



Mobile Network Combining System

MNCS[®]

Data Sheets

Figures not binding – Designs subject to modification

Edition: 07/2006

Under the indication
Mobile Network Combining System
MNCS®

Spinner GmbH offers both individual components as well as complete systems for mobile network coverage.

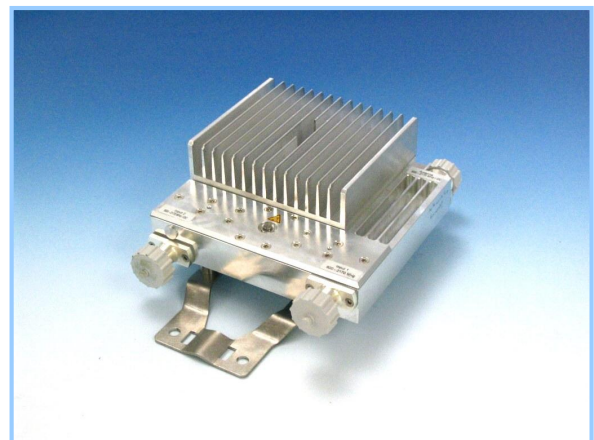
Purpose: The combination of cellular mobile network base stations of various networks and network operators, working in a frequency range between 330 MHz ... 2700 MHz, to one common used antenna system.

Construction: Components for wall / mast mounting and plug-in modules for 19"-cabinets.

Advantages: low insertion loss, expandable due to modular design, compact, forward looking,
no power supply, no maintenance

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Summary of BN numbers

The articles are listed by BN number in numerical order.

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572999	7	573652	8	756518	6
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573199	8	573695	7	818287	5
573302	13	573696	7	818289	5
573304	10	573697	8	818290	5
573310	15	616308	9	818291	5
573320	10	616313	9	A72314	18
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Summary of Products

For technical data sheet or drawing – please click of product number (BN-no.)

Components

- Power Splitter:

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Symm. Splitter, 2-way	870 - 960	800 W CW	818257
	Symm. Splitter, 2-way	850 - 2200	500 W CW	818258
	Symm. Splitter, 2-way, broadband - new	330 - 2700	450 W CW	818289
	Symm. Splitter, 3-way	870 - 960	800 W CW	531593
	Symm. Splitter, 3-way	850 - 2200	500 W CW	531592
	Symm. Splitter, 3-way, broadband - new	330 - 2700	450 W CW	818290
	Symm. Splitter, 4-way	850 - 2200	300 W CW	818261
	Symm. Splitter, 4-way, broadband - new	330 - 2700	450 W CW	818291
	Unsymm. Splitter, 1:3 (4,7dB / 1,8 dB)	850 - 2200	500 W CW	818285
	Unsymm. Splitter, 1:4 (6 dB / 1,25 dB)	850 - 2200	500 W CW	818286
	Unsymm. Splitter, 1:5 (7 dB / 1 dB)	850 - 2200	500 W CW	818287

- Coupler:

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
X - type 	3 dB Coupler (H-style), TETRA – new	330 - 480	1000 W	753381
	3 dB Coupler (X-style)	870 - 960	300 W	527690
	3 dB Coupler (X-style)	1700 - 2170	200 W	573166
	3 dB Coupler (X-style)	800 - 2200	1200 W	753346
	3 dB Coupler (X-style)	800 - 2500	1200 W	753347
	3 dB Hybrid Coupler with low IM-load	800 - 2170	100 W per input	573045
H – type 	3 dB Coupler (H-style)	800 - 2500	1000 W	753352
	3 dB Coupler (H-style), TETRA - new	330 - 480	1000 W	753381
	6 dB Coupler (H-style), TETRA - new	330 - 480	1000 W	753382
	6 dB Coupler (H-style)	800 - 2500	1000 W	753348
	10 dB Coupler (H-style), TETRA - new	330 - 480	1000 W	753383
	10 dB Coupler (H-style)	800 - 2500	1000 W	753349
	30 dB Coupler (H-style), TETRA - new	380 - 520	1000 W	753384
	30 dB Coupler (H-style)	800 - 2200	1000 W	753343
	50 dB Coupler (H-style), TETRA - new	380 - 520	1000 W	753385

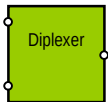
For technical data sheet or drawing – please click of product number (BN-no.)

- Attenuator / Load / Bias-T / DC-break:

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Attenuator 3 dB, low IM	890 - 960	50 W	745144
	Attenuator 3 dB, low IM	1710 - 1880	50 W	745146
	Load 50 W, IP65	0 – 2200	50 W	534238
	Load 50 W, low IM	800 - 2500	50 W	534279
	Load 100 W; low IM	800 - 2500	100 W	534280
	Load 150 W; low IM	800 - 2500	150 W	534277
	Bias T / DC – 7-16 socket	800 - 2500	500 W	756497
	Bias T / DC - 7-16 plug	800 - 2500	500 W	756498
	Bias T / with modem, - new			756530
	Bias T / with modem, - new			756529
	Bias T / with modem , - new			756518
	Bias T / with modem, - new			756517
	Bias T / TETRA, - new	60 - 960	100 W	756535
	DC-break, 7-16 plug-socket, only inner conductor	800 - 2500	750 W	756486

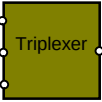
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- Diplexer:

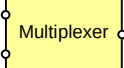
Basic-module	Description	Frequency range / MHz	Input power	BN-No.
	Diplexer GSM900/GSM1800-UMTS (outdoor, IP65, DC all)	800 - 1000 1700 - 2170	575 W 385 W	573034
	Diplexer GSM900/GSM1800-UMTS (double-unit ; outdoor IP65, DC all)	800 - 1000 1700 - 2170	575 W 385 W	573035
	Diplexer GSM1800/UMTS (outdoor, IP66 ; DC all)	1710 - 1880 1920 - 2170	240 W 100 W	573693
	Diplexer GSM1800/UMTS (double-unit ; outdoor, IP66, DC all)	1710 - 1880 1920 - 2170	240 W 100 W	573694
	Diplexer GSM1800/UMTS (DC-break – GSM1800 ; outdoor IP65)	1710 - 1880 1920 - 2170	240 W 100 W	573695
	Diplexer GSM1800/UMTS (double-unit, DC-break – GSM1800 ; outdoor, IP65)	1710 - 1880 1920 - 2170	240 W 100 W	573696
	Multiband Diplexer (IP65)	68 - 470 800 - 2500	300 W 500 W	573189
	Multiband Diplexer (double-unit ; IP65)	68 - 470 800 - 2500	300 W 500 W	573191
	Diplexer analog radio / GSM-R (connector 7-16; rail application)	440 - 475 870 - 960	40 W 40 W	572999
	Diplexer analog radio / GSM-R (connector N, rail application)	440 - 475 870 - 960	40 W 40 W	572924
	Diplexer Broadband – W-LAN - new (outdoor, IP65, DC-break – W-LAN)	0 – 2170 2400 - 2500	500 W 50 W	573603
	Diplexer GSM1800 / UMTS with integrated modem (AISG) ,	1710 – 1880 1920 - 2170	240 W 100 W	573692
	Diplexer GSM900 / GSM1800-UMTS (with integrated Bias-T)	800 – 960 1710 - 2170	500 W 300 W	573686

For technical data sheet or drawing – please click of product number (BN-no.)

- Triplexer:

Basic-module	Description	Frequency range / MHz	Input power	BN-No.
	Triplexer GSM900/GSM1800/UMTS (DC all, outdoor, IP66)	806 - 960 1710 - 1880 1920 - 2170	240 W 240 W 100 W	573199
	Triplexer GSM900/GSM1800/UMTS (DC all, outdoor, IP66, double unit)	806 - 960 1710 - 1880 1920 - 2170	240 W 240 W 100 W	573697
	Triplexer GSM900/GSM1800/UMTS (DC only UMTS, outdoor, IP66)	806 - 960 1710 - 1880 1920 - 2170	240 W 240 W 100 W	573602
	Triplexer GSM900/GSM1800/UMTS (DC only UMTS, outdoor IP66, double unit)	806 - 960 1710 - 1880 1920 - 2170	240 W 240 W 100 W	573608

- Multiplexer / Duplexer:

Basic-module	Description	Frequency range / MHz	Input power	BN-No.
	Filter-Multiplexer UMTS; outdoor (DC port 1 or port 2 to common - switchable; D1 / D2 – Germany)	1969,8 – 1979,7/ 2159,8 – 2169,7 1920,3 – 1930,2/ 2110,3 – 2120,2	130 W	573650
	Filter-Multiplexer UMTS; outdoor (DC port 1 or port 2 to common - switchable; D1 / D2 – Germany); double unit	1969,8 – 1979,7/ 2159,8 – 2169,7 1920,3 – 1930,2/ 2110,3 – 2120,2	130 W	573651
	Filter-Multiplexer UMTS; outdoor (DC port 1 or port 2 to common - switchable; E+ / O2 – Germany)	1940,1 – 1950,0 / 2130,1 – 2140,0 1959,9 – 1969,8 / 2149,9 – 2159,8	130 W	573652
	Filter-Multiplexer UMTS; outdoor (DC port 1 or port 2 to common - switchable; E+ / O2 – Germany); double unit	1940,1 – 1950,0 / 2130,1 – 2140,0 1959,9 – 1969,8 / 2149,9 – 2159,8	130 W	573653
	Duplexer RX/TX TETRA - new	380 – 385 390 – 395	200 W per input	573609

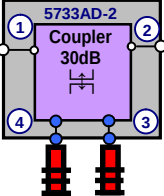
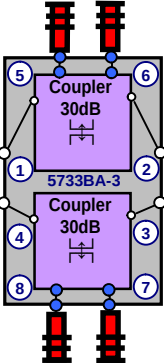
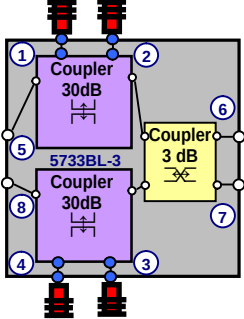
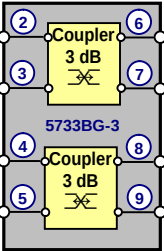
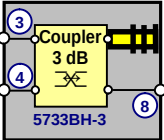
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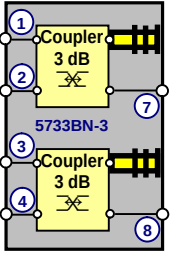
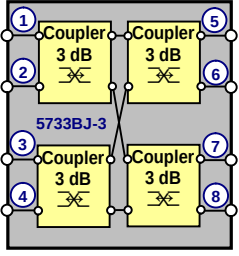
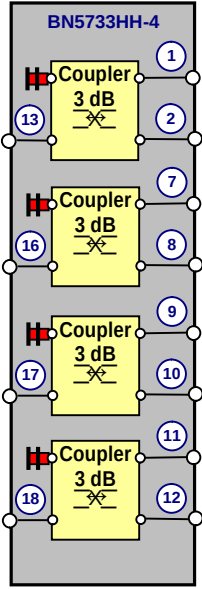
- Filters:

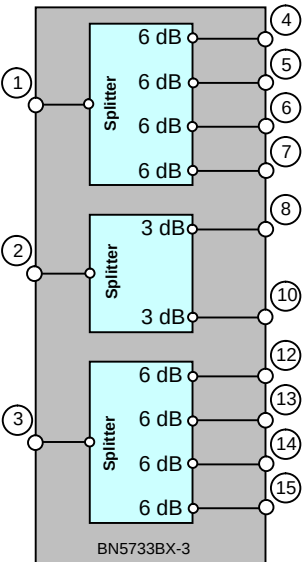
Basic-module	Description	Frequency range / MHz	Input power	BN-No.
	GSM900 – 3-Band-Rejection-Filter (Stop band: D2 / DL – Germany)	935,0 – 937,4 945,2 – 951,0 955,8 – 959,2	10 W	616308
	GSM900 – 3-Band-Rejection-Filter (Stop band: D1 / DL – Germany)	937,8 – 944,8 951,4 – 955,4 959,6 – 960,0	10 W	616387
	CDMA – Stop band filter	883 - 888	100 W	616319
	CDMA – Bandpass-Filter	883 - 888	20 W	616320
	GSM900 - Low -Pass Filter	400 - 960	100 W	616395
	UMTS - Bandpass Filter	1920 - 2170	100 W	616398
	GSM1800 - Bandpass Filter	1710 - 1880	100 W	616396
	Band-Stop Filter GSM-R (10-cavity); Connector 7-16; (outdoor IP65)	876 - 880 / 921 - 925	200 W	616314
	Band-Stop Filter GSM-R (10-cavity); Connector N	876 - 880 / 921 - 925	200 W	616313
	Low - Pass Filter; connector 7-16; (outdoor IP65)	0 – 500	150 W	616331
	TETRA – TX – Bandpass Filter - new	390 - 395	200 W	616430
	TETRA – RX – Bandpass Filter - new	380 - 385		616431

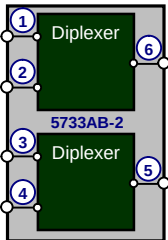
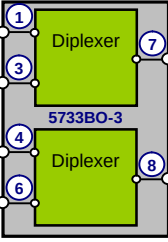
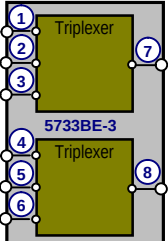
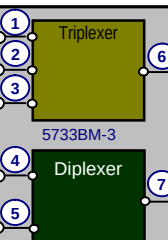
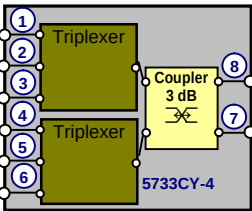
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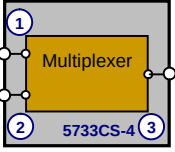
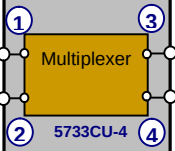
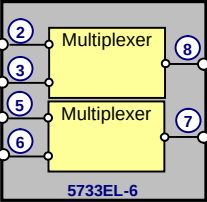
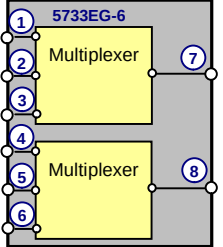
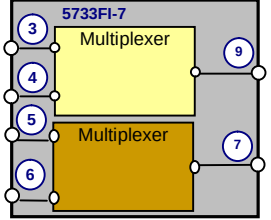
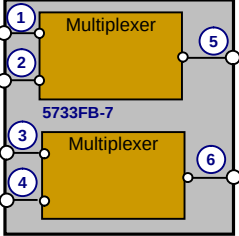
Modules (19" plug-in):

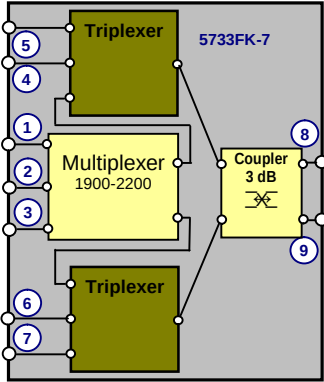
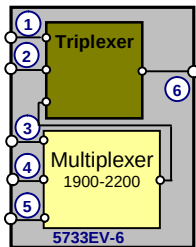
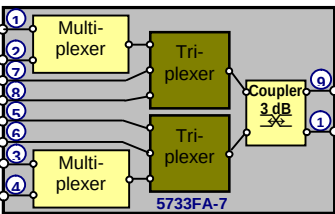
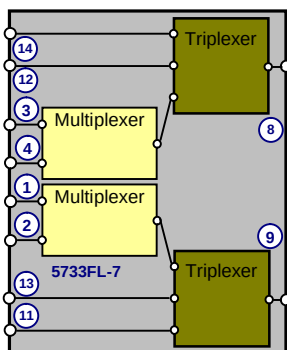
Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Test coupler - module (-30 dB)	800 - 2200	1000 W CW (total)	573304
	Test coupler – module (-30 dB; double unit)	800 - 2200	1000 W CW (total)	573320
	Test coupler – module (-30 dB; double unit)	800 - 2200	1000 W CW (total)	573331
	Coupler module (3 dB; double unit)	800 - 2200	1200 W CW (total)	573326
	Coupler module (3 dB; load 50 W, low IM)	800 – 2200	1200 W CW (total)	573327

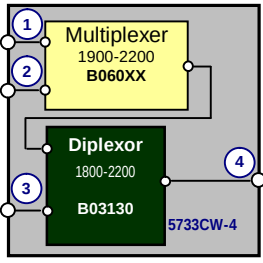
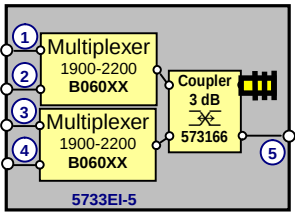
Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Coupler – module (double unit; 3 dB; load 100 W, low IM)	800 - 2200		573338
	Coupler – module (4x 3 dB)	800 - 2200	1200 W CW (total)	573329
	Coupler – module (4 x 3 dB)	1700 - 2170	200 W CW (total)	573404

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Splitter - module	850 - 2200	300 W	573330

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Diplexer – module GSM900–GSM1800/UMTS (double unit)	800 – 1000 1700 - 2170	250 W CW 150 W CW	573302
	Diplexer – module GSM1800 – UMTS (double unit)	1920 – 2170 1710 - 1880	100 W CW 240 W CW	573334
	Triplexer – module GSM900-GSM1800-UMTS (double unit)	806 – 960 1710 – 1880 1920 - 2170	240 W CW 240 W CW 100 W CW	573324
	Triplexer–Diplexer–module GSM900-GSM1800-UMTS and GSM900 – GSM1800/ UMTS	1920 - 2170 806 – 960 1710 – 1880 1700 - 2170 800 - 1000	100 W CW 240 W CW 240 W CW 250 W CW 300 W CW	573332
	Triplexer-Coupler-module GSM900-GSM1800-UMTS (double unit)	806 – 960 1710 – 1880 1920 - 2170	240 W CW 240 W CW 100 W CW	573378

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Dual-Duplexer-module 2x GSM1800 (O ₂ , E-Plus – Germany)	1730,2 - 1752,4 / 1825,2 - 1847,4 1758,2 - 1780,4 / 1853,2 - 1875,4	130 W CW (total)	573115
	Dual-Duplexer-module 2x GSM1800 (O ₂ , E-Plus – Germany)	1730,2 - 1752,4 / 1825,2 - 1847,4 1758,2 - 1780,4 / 1853,2 - 1875,4	130 W CW (total)	573373
	UMTS-Multiplexer-module 4x UMTS (Vodafone, T-Mobile, O ₂ , E-Plus – Germany)	1920,3 - 1930,2 / 2110,3 - 2120,2 1969,8 - 1979,7 / 2159,8 - 2169,7 1940,1 - 1950,0 / 2130,1 - 2140,0 1959,9 - 1969,8 / 2149,9 - 2159,8	25 W CW per input	573408
	UMTS-Multiplexer-module 2x 2 UMTS (Vodafone, T-Mobile – Germany)	1920,3 - 1930,2 / 2110,3 - 2120,2 1969,8 - 1979,7 / 2159,8 - 2169,7	25 W CW per input	573412
	UMTS-Multiplexer-module 2x 3 UMTS (Vodafone, E-Plus, T-Mobile - Germany)	1920,3 - 1930,2 / 2110,3 - 2120,2 1940,1 - 1950,0 / 2130,1 - 2140,0 1969,8 - 1979,7 / 2159,8 - 2169,7	25 W CW per input	573426
	Multiplexer-module 2x UMTS; 2x GSM1800 (E-Plus, O ₂ – Germany)	1940,1 - 1950,0/ 2130,1 - 2140,0 1959,9 - 1969,8/ 2149,9 - 2159,8 1730,1 - 1752,5/ 1825,1 - 1847,5 1758,1 - 1780,5/ 1853,1 - 1875,5	130 W CW total (GSM1800) 25 W CW per input (UMTS)	573468
	Multiplexer-module 4x GSM1800 (O ₂ , E-Plus, T-Mobile, Vodafone – Germany)	1730,1 - 1752,5/ 1825,1 - 1847,5 1758,1 - 1780,5/ 1853,1 - 1875,5 1725,1 - 1730,1/ 1820,1 - 1825,1 1752,7 - 1758,1/ 1847,7 - 1853,1	2x 130 W CW (total)	573461

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Multiplexer-Triplexer-Module 3x UMTS, 2x GSM1800, 2x GSM900 (UMTS : Vodafone, E-Plus, T-Mobile – Germany)	1920.3 - 1930.2 / 2110.3 - 2120.2 1940.1 - 1950.0 / 2130.1 - 2140.0 1969.8 - 1979.7 / 2159.8 - 2169.7		573442
	Multiplexer-Triplexer-Module 3x UMTS, GSM900, GSM 1800 (UMTS: Vodafone, E-Plus, T-Mobile – Germany)	1920,3 - 1930,2/ 2110,3 - 2120,2 1940,1 - 1950,0/ 2130,1 - 2140,0 1969,8 - 1979,7/ 2159,8 - 2169,7	100 W CW (GSM900/ 1800) 35 W CW (UMTS; per input)	573310
	Multiplexer-Triplexer-Module 4x UMTS, 2x GSM1800, 2x GSM900 (UMTS: Vodafone, T-Mobile, E-Plus, O ₂ – Germany)	1920.3 - 1930.2 / 2110.3 - 2120.2 1969.8 - 1979.7 / 2159.8 - 2169.7 1940.1 - 1950.0 / 2130.1 - 2140.0 1959.9 - 1969.8 / 2149.9 - 2159.8	240 W CW (UMTS/ GSM900) 100 W (GSM1800)	573485
	Multiplexer-Triplexer-Module 4x UMTS, 2x GSM1800, 2x GSM900 (UMTS: Vodafone, T-Mobile, E-Plus, O ₂ – Germany)	1920.3 - 1930.2 / 2110.3 - 2120.2 1969.8 - 1979.7 / 2159.8 - 2169.7 1940.1 - 1950.0 / 2130.1 - 2140.0 1959.9 - 1969.8 / 2149.9 - 2159.8	240 W CW (UMTS) 100 W CW (GSM900, GSM1800)	573486

Basic - module	Description	Frequency range / MHz	Input power	BN-No.
	Multiplexer-Diplexer-Module 2x UMTS, 1x GSM900 (UMTS : Vodafone, T-Mobile . Germany)	1920.3 - 1930.2 / 2110.3 - 2120.2 1969.8 - 1979.7 / 2159.8 - 2169.7	100 W (UMTS) 250 W (GSM900)	573177
	Multiplexer Module 4x UMTS, 1 output (Vodafone, T-Mobile, O ₂ , E-Plus – Germany)	1920.3 - 1930.2 / 2110.3 - 2120.2 1969.8 - 1979.7 / 2159.8 - 2169.7 1940.1 - 1950.0 / 2130.1 - 2140.0 1959.9 - 1969.8 / 2149.9 - 2159.8	50 W per Input	573410

For technical data sheet or drawing – please click of product number (BN-no.)

Fiber Optic components:

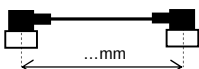
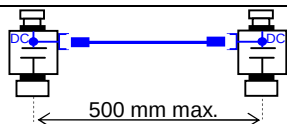
Basic - module	Description	Frequency range / MHz	Power	BN-No.
	Master Unit & Remote Unit; 3 Band Repeater System (GSM900/1800/UMTS)			573681
				573691

For technical data sheet or drawing – please click of product number (BN-no.)

Cabinets:

Basic - module	Description	Remark	BN-No.
	19" Rack (2200 mm)	47 RU (rack units)	A72318
	19" Rack (1600 mm)	34 RU	A72317
	19" Rack (1200 mm)	25 RU	A72316
	19" Rack (855 mm)	17 RU	A72315
	19" Rack (405 mm)	7 RU	A72314

Accessories:

Basic-module	Description	Remark	BN-No.
	Installation wrench	SW27	B05343
	Dummy plate	1 - 9 RU	B05971-79
	Connecting cable	130 – 1600 mm	B02964
	Installation Kit	2 Bias Tee BN756497 + cable	B07635
	Load 120 Ohms; 2 W	for AVV – simulation	157160
	Mounting kits for MNCS - components		62177

Reference List:**Germany:**

German Parliament - Home of President, Berlin	BN 573206
International Frankfurt Airport	BN 573207
Freeway Tunnel Meerbusch	BN 573208
Vodafone German Headquarters, Düsseldorf	BN 573216+17
International Airport Düsseldorf	BN 573218
Hotel Intercontinental Berlin	BN 573219
German Parliament	BN 573220
German Government-Home of Chancellor, Berlin	BN 573221
Convention Center Berlin	BN 573226
Rhein-Energie-Stadion, Düsseldorf	BN 573228
Beisheim Center, Berlin	BN 573229
Olympiastadion, Berlin	
Hotel Adlon Berlin	BN 573232
Hotel Estrel Berlin	BN 573235
New Stock Market, Berlin	BN 573236
German Government- Press and Information Office, Berlin	BN 573231+33+34

Abroad:

Keppler Bay Tower Building, Singapore	BN 573205
Parkview Square Building, Singapore	BN 573215
PTE Block 101, Singapore	BN 573223
Fairground Vienna, Austria	
Traffic tunnel Linz, Austria	
Exhibition Ground „Palexpo“ Geneva, Switzerland	BN 573180
Meadow Hall, Great Britain	BN 573266

Applications: Football-stadium MSV Mönchengladbach

Shared Antenna Network

- 4 UMTS-operator (8sectors each)
- 4 GSM1800-operators (8sectors each)
- 2 GSM900-operators (8sectors each)
- 8 common antenna-ports



coverage of the stadium stands



coverage of the stadium rooms

Applications: Football-stadium MSV Mönchengladbach

2 operation rooms

4 MNCS racks

1 common antenna network

