



# Antenna Subsystem

## Product Catalog

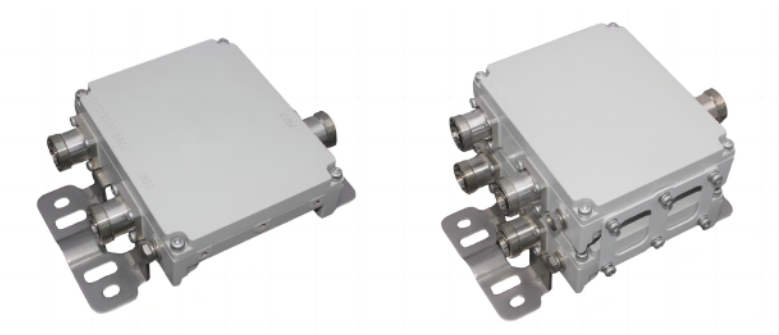


## DUAL BAND COMBINER (698-3800)

Model: 121.06383

### Product Features:

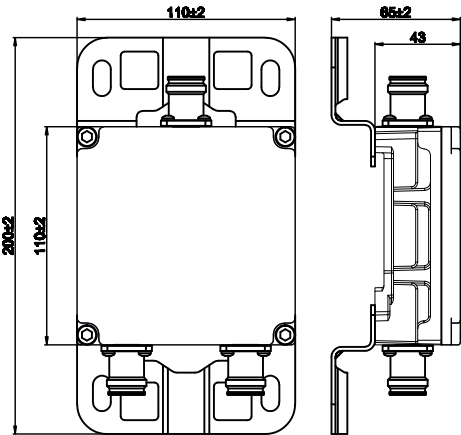
- 50 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical			Mechanical	
Frequency Range	698-2700 MHz	3300-3800 MHz	Operating Temperature	-40°C to +65°C
Insertion Loss	≤ 0.3 dB		Storage Temperature	-40°C to +85°C
Isolation	≥ 50 dB		Relative Humidity	0% - 95%
Return Loss/VSWR	≤ -19dB/1.25		Classification of Waterproof	IP67
PIM, 3rd Order	≤ -150 dBc(2 x 43 dBm carrier)		Dimensions (H x W x D)	110x110x44mm
Average Power, Maximum	300 W		Net Weight (with installation kit)	≤ 1.1kg
Impedance	50Ω		Connector	4.3-10 Female
DC/AISG	By-pass(max.3000mA)			
Lightning Protection	3KA; 10/350μs pulse			

### Outline Drawing:



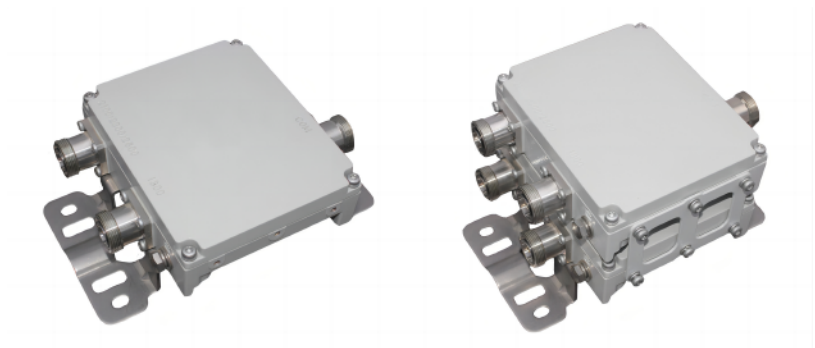


## DUAL BAND COMBINER (555-2700)

Model: 121.05273

### Product Features:

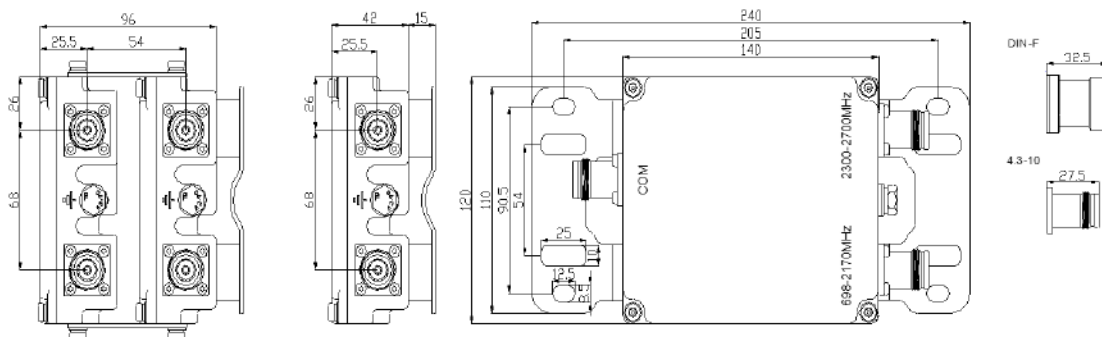
- 60 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical		Mechanical	
Frequency Range	555-2180 MHz 2300-2700 MHz	Operating Temperature	-20°C to +65°C
Insertion Loss	≤0.4 dB	Storage Temperature	-40°C to +85°C
Isolation	≥60 dB	Relative Humidity	5% - 95%
Return Loss/VSWR	≤-20dB/1.22	Classification of Waterproof	IP67
PIM, 3rd Order	≤ -155 dBc (2 x 43 dBm carrier)	Dimensions (H x W x D)	140x120x42mm
Average Power, Maximum	200 W	Net Weight (with installation kit)	≤1.2kg
Impedance	50Ω	Connector	4.3-10 Female
DC/AISG	By-pass(max.3000mA)		
Lightning Protection	10KA; 10/350μs pulse		

### Outline Drawing:



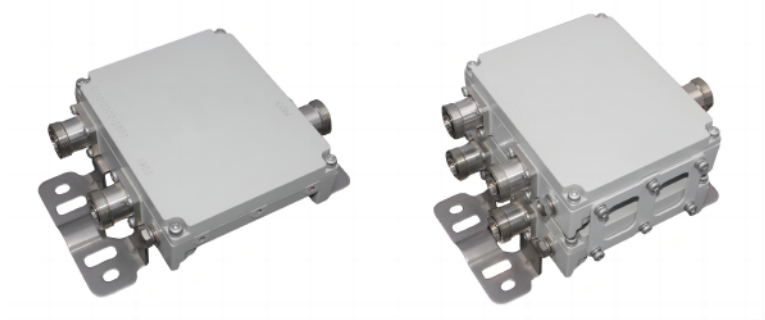


## DUAL BAND COMBINER (1710-2400)

Model: 121.17243

### Product Features:

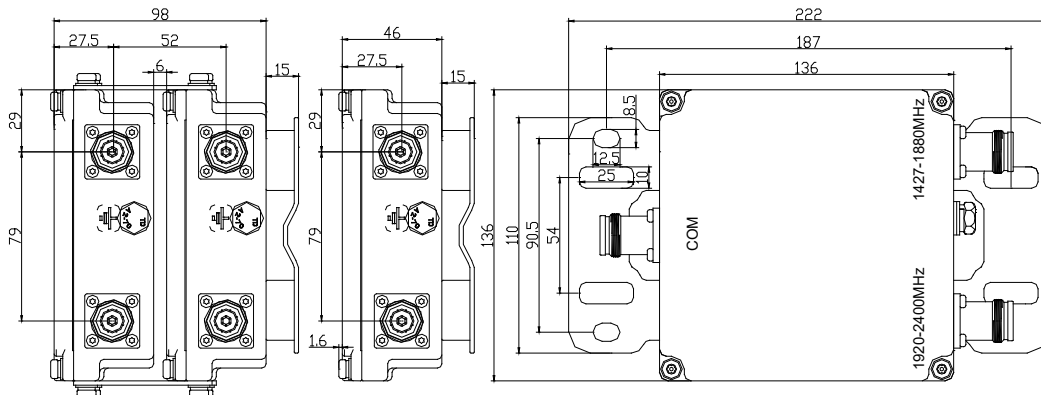
- 50 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical		Mechanical	
Frequency Range	1710-1880 MHz 1920-2400 MHz	Operating Temperature	-20°C to +65°C
Insertion Loss	≤0.4 dB	Storage Temperature	-40°C to +85°C
Isolation	≥50 dB	Relative Humidity	5% - 95%
VSWR	≤1.22	Classification of Waterproof	IP67
PIM, 3rd Order	≤ -160 dBc (2 x 43 dBm carrier)	Dimensions (H x W x D)	136x136x46mm
Average Power, Maximum	200 W	Net Weight (with installation kit)	≤1.4kg
Impedance	50Ω	Connector	4.3-10 Female
DC/AISG	By-pass(max.3000mA)		
Lightning Protection	10KA; 10/350μs pulse		

### Outline Drawing:



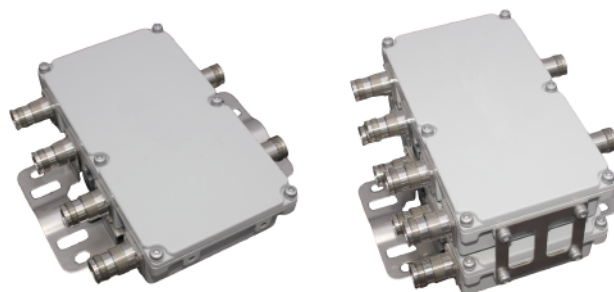


## DUAL BAND COMBINER (380-3700) DOUBLE UNIT

Model: 142.03373

### Product Features:

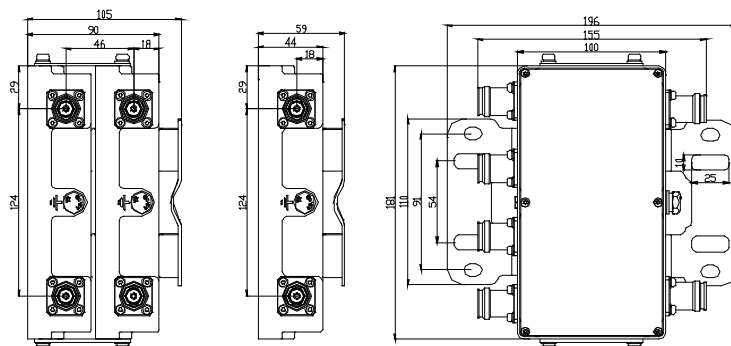
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical		Mechanical		
Frequency Range	Port1→ Port3 Port4→ Port6	380-960 MHz	Operating Temperature	-20°C to +65°C
	Port2→ Port3 Port5→ Port6	1710-3700 MHz	Storage Temperature	-40°C to +85°C
Insertion Loss	≤0.3 dB	Relative Humidity	5% - 95%	
Isolation	≥50 dB	Classification of Waterproof	IP67	
VSWR	≤1.22	Dimensions (H x W x D)	136x136x46mm	
Intermodulation	≤-155 dBc (with 2×20W)	Net Weight (with installation kit)	≤1.4kg	
Impedance	50 Ω	Connector	4.3-10 Female	
Input Power	≤100 W(avg.)			
DC/AISG	By-pass (max. 3000mA)			
Lightning Protection	10KA; 10/350μs pulse			
Connector	4.3-10 Female			

### Outline Drawing:



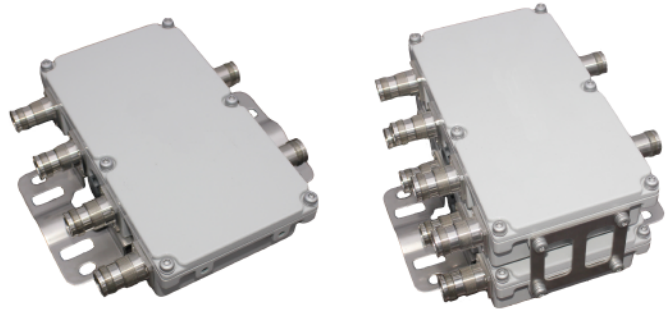


# DUAL BAND COMBINER (1800-2100/2600) DOUBLE UNIT

Model: 142.16273

## Product Features:

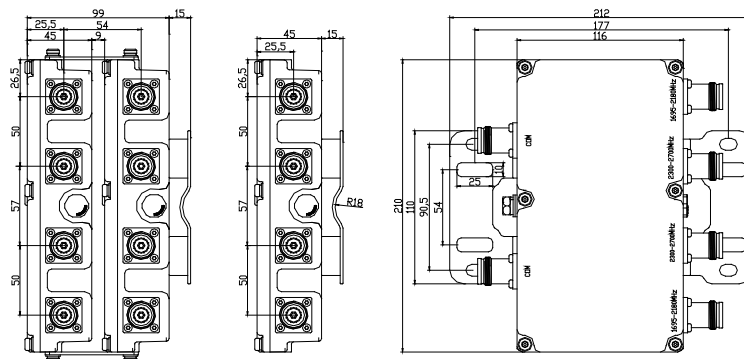
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



## Technical Specifications

Electrical		Mechanical		
Frequency Range	Port1→ Port3 Port4→ Port6	1695-2180 MHz	Operating Temperature	-20°C to +65°C
	Port2→ Port3 Port5→ Port6	2300-2700 MHz	Storage Temperature	-40°C to +85°C
Insertion Loss	≤0.4 dB	Relative Humidity	5% - 95%	
Isolation	≥50 dB	Application	Indoor or outdoor (IP67)	
VSWR	≤1.22			
Intermodulation	≤-155 dBc (with 2×20W)			
Impedance	50 Ω			
Input Power	≤200 W(avg.)			
DC/AISG	By-pass (max. 3000mA)			
Lightning Protection	10KA; 10/350µs pulse			
Connector	4.3-10 Female			

## Outline Drawing:



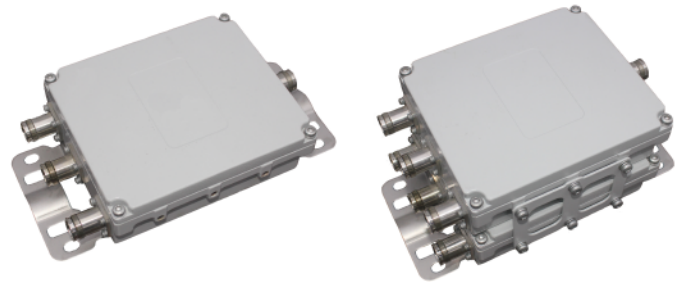


## TRIPLE BAND COMBINER (698-2700)

Model: 131.06273

### Product Features:

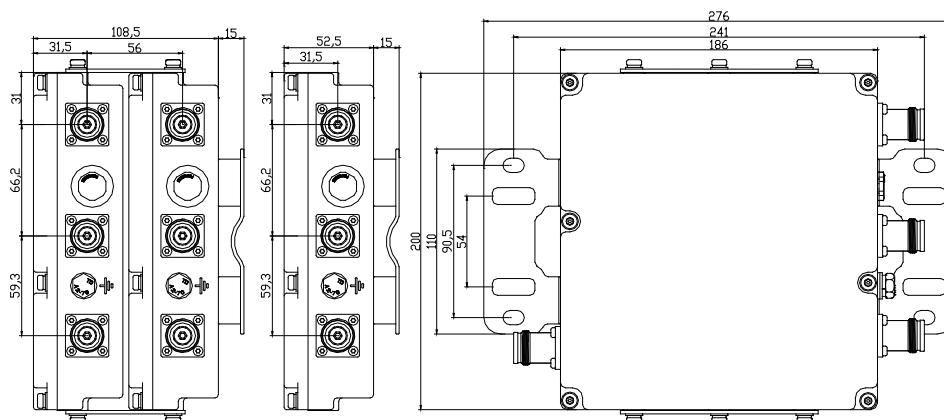
- 50 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical			Mechanical		
Frequency Range	698-862 MHz	880-960 MHz	1710-2700 MHz	Operating Temperature	-20°C to +65°C
Insertion Loss	≤0.4 dB			Storage Temperature	-40°C to +85°C
Isolation	≥50 dB			Relative Humidity	5% - 95%
VSWR	≤1.22			Classification of Waterproof	IP67
PIM, 3rd Order	≤ -160 dBc (2 x 43 dBm carrier)			Dimensions (H x W x D)	200x186x52.5mm
Average Power, Maximum	200 W			Net Weight (with installation kit)	≤3.3 kg
Impedance	50Ω			Connector	4.3-10 Female
DC/AISG	By-pass(max.3000mA)				
Lightning Protection	10KA; 10/350μs pulse				

### Outline Drawing:



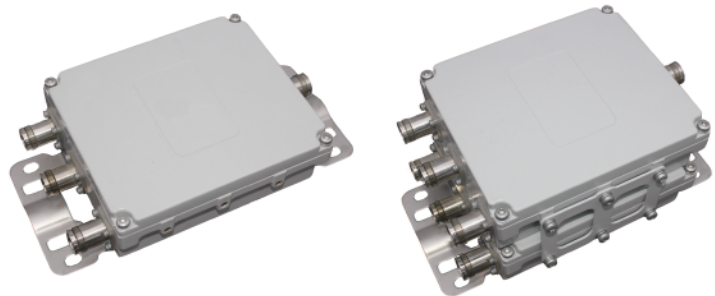


# TRIPLE BAND COMBINER (1710-2700)

Model: 131.17273

## Product Features:

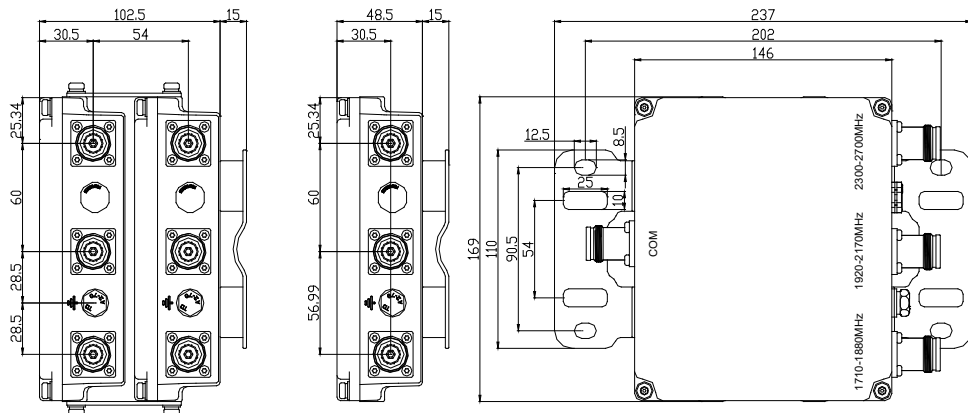
- 50 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



## Technical Specifications

Electrical			Mechanical		
Frequency Range	1710-1880 MHz	1920-2170 MHz	2300-2700 MHz	Operating Temperature	-20°C to +65°C
Insertion Loss	≤ 0.3 dB			Storage Temperature	-40°C to +85°C
Isolation	≥ 50 dB			Relative Humidity	5% - 95%
VSWR	≤ 1.22			Classification of Waterproof	IP67
PIM, 3rd Order	≤ -160 dBc (2 x 43 dBm carrier)			Dimensions (H x W x D)	169x146x48.5mm
Average Power, Maximum	200 W			Net Weight (with installation kit)	≤ 2.3 kg
Impedance	50Ω			Connector	4.3-10 Female
DC/AISG	By-pass(max.3000mA)				
Lightning Protection	10KA; 10/350μs pulse				

## Outline Drawing:





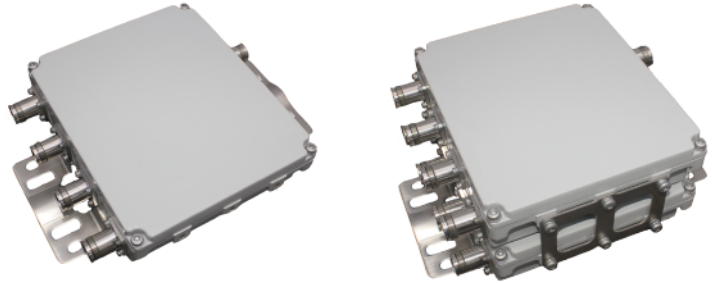


## QUAD BAND COMBINER (380-2700)

Model: 141.03273

### Product Features:

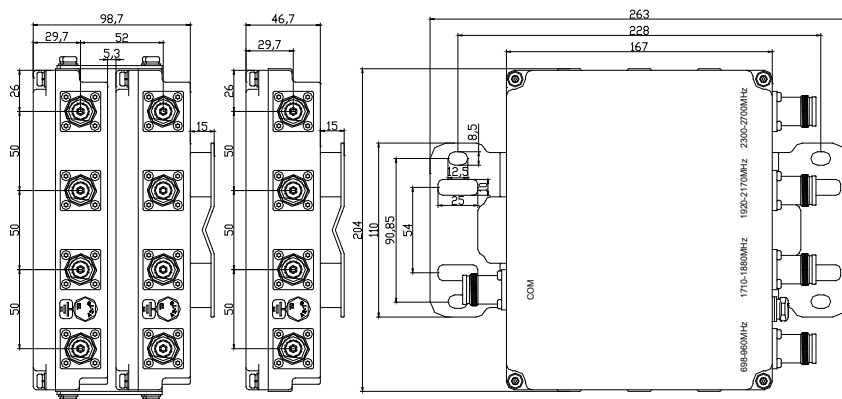
- 50 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical				Mechanical		
Frequency Range	380-960	1710-1880	1920-2170	2300-2700	Operating Temperature	-20°C to +65°C
Insertion Loss	≤0.35 dB				Storage Temperature	-40°C to +85°C
Isolation	≥50 dB				Relative Humidity	5% - 95%
VSWR	≤1.22				Application	Indoor or outdoor (IP67)
Intermodulation	≤-155 dBc (with 2×20W)					
Impedance	50 Ω					
Input Power	≤200 W (avg.)					
DC/AISG	By-pass (max. 3000mA)					
Lightning Protection	10KA; 10/350µs pulse					
Connector	4.3-10 Female					

### Outline Drawing:



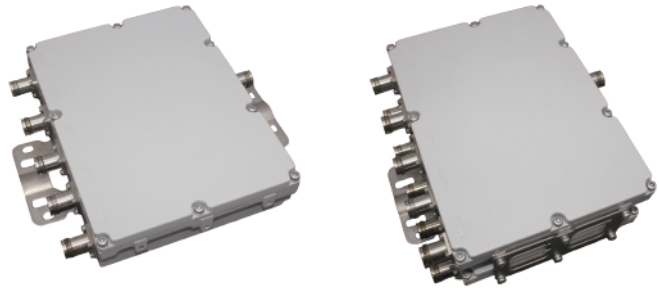


## PENTA BAND COMBINER (698-3800)

Model: 151.06383

### Product Features:

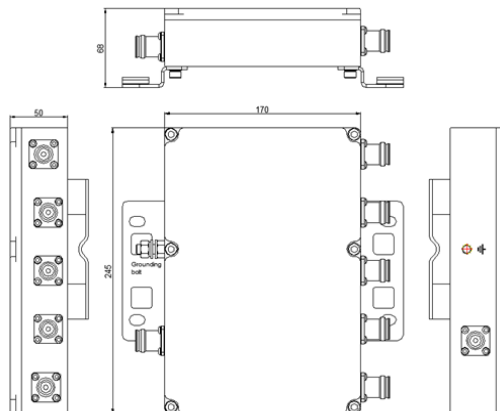
- 50 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical				Mechanical	
Frequency Range	698-960	1710-1880	1920-2170	Operating Temperature	-20°C to +65°C
	2300-2700	3300-3800		Storage Temperature	-40°C to +85°C
Insertion Loss	≤0.5 dB			Relative Humidity	5% - 95%
Isolation	≥50 dB			Classification of Waterproof	IP67
VSWR	≤1.25			Dimensions (H x W x D)	245x170x50mm
PIM, 3rd Order	≤ -150dBc(2 x 43 dBm carrier)			Net Weight (with installation kit)	≤3.5kg
Average Power, Maximum	300 W			Connector	4.3-10 Female
Impedance	50Ω				
DC/AISG	By-pass(max.3000mA)				
Lightning Protection	10KA; 10/350μs pulse				

### Outline Drawing:





## HEXA BAND COMBINER (698-3800)

Model: 161.06383

### Product Features:

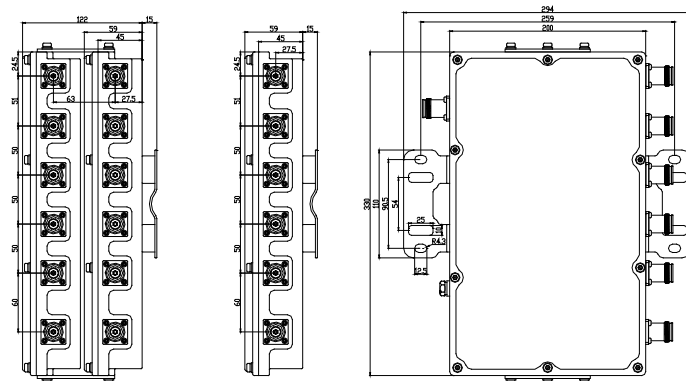
- 50 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical				Mechanical	
Frequency Range	698-806	824-960	1710-1880	Operating Temperature	-20°C to +65°C
	1920-2170	2300-2700	3300-3800	Storage Temperature	-40°C to +85°C
Insertion Loss	≤0.5 dB			Relative Humidity	5% - 95%
Isolation	≥50 dB			Classification of Waterproof	IP67
VSWR	≤1.3			Dimensions (H x W x D)	330x170x62mm
PIM, 3rd Order	≤ -150dBc(2 x 43 dBm carrier)			Net Weight (with installation kit)	≤3.5kg
Average Power, Maximum	300 W			Connector	4.3-10 Female
Impedance	50Ω				
DC/AISG	By-pass(max.3000mA)				
Lightning Protection	10KA; 10/350μs pulse				

### Outline Drawing:



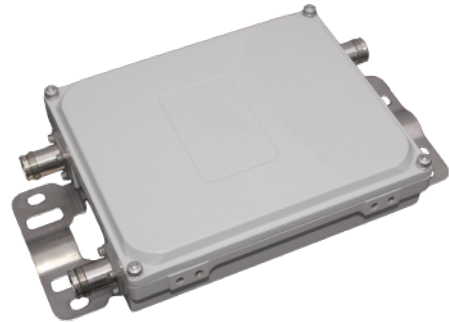


## SAME BAND COMBINER (1720-2170)

Model: 121.17213

### Product Features:

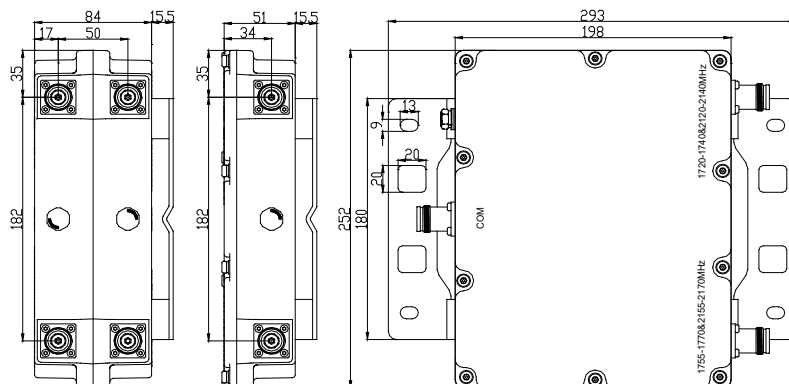
- 30 dB input isolation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical		Mechanical	
Frequency Range	1720-1740&2120-2140 MHz	Operating Temperature	-20°C to +65°C
	1755-1770&2155-2170 MHz	Storage Temperature	-40°C to +85°C
Insertion Loss	≤0.4 dB	Relative Humidity	5% - 95%
Isolation	≥30 dB	Classification of Waterproof	IP67
VSWR	≤1.22	Dimensions (H x W x D)	252x198x51mm
PIM, 3rd Order	≤ -160 dBc (2 x 43 dBm carrier)	Net Weight (with installation kit)	≤4
Average Power, Maximum	200 W	Connector	4.3-10 Female
Impedance	50Ω		
DC/AISG	By-pass(max.3000mA)		
Lightning Protection	10KA; 10/350μs pulse		

### Outline Drawing:





**BTS FILTER (890-960)**

Model: 209.08093

**Product Features:**

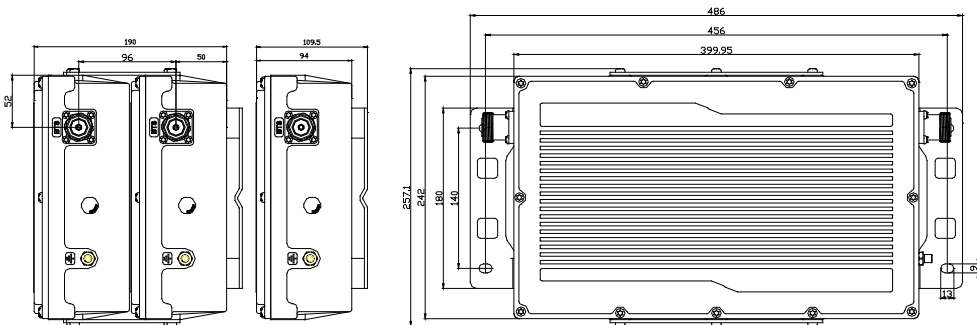
- Very low attenuation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



**Technical Specifications**

Electrical		Mechanical	
Frequency Range	890-915&935-960 MHz	Operating Temperature	-10°C to +55°C
Insert Loss	≤1.8 dB @890-892 ≤0.6 dB @893-915&935-960	Storage Temperature	-30°C to +75°C
Isolation	≥50 dB @888.5	Relative Humidity	5% - 95%
VSWR	≤-18dB/1.3	Classification of Waterproof	IP67
PIM, 3rd Order	≤ -160dBc (2 x 43 dBm carrier)	Dimensions (H x W x D)	400x242x94.5mm
Impedance	50Ω	Net Weight (with installation kit)	≤7.5 kg
Average Power, Maximum	200 W	Connector	4.3-10 Female
DC/AISG	By-pass(max.3000mA)		
Lightning Protection	10KA; 10/350μs pulse		
DC Pass	DC pass all		

**Outline Drawing:**





## BTS FILTER (1965-2170)

Model: 209.19213

### Product Features:

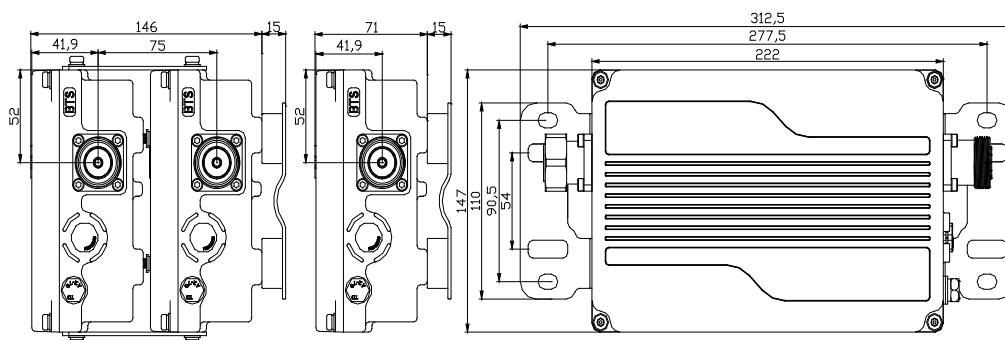
- Very low attenuation
- Very low insertion loss
- Excellent intermodulation performance
- Built-in lightning protection
- Wall or mast mounting



### Technical Specifications

Electrical		Mechanical	
Frequency Range	1965-1980&2155-2170 MHz	Operating Temperature	-10°C to +55°C
Insert Loss	≤1.8/0.5 dB	Storage Temperature	-30°C to +75°C
Isolation	≥50 dB @1985-2000	Relative Humidity	5% - 95%
VSWR	≤1.22	Classification of Waterproof	IP67
PIM, 3rd Order	≤ -160dBc (2 x 43 dBm carrier)	Dimensions (H x W x D)	222x147x71mm
Impedance	50Ω	Net Weight (with installation kit)	≤2.2kg
Average Power, Maximum	200 W	Connector	4.3-10 Female
DC/AISG	By-pass(max.3000mA)		
Lightning Protection	10KA; 10/350μs pulse		
DC Pass	DC pass all		

### Outline Drawing:



## TMA1800/2100 DOUBLE UNIT 4BTS4ANT (1710-1980)

Model: T42.17193

### Product Features:

- Double units for easy use with XPol antennas
- Support AISG 2.0
- Suitable for antenna RET control according to AISG/3GPP standard
- By-pass mode to ensure cell operation in case of DC power down
- Built-in lightning protection



### Technical Specifications

RX		
Frequency Range	1710 to 1785 MHz	1920 to 1980 MHz
Bandwidth	75MHz	60 MHz
Gain	12dB±1dB	12dB±1dB
Gain Fluctuation@25°C	1.5dB max	1.5dB max
Noise Figure@25°C	1.6dB typical 1.85dB max	1.55dB typical 1.75dB max
Return Loss in Normal	18dB min	18dB min
Max Input Power	<12dBm	<12dBm
Output 1dB Compression	>12dBm	>12dBm
Insert Loss in By-Pass	2.5dB typical, 2.8dB max	2.4dB typical, 2.7dB max

TX		
Frequency Range	1805 MHz to 1880 MHz	2110 MHz to 2170 MHz
Bandwidth	75MHz	60 MHz
Insert Loss @25°C	0.50dB typical, 0.60dB max	0.30dB typical, 0.50dB max
Average Power	180W	180W
Peak Power	1.6KW	1.6KW
Intermodulation Products in RX Band (2 Tx Carriers At +43 dBm)	$\leq -160\text{dBc}$ (Power up) @ANT IM3 $\leq -150\text{dBc}$ (Power up) @BTS IM3	$\leq -160\text{dBc}$ (Power up) @ ANT IM7 $\leq -150\text{dBc}$ (Power up) @BTS IM7



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