DATA SHEET

Dual Band (n3 and n28A) ORU

ORU-N3N28A-Z03-2

- Dual Band ORU supports Band A (n3) up to 4T4R and Band B (n28A) up to 2T4R
- 8 Antenna ports 4 Low Band n28A and 4 Mid-Band n3
- Radio supports both LTE and 5G NR, with a maximum output power of 40 watts per port
- Two 10G eCPRI ports for Distributed Unit (DU) communication
- 3GPP Release 15
- AISG 2.0 RET control
- High reliability of >219K Hours MTBF

Overview

CCI's Dual Band, n3 and n28A, 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.

SPECIFICATIONS

Dual Band (n3 and n28A) ORU

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Electrical Specification

RF Parameters	Band A	Band B
3GPP Band	n3	n28A
Uplink (UL)	1710-1785 MHz	715-748 MHz
Downlink (DL)	1805-1880 MHz	770-803 MHz
DL/UL Branches	4T4R	2T4R
Antenna Ports	4	4
Max IBW	75 MHz	33 MHz
Max Occupied BW	75 MHz	33 MHz
Carrier Bandwidth 5G NR	10, 20, 30, or 40 MHz	5, 10, 15, or 20 MHz
Carrier Bandwidth LTE	10 or 20 MHz	3, 5, 10, 15, or 20 MHz
Output Power	4 x 40 W	2 x 40 W
Number of Carriers	≤ 2	≤ 2

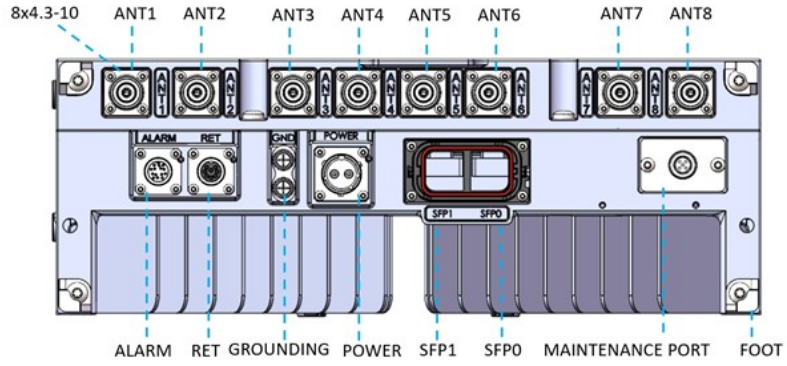
General Characteristics	
Voltage Range	-36 VDC to -58.5 VDC
RAT	LTE/5G NR
Duplex	FDD
SCS	15 KHz / 30 KHz
RET	AISG 2.0 with RS485 option only
External Alarm	4 pairs
Front-haul interface	Split Option 7.2
SFP+ line rate	10.3125 Gbps

Environmental Specification

Operating Temperature	-40˚C to +55˚C
Ingress Protection	IP65
MTBF	219,000 hours

Mechanical Specification

Model	ODU-N3N28A-Z03-2
Color	RAL7047
Dimensions w/Bracket	390 x 350 x 138 mm
Weight	18 kg ±0.5%

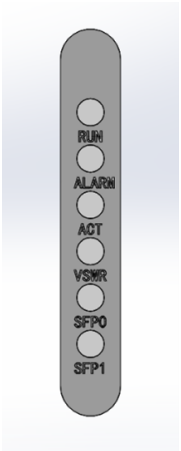


ORU Interface Panel

Front Panel & Logical Port Mapping

Front Panel & Logical Port Mapping	Description	Logical	TX	RX
ANT1	n3 DL/UL	T0/R0	n3 T0	n3 RX0
ANT2	n3 DL/UL	T1/R1	n3 T1	n3 RX1
ANT3	n3 DL/UL	T2/R2	n3 T2	n3 RX2
ANT4	n3 DL/UL	T3/R3	n3 T3	n3 RX3
ANT5	n28A DL/UL	T4/R4	n28A T0	n28A RX0
ANT6	n28A DL/UL	T5/R5	n28A T1	n28A RX1
ANT7	n28A DL/UL	T6/R6	n28A T2	n28A RX2
ANT8	n28A DL/UL	T7/R7	n28A T3	n28A RX3
ALARM	External alarm ports can be connected to 4 pairs of alarm inputs			
RET	Control signal and DC port connected to RET etc.			
SFP0 & SFP1	Optical Ports			
POWER	Power Supply DC Input			
GND	Radio Grounding Port			

LED Overlay



LED Overlay

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

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Specification	Detail	Value
Power Consumption	25 degree with 100% Load	800 W
	25 degree with 50% Load	550 W
	25 degree with 30% Load	430 W
	25 degree with 10% Load	260 W
	ETSI 24Hour Average	425 W
DL Performance	Per port Output Power	46 dBm max
	Power Accuracy in Normal Test Environment	-1 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	n3 NF in normal environment	2.2 dB typical, 2.6 dB max
	n3 NF in extreme environment	2.6 dB typical, 3.0 dB max
	n28A NF in normal environment	2.4 dB typical, 2.8 dB max
	n28A NF in extreme environment	2.8 dB typical, 3.2 dB max
Main Function Features	Remote Electrical Tilt	Based on AISG2.0 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

Dual Band (n3 and n28A) ORU

ORU-N3N28A-Z03-2

Parts & Accessories

ORU-N3N28A-Z03-2	Dual Band ORU supports Band A (n3) up to 4T4R and Band B (n28A) up to 2T4R

Standards & Compliance

RF Performance, BS TX & RX	3GPP TS 38.104 V15.16.0, 3GPP TS 37.104 V15.16.0, ETSI TS 138 104 V15.16.0, ETSI TS 137 104 V15.16.0
RF Performance, Conformance Testing	3GPP TS 38.141-1 V15.16.0, 3GPP TS 37.141-1 V15.16.0, ETSI TS 138 141-1 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
RF Performance,	EN 60950-1, UL 60950-1
RF Performance,	EN 60950-1, UL 60950-1
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

Certifications

Antenna Interface Standards Group (AISG), ISO 9001