

# TMA2009F5V3-1

## TWIN TMA 2100 LOWPASS

A full Band 2100MHz tower mounted amplifier the Kaelus TMA2009 provides gain at 2100MHz with a 800/850/900MHz bypass with internal duplexing of these bands on the BTS side of the amplifier. Potentially saving both capital and operational expense the TMA2009 provides the following features and benefits:



### FEATURES

- Twin dual duplex configuration with low frequency bypass perfect for co-located 2100MHz UMTS and 800/850/900MHz systems
- Improved BTS performance through excellent noise figure performance
- Hardware & software configurable using AISG “personality” upload

### TECHNICAL SPECIFICATIONS

2100 DOWNLINK (TX) PATH	
Passband	2110 - 2170MHz
Insertion loss	0.5dB maximum
Maximum input power with no damage	100W (average) / 1kW (PEP) (maximum at sea level)
Intermodulation @ antenna ports	-160dBc maximum in RX band with 2x 43dBm TX carriers, BTS port
Insertion loss variation	0.2dB max across pass band, 0.1dB max any 5MHz
TX filter rejection in RX band	60dB minimum
Rejection @ 800 - 960MHz	> 75dB
Rejection @ 1805 - 1880MHz	> 65dB
Rejection @ 2010 - 2025MHz	> 25dB
Rejection @ 2400 - 2700MHz	> 65dB
Rejection @ 2700 - 2900MHz dB	> 75dB
2100 UPLINK PATH (RX LNA MODE)	
Passband	1920 - 1980MHz
Nominal gain	12 ± 1dB
Gain variation over frequency, temperature	Frequency = ± 0.3dB maximum Temperature = ± 0.35dB maximum
Noise figure	1.2dB typical, 1.5dB maximum at 25°C, 1.7dB maximum at 60°C
Return loss	14dB minimum in bypass mode
Insertion loss	3.5dB typical bypass mode
Group delay variation	10ns maximum per 5MHz
Output IP3	+22dBm minimum
Maximum input power with no damage	+12dBm
Rejection in RX input filter @ 2110 - 2170 MHz	> 68dB
Rejection @ 800 - 960 MHz	> 75dB
Rejection @ 1805 - 1880MHz	> 65dB
Rejection @ 2010 - 2025MHz	> 45dB
Rejection @ 2400 - 2700MHz	> 65dB
Rejection @ 2700 - 2900MHz dB	> 75dB

800/900 BYPASS PATHS	
Passband	790 - 960MHz
Insertion loss	0.3dB maximum
Maximum input power with no damage	100W (average) / 500W (PEP) (maximum at sea level)
Intermodulation @ antenna ports	-155dBc maximum with 2 x 43dBm TX Carriers, BTS port
Attenuation in 1920 - 1980 / 2110 - 2170MHz	50dB minimum

ELECTRICAL	
Impedance	50ohms
Return loss	18dB minimum (VSWR <1.3)

POWER SUPPLY AND ALARM (CURRENT WINDOW ALARM MODE, DEFAULT)	
Current window alarm mode (CWA) is the default TMA operating mode and can be configured to specific customer requirements. The generic personality (F00V1) is configured so that both channels are independently powered and monitored via the respective BTS port. The BTS port sinks additional current to indicate an alarm state in its uplink path. Normal operating and alarm current values are configured independently via a field-loadable personality file, Please contact Kaelus for more information.	
DC supply voltage	+9 to 30V DC
DC supply current, normal mode	BTS0 = 100mA (F5V3 variant) BTS1 = 100mA (F5V3 variant)
DC supply current, alarm mode	50/50 duty cycle pulsed between 100/160mA (F5V3 variant)

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)	
AISG signals can be applied to either BTS1 or BTS2 ports. The TMA2009FxxV3-1 unit switches to AISG mode when valid frames are detected on one of the BTS ports. Both LNAs take DC power from the port with AISG frames or, if DC is present on both ports, both channels supply equal power to the TMA2009FxxVx-1.	
AISG version	2.0 (1.1 optional)
Supply current, AISG mode	80mA at 30V, 155mA at 12V typical
Voltage drop, BTS to AISG port	1.5V maximum at 2A
Power consumption, AISG mode	2.4W @ 30V, 1.9W @ 12V typical
AISG connector, current rating	IEC60130-9, 8-pin female, < 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes

ENVIRONMENTAL	
For further details of environmental compliance, please contact Kaelus.	
Temperature range	-40° to +65°C   -40° to +140°F
Ingress protection	IP67
Lightning protection	IEC61312-1, RF: 3 kA, 10/350 us
MTBF	>700,000 hours
Compliance	RoHS

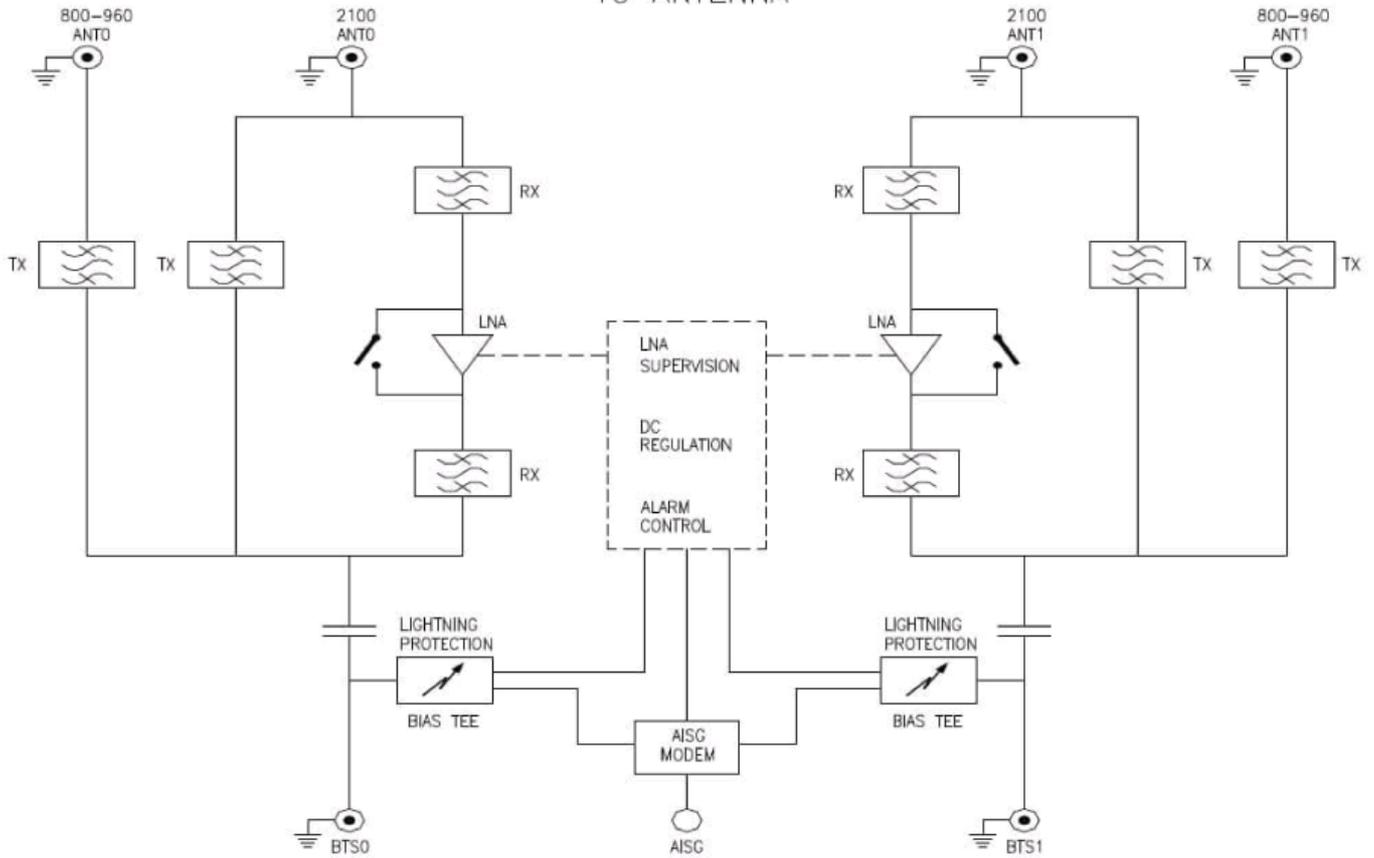
MECHANICAL	
Dimensions H x D x W	278 x 169 x 79mm   10.94 x 6.65 x 3.11in (excluding brackets and connectors)
Weight	7.5kg   16.53lbs
Finish	Painted, light grey (RAL7035)
Connectors	DIN 7-16 (F) x 6 long shank
Mounting	Pole/wall bracket supplied with two metal clamps 45-178mm diameter poles

## ORDERING INFORMATION

PART NUMBER	DESCRIPTION
xx denotes customized CWA configurations	
TMA2009F5V3-1	Twin TMA, 2100MHz with 790-960 bypass and AISG, pulsed current in alarm state
TMA2009F00V3-1	Twin TMA 2100MHz with 790-960 bypass and AISG, generic CWA configuration
TMA2009FxxV3-1	Twin TMA, 2100MHz with 790-960 bypass and AISG

**ELECTRICAL BLOCK DIAGRAM**

TO ANTENNA



**MECHANICAL BLOCK DIAGRAM**

