

**7/8/13/15/18/23/26/38 GHz CEPT digital hierarchies**

**TRuepoint™ 4000**

A new generation

of point-to-point

PDH/Ethernet

digital radios



TRuepoint 4000 is a compact, efficient, split-mount, PDH/Ethernet digital radio. With support for all major CEPT frequency bands from 7 to 38 GHz and up to 16xE1 telephony and 2x100Base-T data interfaces, it delivers the voice and data connectivity required for cellular backhaul, enterprise, government, and public safety networks.

**Transmission**

- Capacity:** 4 to 34 Mbps
- Modulation:** QPSK, 16 QAM
- FEC:** Reed-Solomon
- Frequency Stability:** 7 to 38 GHz:  
± 7 ppm (including aging)
- ATPC:** ~2.5 to 10 dB range
- Residual BER:** <10<sup>-11</sup> per-hop
- Auxiliary Channels:** 512 kbps

**Configuration**

- Digital Interfaces:**
  - 2 to 8 E1 or 2 to 16 E1  
(75 or 120 Ohms)
  - 2x10/100BASE-T Ethernet
  - Optional orderwire
- Configurations:** SPU: 1+0, 1+1  
RFU: 1+0, MHSB, Frequency Diversity, Space Diversity

**Management**

- Network Management:** NetBoss®, StarView™, SNMP
- Control, Monitoring and Maintenance Tools:**
  - Web-based management interface
  - VT-100 serial management interface
  - Harris handheld terminal
- Alarms:** Programmable relay alarms  
(4 output, 2 input)

**Environmental**

- Temperature Range (Guaranteed):**
  - IDU: -5° to +50° C
  - ODU: -33° to +55° C
- Temperature Range (Operational):**
  - IDU: -10° to +55° C
  - ODU: -33° to +55° C
- Humidity:** IDU: 95% max non-condensing

**Power**

- Power Source:** +24 VDC  
+20% / -10% or -48 VDC +/- 20%

**Power Consumption:**

	1+0	1+1
SPU	22 W	28 W
RFU	40 W	80 W

**Software-programmable**

- Power:** Up to 28 dB below rated power without attenuation pads



**Regulatory Information**

**Frequency Plans:** Conforming to each relevant ITU-R and CEPT recommendation

**Digital Interface:** Rec. G.703

**Electromagnetic Compatibility:** EN 301 489-1, EN 301 489-4

**Mechanical Characteristics**

**Separation IDU/ODU:** Up to 300 meters

**Connections:** SPU to RFU, coaxial cable with N-Type connectors

**Dimensions:**

SPU 1+0 (1 RMS) H: 4.5 cm ; W: 48.3 cm; D: 25.8 cm; W: 3.3 kg

SPU 1+1 (2 RMS) H: 9.0 cm ; W: 48.3 cm; D: 25.8 cm; W: 5.2 kg

RFU 1+0 D: 8.9 cm ; OD: 26.7 cm; W: 5.0 kg

**Antenna Characteristics**

**Sizes:** 1 ft., 2 ft., 4ft., supported

**Mounting:** Direct-mount and separate-mount supported

**System Characteristics**

Frequency Band (GHz)	7		8		13		15		18		23		26		38	
Modulation	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
<b>Nominal Output Power (at antenna port for 1+configuration)</b>																
(dBm)	25	21	25	21	24	20	24	20	24	20	22	18	22	18	20	16
<b>Typical Receiver Threshold (dB) @ 10<sup>-6</sup> BER</b>																
2E1	-93	N/A	-93	N/A	-93	N/A	-93	N/A	-93	N/A	-92.5	N/A	-92.5	N/A	N/A	N/A
4E1	-90	N/A	-90	N/A	-90	N/A	-90	N/A	-90	N/A	-89.5	N/A	-89.5	N/A	-88	N/A
8E1	-87	-83.5	-87	-83.5	-87	-83.5	-87	-83.5	-87	-83.5	-86.5	-83	-86.5	-83	-85	-81.5
16E1	-84.5	-80.5	-84.5	-80.5	-84.5	-80.5	-84.5	-80.5	-84.5	-80.5	-84	-80	-84	-80	-82.5	-78.5

Notes: Guaranteed output power is 2 dB lower than typical value.  
 Guaranteed receiver threshold is 1 dB lower than typical value.

Transmit/Receive Characteristics			
Band	Frequency Range	Tx/Rx Frequency Spacing (MHz)	Channel Spacing (MHz)
7 GHz	7.11 - 7.9 GHz	154, 160, 161, 196	3.5, 7, 14, 28
8 GHz	7.725 - 8.5 GHz	119, 126, 208, 266, 331.32	7, 14, 28
13 GHz	12.7 - 13.25 GHz	266	3.5, 7, 14, 28
15 GHz	14.4 - 15.35 GHz	315, 420, 475, 490, 640, 644, 728	3.5, 7, 14, 28
18 GHz	17.7 - 19.7 GHz	1010, 1560	3.5, 7, 13.75, 27.5
22/23 GHz	21.2 - 23.6 GHz	1008, 1200, 1232	3.5, 7, 14, 28
26 GHz	24.25 - 26.5 GHz	800, 1008	3.5, 7, 14, 28
38 GHz	37.0 - 40.5 GHz	700, 1260	3.5, 7, 14, 28

RF Combiner Insertion				
	Equal Splitter		Unequal Splitter	
	Chan. A	Chan. B	Chan. A	Chan. B
Insertion Loss (dB)	3.0 +/- 0.2	3.0 +/- 0.2	1.0 +/- 0.1	10.0 +/- 0.5

Channel Bandwidth (MHz)		
	QPSK	16 QAM
2E1	3.5	N/A
4E1	7	N/A
8E1	13.75/14	7
16ES1	27.5/28	13.75/14