - 790 MHz					
Number / Size of cavities	**6 / 230**					
Harmonics attenuation	≥ 50 dB for f ≤ 800 MHz					
Mask filtering	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)			ISDB-T @ 6 MHz ($\hat{U}/U_{rms}$ = 13 dB)			ATSC @ 6 MHz ($\hat{U}/U_{rms}$ = 11 dB)		
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	natural cooling **≤ 8.5 kW** liquid cooling **≤ 18 kW** @ 0 - 500 m **≤ 16 kW** @ 1400 m **≤ 14 kW** @ 2200 m **≤ 12 kW** @ 3000 m **≤ 10 kW** @ 3800 m			natural cooling **≤ 6.75 kW** liquid cooling **≤ 15 kW** @ 0 - 500 m **≤ 14 kW** @ 1000 m **≤ 12 kW** @ 2000 m **≤ 10 kW** @ 3000 m **≤ 8 kW** @ 4000 m			natural cooling **≤ 6.75 kW** liquid cooling **≤ 18 kW** @ 0 - 500 m **≤ 16 kW** @ 1400 m **≤ 14 kW** @ 2200 m **≤ 12 kW** @ 3000 m **≤ 10 kW** @ 3800 m		
Tuning instruction	AS6303			AS6365			AS6308		
Insertion loss & Mask filtering (alternative tuning on request)		470 MHz	790 MHz		470 MHz	790 MHz		470 MHz	790 MHz
	f_0	≤ 0.20 dB	≤ 0.30 dB	f_0	≤ 0.30 dB	≤ 0.35 dB	f_0	≤ 0.35 dB	≤ 0.40 dB
	$f_0 \pm 3.805$	≤ 0.65 dB	≤ 0.80 dB	$f_0 \pm 2.79$	≤ 0.75 dB	≤ 0.90 dB	$f_0 \pm 2.69$	≤ 0.70 dB	≤ 0.70 dB
	$f_0 \pm 3.885$	≤ 0.75 dB	≤ 0.90 dB	$f_0 \pm 3.00$	≥ 2 dB		$f_0 \pm 3.50$	≥ 3 dB	
	$f_0 \pm 4.20$	≥ 4 dB		$f_0 \pm 3.15$	≥ 8 dB		$f_0 \pm 4.00$	≥ 8 dB	
	$f_0 \pm 6.00$	≥ 20 dB		$f_0 \pm 4.50$	≥ 23 dB		$f_0 \pm 6.00$	≥ 30 dB	
	$f_0 \pm 12.0$	≥ 40 dB		$f_0 \pm 9.00$	≥ 48 dB		$f_0 \pm 9.00$	≥ 65 dB	
				$f_0 \pm 15.0$	≥ 50 dB				
VSWR (pass band range)	≤ 1.15			≤ 1.15			≤ 1.15		
Group delay variation	Δτ ≤ 350 ns			Δτ ≤ 500 ns			Δτ ≤ 200 ns		
Temperature stability	≤ 2 kHz / K								
Dimensions (L x W x H) mm	775 x 570 x 352 BN 61 66 69 C1041 798 x 570 x 352 BN 61 66 69 C1043			781 x 570 x 352 BN 61 66 69 C2041 804 x 570 x 352 BN 61 66 69 C2043					
Weight	ca. 55 kg								
Coolant / Flow rate	–			mix: glycol and water BN 15 45 67 / ≥ 3 l/min					
Temperature of the coolant	–			10 °C - 55 °C					
Cooling interface	–			stainless steel tube 12 mm x 1 mm unflanged					
Cooling accessories	–			see page annex					
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“								

8.5 KW - 16.5 KW UHF DTV BANDPASS FILTER

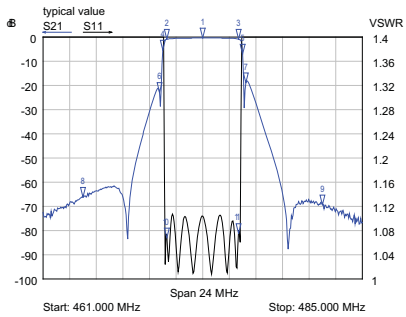
- mask filter for DTV and ATV
- for 6, 7 and 8 MHz channel bandwidth
- with cross coupling (notch function)
- tuneable within the whole UHF range
- temperature compensated
- installation horizontally or vertically
- DC block
- natural or liquid cooling



Typical diagram AS8124



Typical diagram AS8128

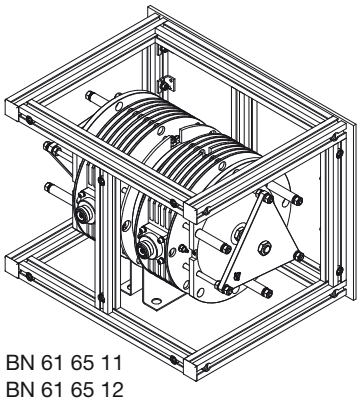


Typical diagram AS8127

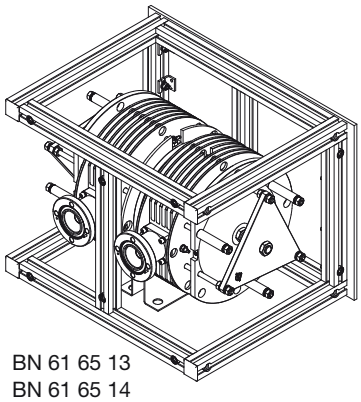
Part number / Connectors **Cooling**	**BN 61 66 70 C1041 3 1/8" SMS unflanged** **BN 61 66 70 C1043 3 1/8" EIA** **natural cooling**	**BN 61 66 70 C2041 3 1/8" SMS unflanged** **BN 61 66 70 C2043 3 1/8" EIA** **liquid cooling**
Frequency range	470 - 790 MHz	
Number / Size of cavities	**8 / 230**	
Harmonics attenuation	≥ 50 dB for f ≤ 860 MHz	
Mask filtering	DVB-T @ 8 MHz ($\hat{U}/U_{rms}$ = 13 dB)	ISDB-T @ 6 MHz ($\hat{U}/U_{rms}$ = 13 dB) / ATSC @ 6 MHz ($\hat{U}/U_{rms}$ = 11 dB)
Average input power The input power of liquid cooled filters must be reduced if installed more than 500 m above sea level.	natural cooling **≤ 8.5 kW** liquid cooling **≤ 16.5 kW** @ 0 - 500 m **≤ 14 kW** @ 1600 m **≤ 12 kW** @ 2400 m **≤ 10 kW** @ 3400 m **≤ 8 kW** @ 4200 m	natural cooling **≤ 6.75 kW** liquid cooling **≤ 13.5 kW** @ 0 - 500 m **≤ 12 kW** @ 1200 m **≤ 10 kW** @ 2400 m **≤ 8 kW** @ 3400 m **≤ 6 kW** @ 4600 m
Tuning instruction	AS8124	AS8128 / AS8127
Insertion loss & Mask filtering (alternative tuning on request)	470 MHz 790 MHz f_0 ≤ 0.30 dB ≤ 0.30 dB $f_0 \pm 3.805$ ≤ 0.95 dB ≤ 1.00 dB $f_0 \pm 3.885$ ≤ 1.15 dB ≤ 1.25 dB $f_0 \pm 4.20$ ≥ 15 dB $f_0 \pm 6.00$ ≥ 40 dB $f_0 \pm 12.0$ ≥ 55 dB	470 MHz 790 MHz f_0 ≤ 0.35 dB ≤ 0.40 dB $f_0 \pm 2.79$ ≤ 1.05 dB ≤ 1.10 dB $f_0 \pm 3.15$ ≥ 15 dB $f_0 \pm 4.50$ ≥ 30 dB $f_0 \pm 9.00$ ≥ 55 dB $f_0 \pm 15.0$ ≥ 65 dB 470 MHz 790 MHz f_0 ≤ 0.35 dB ≤ 0.40 dB $f_0 \pm 2.69$ ≤ 0.90 dB ≤ 1.00 dB $f_0 \pm 3.00$ ≥ 4 dB $f_0 \pm 3.25$ ≥ 18 dB $f_0 \pm 9.00$ ≥ 64 dB
VSWR (pass band range)	≤ 1.15	≤ 1.085 / ≤ 1.15
Group delay variation	Δτ ≤ 700 ns	Δτ ≤ 550 ns / Δτ ≤ 450 ns
Temperature stability	≤ 2 kHz / K	
Dimensions (L x W x H) mm	1006 x 570 x 352 BN 61 66 70 C1041 1030 x 570 x 352 BN 61 66 70 C1043	1006 x 570 x 352 BN 61 66 70 C2041 1030 x 570 x 352 BN 61 66 70 C2043
Weight	ca. 72 kg	
Coolant / Flow rate	–	mix: glycol and water BN 15 45 67 / ≥ 3 l/min
Temperature of the coolant	–	10 °C - 55 °C
Cooling interface	–	stainless steel tube 12 mm x 1 mm unflanged
Cooling accessories	–	see page annex
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

1.2 KW - 1.6 KW BAND L DAB/T-DMB BANDPASS FILTER

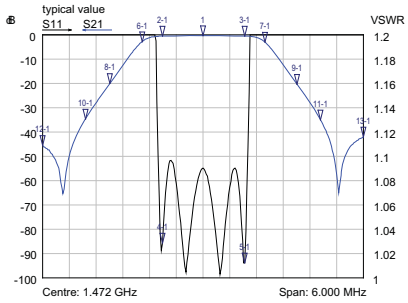
- mask filter for DAB and T-DMB
- for 1,54 MHz block bandwidth
- with cross coupling (notch function)
- temperature compensated
- dual mode technique
- mounted in 19” drawer
- DC block



BN 61 65 11
BN 61 65 12



BN 61 65 13
BN 61 65 14

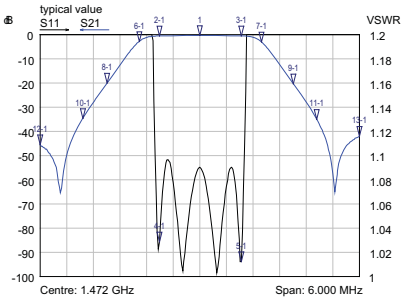


Typical diagram AS4040

Part number **Connectors**	**BN 61 65 11** **7-16 female**	**BN 61 65 13** **1 5/8" EIA**	**BN 61 65 12** **7-16 female**	**BN 61 65 14** **1 5/8" EIA**
Frequency range	1452 - 1468 MHz		1468 - 1492 MHz	
Number / Size of cavities	**4 / DM**			
Mask filtering	DAB / T-DMB @ 1.54 MHz (Ü/Urms=13 dB)			
Average input power	**≤ 1.2 kW 7-16 female** **≤ 1.6 kW 1 5/8" EIA**			
Tuning instruction	AS4040			
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.50 dB $f_0 \pm 0.77$ ≤ 0.65 dB $f_0 \pm 0.97$ ≥ 0.80 dB $f_0 \pm 1.15$ ≥ 1.5 dB $f_0 \pm 1.75$ ≥ 12 dB $f_0 \pm 2.20$ ≥ 26 dB $f_0 \pm 3.00$ ≥ 40 dB			
VSWR (pass band range)	≤ 1.10			
Group delay variation	$\Delta\tau \leq 110$ ns			
Temperature stability	≤ 1.5 kHz / K			
Dimensions (L x W x H) mm	483 x 355 x 360			
Weight	ca. 25 kg		ca. 30 kg	
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“			

400 W BAND L DAB/T-DMB BANDPASS FILTER

- mask filter for DAB and T-DMB
- for 1.54 MHz block bandwidth
- with cross coupling (notch function)
- temperature compensated
- dielectric resonators
- installation vertically or horizontally
- DC block



Typical diagram AS4039

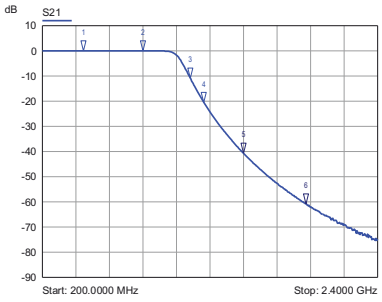
Part number	**BN 61 65 16**
Frequency range	1452 - 1492 MHz
Number / Size of cavities	**4 / DE**
Mask filtering	DAB / T-DMB @ 1.54 MHz ($\hat{U}/U_{rms}$ = 13 dB)
Average input power	**≤ 300 W** **≤ 400 W with forced air cooling**
Tuning instruction	AS4039
Insertion loss & Mask filtering (alternative tuning on request)	f_0 ≤ 0.45 dB $f_0 \pm 0.77$ ≤ 0.55 dB $f_0 \pm 0.97$ ≥ 0.70 dB $f_0 \pm 1.15$ ≥ 1.50 dB $f_0 \pm 1.75$ ≥ 12.0 dB $f_0 \pm 2.20$ ≥ 26.0 dB $f_0 \pm 3.00$ ≥ 40.0 dB
VSWR (pass band range)	≤ 1.10
Group delay variation	$\Delta\tau \leq 150$ ns
Temperature stability	≤ 3 kHz / K
Connectors	7-16 female
Dimensions (L x W x H) mm	198 x 183 x 95
Weight	ca. 5 kg
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“

1.2 KW - 2 KW LOW PASS FILTER

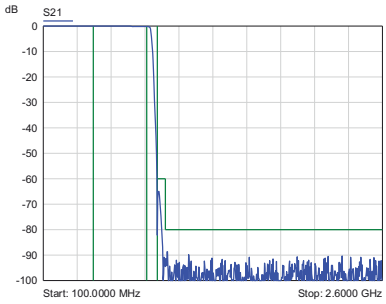
- low-pass filter for suppression of harmonics
- compact design
- low attenuation in pass band

BN 61 63 95

BN 61 64 52 C0011



Typical diagram



Typical diagram

Part number	**BN 61 63 95**	**BN 61 64 52 C0011**
Pass band	330 - 960 MHz	470 - 860 MHz
Average input power	**≤ 1 kW**	**≤ 2 kW**
Pass band insertion loss	390 - 960 MHz ≤ 0.1 dB	470 - 800 MHz ≤ 0.10 dB 800 - 860 MHz ≤ 0.18 dB
Stop band attenuation	1.170 GHz ≥ 10 dB 1.260 GHz ≥ 20 dB 1.520 GHz ≥ 30 dB 1.930 GHz ≥ 40 dB	0.94 - 1.0 GHz ≥ 60 dB 1.00 - 2.6 GHz ≥ 80 dB
VSWR (pass band range)	≤ 1.2	470 - 800 MHz ≤ 1.06 800 - 860 MHz ≤ 1.10
Group delay variation	$\Delta\tau \leq 1$ ns	$\Delta\tau \leq 20$ ns
Proof voltage	3.5 kV	470 - 800 MHz 3.5 kV 800 - 860 MHz 1.6 kV
Connectors	7-16 female / 7-16 male	7-16 female
Dimensions (L x W x H) mm	174 x 32 x 32	406 x 80 x 80
Weight	ca. 0.6 kg	ca. 2.0 kg
Environmental conditions	for limitations see „Environmental Conditions for Broadcast Products“	

ACCESSORIES FOR LIQUID COOLED FILTERS

SPINNER offers many options for the implementation of liquid cooled filters to either existing cooling systems or independent combiner cooling systems with heat sinks:

- various interfaces for cooling pipes
- temperature switch for alarm or switch-off
- cooler unit with heat sinks

Pump unit and UHF combiner with liquid cooled filter

Pump unit and indoor cooler

Cutting ring fittings to interface the cooling tube	**Part number**
Tube fitting hose barb connector 1/2”	BN A7 29 55
Tube fitting gauge connector 3/8" female straight	BN A7 42 62
Tube fitting gauge connector 3/8" male straight	BN A7 42 63
Tube fitting gauge connector 3/8" female 90° elbow	BN A7 43 18
Tube fitting gauge connector 3/8" male 90° elbow	BN A7 43 20
Tube fitting gauge connector 1/2" female straight	BN A7 42 60
Tube fitting gauge connector 1/2" male straight	BN A7 42 61
Tube fitting gauge connector 1/2" female 90° elbow	BN A7 43 17
Tube fitting gauge connector 1/2" male 90° elbow	BN A7 43 19
Temperature switch for alarm or switch-off	
Normally closed contact opening at 85°C	BN B1 81 00
Coolant	
25 l can with coolant (mix glycol and water and anti corrosive)	BN 15 45 67
Cooler	
Cooling unit with reservoir, twin pump, water splitter, valves	BN 15 57 29