Radios

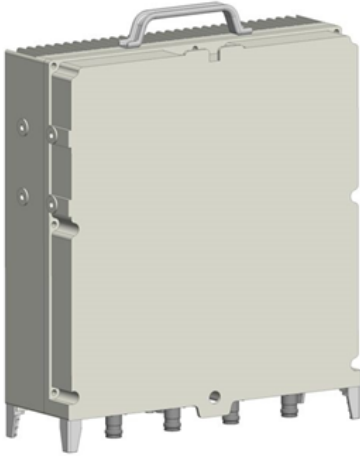## Multi-Band (b12, b13 and n71) ORU

DATA SHEET

ORU-B12B13N71-Z07-2

- Multi-Band ORU supports Band A (b12), Band B (b13) and Band C (n71) each up to 4T4R
- 4 Low Band Antenna ports supporting b12, b13 and n71
- Radio supports both LTE and 5G NR, with a maximum output power of up to 60 watts per port
- Two 10G eCPRI ports for Distributed Unit (DU) communication
- 3GPP Release 15
- AISG 2.0 RET control
- High reliability of >150K Hours MTBF

Overview

CCI's Multi-Band, b12, b13 and n71, 4G and 5G enabled ORAN Radio Unit (ORU) is compliant with the ORAN interface specifications supporting the 7.2x split network configuration and supports Open Radio Access Network (ORAN) interface. The RU comes equipped with two 10G eCPRI optical interface port to communicate with the Distributed Unit (DU) for fronthaul network interfacing. This compact, multi-band, multi-technology ORU provides a standard open interface to other ORAN compliant vendor CU/DU, EMS, 5GC, and OSS products. Furthermore, it also supports the specifications set out in 3GPP Release 15.

DS-ORUB12B13N71Z072-V1.0-240605

SPECIFICATIONS

Multi-Band (b12, b13 and n71) ORU

ORU-B12B13N71-Z07-2

Electrical Specification

RF Parameters	Band A	Band B	Band C
3GPP Band	b12	b13	n71
Uplink (UL)	698-715 MHz	777-787 MHz	663-698 MHz
Downlink (DL)	728-746 MHz	746-756 MHz	617-652 MHz
DL/UL Branches	4T4R	4T4R	4T4R
Antenna Ports	4 available	4 available	4 available
Carrier Bandwidth 5G NR	5 or 10 MHz	5 MHz	10 MHz
Carrier Bandwidth LTE	5 or 10 MHz	5 MHz	10 MHz
Output Power	4 × 60 W	4 × 60 W	4 × 60 W
Number of Carriers	1CC	1CC	1CC

General Characteristics	
Voltage Range	-40.5 VDC to -57.0 VDC
RAT	LTE/5G NR
Duplex	FDD
SCS	15 KHz / 30 KHz
RET	AISG 2.0 with RS485 option only
External Alarm	2 pairs
Front-haul interface	Split Option 7.2
SFP+ line rate	10.3125 Gbps

Environmental Specification

Operating Temperature	-40˚C to +55˚C
Ingress Protection	IP65
MTBF	150,000 hours

Mechanical Specification

Model	ODU-B12B13N71-Z07-2
Color	RAL7047
Dimensions w/o handler	400 × 415 × 156.5 mm
Weight w/ handler	26 kg ±5%

Multi-Band (b12, b13 and n71) ORU
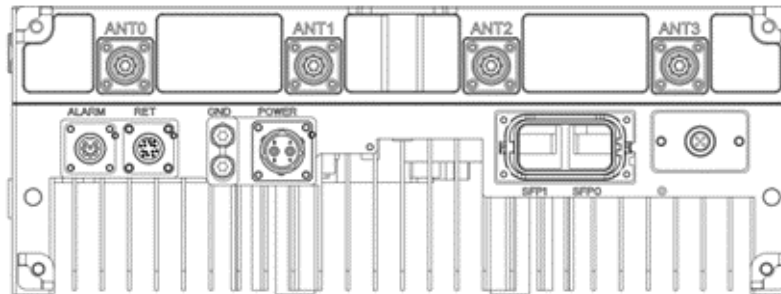
ORU Interface Panel

Front Panel & Logical Port Mapping

Front Panel & Logical Port Mapping	Description	Logical	TX	RX
ANT0	N12/N13/N71 DL/UL	T0/R0	B12 T0/B13 T0	B12 RX0/N71 RX0
ANT1	N12/N13/N71 DL/UL	T1/R1	B12 T1/B13 T1	B12 RX1/N71 RX1
ANT2	N12/N13/N71 DL/UL	T2/R2	B12 T2/B13 T2	B12 RX2/N71 RX2
ANT3	N12/N13/N71 DL/UL	T3/R3	B12 T3 /B13 T3	B12 RX3/N71 RX3
ANT0	N12/N13/N71 DL/UL	T4/R4	B71 T0	B13 RX0
ANT1	N12/N13/N71 DL/UL	T5/R5	B71 T1	B13 RX1
ANT2	N12/N13/N71 DL/UL	T6/R6	B71 T2	NB13 RX2
ANT3	N12/N13/N71 DL/UL	T7/R7	B71 T3	B13 RX3
ALARM	External alarm ports can be connected to 2 pairs of alarm inputs			
RET	Control signal and DC port connected to RET etc.			
SFP0 & SFP2	Optical Ports			
POWER	Power Supply DC Input			
GND	Radio Grounding Port			
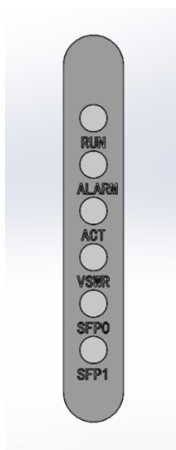
LED Overlay

- "Run" LED stands for power supply status, turns green if radio power is on.
- "Alarm" LED turns red if a radio alarm is generated.
- "ACT" LED turns green if a down link channel is enabled.
- "VSWR" LED turns red if a mismatch alarm is generated.
- "SFP0/SFP1" turns green if an optical signal link is up, turns red if signal link is down.

LED Overlay

DS-ORUB12B13N71Z072-V1.0-240605

SPECIFICATIONS   Multi-Band (b12, b13 and n71) ORU   ORU-B12B13N71-Z07-2

Specification	Detail	Value
Power Consumption	25 degree with 100% Load	850 W
	25 degree with 50% Load	590 W
	25 degree with 30% Load	450 W
	25 degree with 10% Load	230 W
	100% load with operating temperature	900 W
DL Performance	Per port Output Power	48 dBm max
	Power Accuracy in Normal Test Environment	-1.2 dB to 0.5 dB
	Power Accuracy in Extreme Test Environment	-2.5 dB to 0.5 dB
	EVM: QPSK	17.5% max
	EVM: 16QAM	12.5% max
	EVM:64QAM	8.0% max
	EVM: 256QAM	3.5% max
UL Performance, Reference Sensitivity Level	N12/B12 in normal environment	-105.6 dBm typical
	N13/B13 in normal environment	-105.6 dBm typical
	N71/B71 in normal environment	-105.6 dBm typical
Main Function Features	Remote Electrical Tilt	Based on AISG 2.0 protocol and o-ran-ald.yang model to communication with the external RET equipment
	Voltage Standing Wave Ratio Detection	Support VSWR detection for each RF port to check antenna connectivity, there are two types of VSWR alarms: Minor VSWR alarm, RU will keep radiating, the service would be degraded. Critical VSWR alarm, RU would shut off corresponding RF branch.
	External Alarm	Support external device supervision, RU would monitor external alarm port state and send notification to O-RU controller based on o-ran-externalio.yang model when input port state is changed (circuit from open to closed or circuit from closed to open). RU can also report external alarm to O-RU controller once input port circuit from open to closed via customized fault.
	Cascading	Not Supported
	Security	Support TPM2.0
	PAP	Support PA protection functions, including the scenario: SFP port abnormal disconnect External Power supply abnormal Abnormal signal generated

STANDARDS & CERTIFICATIONS

Multi-Band (b12, b13 and n71) ORU

ORU-B12B13N71-Z07-2

Parts & Accessories

ORU-B12B13N71-Z07-2	Multi-Band ORU supports Band A (b12), Band B (b13) and BAnd C (n71) each up to 4T4R

Standards & Compliance

RF Performance, BS TX & RX	3GPP TS 37.104 V15.16.0, ETSI TS 137 104 V15.16.0
RF Performance, Conformance Testing	3GPP TS 37.141-1 V15.16.0, ETSI TS 137 141-1 V15.16.0
RF Performance, IC Radio Equipment standards	IC RSS-139 Issue 3, IC RSS-133 Issue 3
EMC	ETSI EN 301 489-1 V2.2.3:2019*, ETSI EN 301 489-50 V2.3.1:2021*, 3GPP TS 37.113 V15.7.0:2019*, 3GPP TS 38.113 V15.7.0:2019*, CISPR 32, IEC 61000-4-3, IEC 61000-4-6, IEC 61000-4-4, IEC 61000-4-5
Environmental, Storage	EN 300 019-2-1
Environmental, Climatic and Mechanical Tests	EN 300 019-2-4
Environmental, Ingress Protection	JIS C0920 IPX5, JIS C0920 IP6X, IEC 60529 IPX5, IEC 60529 IP6X
Environmental, Earthquake	Telcordia GR-63-CORE, Zone 4
Environmental, Transportation	EN 300 019-2-2, IEC 60721-3-2, JIS Z0200:2003
Environmental, Altitude	JIS C 60068-2-13
Environmental	Telcordia GR-487-CORE
ORAN Interface	ORAN WG4.CUS, ORAN WG4.MP
RoHS	Directive 2011/65/EU and amendment 2015/863/EU
Safety	IEC 60950-1, IEC 60950 -22, IEC 60825-1 , EN 50383/4/5
AISG	AISG 2.0
RoHS	Directive 2011/65/EU and amendment 2015/863/EU
ORAN Interface	CUS plane ORAN.WG4.CUS, M plane ORAN.WG4.MP

Certifications

Antenna Interface Standards Group (AISG), ISO 9001

89 Leuning Street | South Hackensack NJ 07606 | 201-342-3338 | www.cciproducts.com

Revision 1.0   5

DS-ORUB12B13N71Z072-V1.0-240605