DATA SHEET

Single Band n28 ORU

ORU-N28-Z01-2

- Single Band ORU supports both LTE and 5G NR for Band n28 up to 2T4R
- Four antenna ports shared across the n28 band
- Supports 2T4R for Band n28, with a maximum output power of 40 watts per port
- Two 10G CPRI ports for Distributed Unit (DU) communication
- 3GPP Release 15
- AISG 2.0 RET control, upgradeable to AISG 3.0
- High reliability of 438K Hours MTBF

Overview

CCI's n28 Band 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 CPRI 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

Single Band n28 ORU

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Electrical Specification

RF Parameters	N28 Band
3GPP Band	n28
Uplink (UL)	713-748 MHz
Downlink (DL)	768-803 MHz
DL/UL Branches	2T4R
Antenna Ports	4
Tx Monitor Ports Coupling Factor	-40 ±0.7 dB
Max IBW	35 MHz
Max Occupied BW	35 MHz
Carrier Bandwidth 5G NR	5, 10, or 20 MHz
Carrier Bandwidth LTE	3, 5, 10, or 20 MHz
DL Modulation	≤1024QAM
UL Modulation	≤256QAM
Output Power	46 dBm per port max, 49 dBm in total
Number of Carriers	2xLTE/NR+1xGB NBIOT

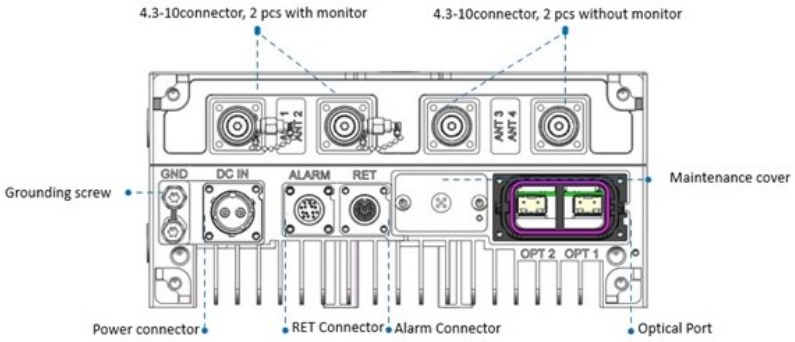
General Characteristics	
Voltage Range	-40.5 VDC to -58.5 VDC
RAT	LTE/5G NR/GB NBIOT
Duplex	FDD
SCS	15 KHz / 30 KHz
RET	AISG 2.0 with RS485 option only, Upgradeable to AISG 3.0
External Alarm	4 pairs
Front-haul interface	Split Option 7.2
SFP+ line rate	10.3125 Gbps

Environmental Specification

Operating Temperature	-40˚C to +55˚C
Ingress Protection Unit/Tx Monitor Ports	IP65/IP67
MTBF	438,000 hours @25 °C

Mechanical Specification

Model	ODU-N28-Z01-2
Color	RAL7047
Dimensions w/Bracket	310 × 260 × 120 mm
Weight	10 ±0.5 kg



ORU Interface Panel

Front Panel & Logical Port Mapping

Front Panel	Description	Connector
ANT1	RF port connected to antenna; TX monitor function integrated.	4.3-10 Female, with integrated TX monitor port
ANT2	RF port connected to antenna; TX monitor function integrated.	4.3-10 Female, with integrated TX monitor port
ANT3	RF port connected to antenna; without TX monitor function integrated.	4.3-10 Female, without integrated TX monitor port
ANT4	RF port connected to antenna; without TX monitor function integrated.	4.3-10 Female, without integrated TX monitor port
External Alarm	External alarm ports can be connected to 4 pairs of alarm inputs	14 pin Circular connector
RET	Control signal and DC port connected to RET etc.	8 pin Circular AISG connector
OPT1 & OPT2	Optical Ports	SFP+
DC IN	Power supply DC input port	Power Connector
GND	Radio Grounding Port	M6 Bolt

LED Overlay

LED Overlay

- "ALM" LED off, no alarm, turns Red if alarm is generated.
- "OPER" LED off, when booting or power is off, turns Green if radio is on and initialization is complete.
- "ACT" LED off, Tx channel is disabled, turns Green if channel is enabled.
- "VSWR" LED off, no Mismatch alarm, turns Red if mismatch alarm is generated.
- "OPT1" LED off, CPRI link is down, tuns Green if CPRI link is up.
- "OPT2" LED off, CPRI link is down, tuns Green if CPRI link is up.

SPECIFICATIONS

Single Band n28 ORU

ORU-N28-Z01-2

Specification	Detail	Value
Power Consumption	25 degree with 100% Load	290 W typical, 310 W maximum
	25 degree with 50% Load	210 W typical
	25 degree with 30% Load	170 W typical
	25 degree with 10% Load	80 W typical
	ETSI 202 706 Average	168 W typical
DL Performance	Maximum nominal Output Power	46 dBm maximum
	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% maximum
	EVM: 16QAM	12.5% maximum
	EVM:64QAM	8.0% maximum
	EVM: 256QAM	3.5% maximum
	EVM: 1024QAM	2.5% maximum with 1dB power backoff
UL Performance	NF in normal environment	2.2 dB typical, 2.5 dB max
	NF in extreme environment	2.6 dB typical, 3.0 dB max
Main Function Features	Remote Electrical Tilt	Based on AISG 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

Parts & Accessories

ORU-N28-Z01-2	Single Band ORU supports Band n28 up to 2T4R

Standards & Compliance

RF Performance, BS TX & RX	3GPP TS 38.104 V15.16.0, 3GPP TS 36.104 V18.2.0, ETSI TS 138 104 V15.16.0
RF Performance, Conformance Testing	3GPP TS 38.141-1 V15.16.0, 3GPP TS 36.141-1 V18.2.0, ETSI TS 138 104 V15.16.0
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, Miscellaneous	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 supported, upgradeable to AISG 3.0

Certifications

Antenna Interface Standards Group (AISG), ISO 9001