



# (700) 800, 900, 1800, 2100, (2300) 2600 Low Loss Multi-operator POI Combiner

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## Overview

CCI's 694-2690MHz Multi-operator, multi-Band Point of Interface Combiner System is a highly efficient, power saving solution which combines up to 4 wireless operators within each of five operating bands to common outputs which may be fed to antenna feeds or distribution cables. Through the use of multiplexers and hybrid coupler matrices, the combiner offers optimal low loss per channel of approx 1.5dB. Internal hybrid combiners enable all spectrum to be used for each operator.

The input ports are arranged such that they can be left unterminated in the event of not all being required. POIs can be stacked in a rack system should there be MIMO or additional requirements. The output for the POI is designed to provide 4 x fully combined outputs. Each carrying quarter of the total input power. This has many advantages—firstly environmentally, as Base Stations can be reduced in power, thus saving utility costs. All the RF power is available at the outputs. The 4 outputs can then be used as the first stage distribution to regions of the DAS system. If fewer than 4 outputs are required then a termination load can be applied to the non-used common port.

The inputs can be arranged to be future-proof for the new spectrums of 700 Band and 2300 Band. Low PIM Components enable a low PIM performance, essential for the combiner which has a mix of channels and spectrum.

The input ports are rated for high power, to help operators maintain RF power into the DAS system. Any unused ports need to be terminated with a 50 ohm load.

Isolation between inputs in the same band is minimum 30dB and between bands >45dB.

System is configured for standard 19" rack units. All ports on the front panel for ease of connection. Fully tested and assembled for simple plug and play with operator inputs. All connectors DIN standard, either 7.16 or 4.3-10.

Model: CCI-COM20x4-0727

**Combines  
4 operators  
across 5 bands to  
enable common  
shared outputs.  
Neutral host  
solution for  
multiple operators**

## Features:

- 4 inputs per band for 800, 900, 1800, 2100 and 2600 Bands
- Low PIM performance
- High Power Capability
- Minimum Loss, all power maintained
- Modular design
- Flexible port usage
- Future-proof for new spectrum (700 and 2300)
- High Reliability, RoHS Compliant
- Convenient Front Connector placement

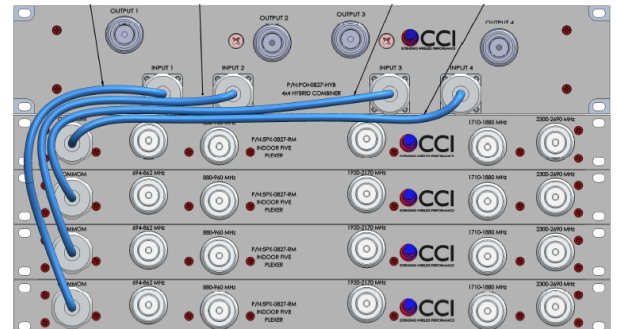
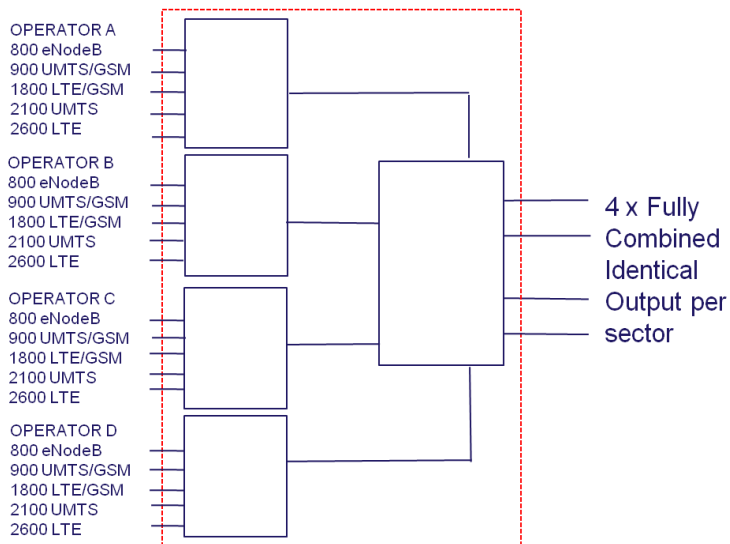
## Electrical Specifications

Passband—Inputs	4 inputs 694—862 MHz 4 inputs 880-960 MHz 4 inputs 1710-1880 MHz 4 inputs 1920-2170MHz 4 inputs 2300-2690MHz (Full Band - with Op Bands 2300-2400 & 2500-2690 MHz)
Outputs	4 output 694-2690MHz
Composite Power Loss	1.5dB +/- 0.2dB
Total Loss (input port to single output port)	7.6dB +/- 0.9dB
Pass band Flatness (Ripple)	Less than 1dB variation within any 5MHz bandwidth
VSWR at input ports	Better than 1.4:1
Isolation in same band Isolation between bands	30dB min 45dB min
Power Handling per Input	Average 60W per port, but can have up to 80W per port, provided do not exceed 300W per Operator
IM3	-160 dBc typ, (min -155dBc) 2 x 20 W carriers

## Low Loss Combiner for Multi Operator Sharing

Common Specifications	
RoHS	Compliant
Housing Material	Passivated Aluminium
Impedance	50 Ohms
Operating Temperature	-10 to +65 deg. C
Connectors	7.16 or 4.3-10 DIN
Dimensions (excl connectors)	19" rack mount, 6U high, <220mm deep
Individual modules	Pentaplexer 44 x 443 x 203mm deep (1U, 19") 6kg Hybrid Matrix 89 x 443 x 203mm deep (2U, 19") 8kg

**Schematic Diagram of Combiner — showing modules which are used for the Point of Interface**



- Operator ports are flexible, technology agnostic, and if not all need to be used, then can leave unterminated
- All outputs are fully combined, and if fewer than four are required, then a Low PIM Load can be used
- High Power Low PIM Termination Loads can be provided for any unused output ports on the POI
- All Ports are fully duplexed Tx/Rx
- Wideband ports can accommodate RF spectrum from different bands. For instance a Diplexer for 2300 and 2600 can be used to combine services into the 2300-2690MHz port
- DIN Connectors are provided on the POI—these can be either 7.16 or 4.3-10 to be specified with order
- Modular for simple assembly and connection, individual modules easily hand carried to site