

CFQ series digital microwave radio unit

Technical Specification

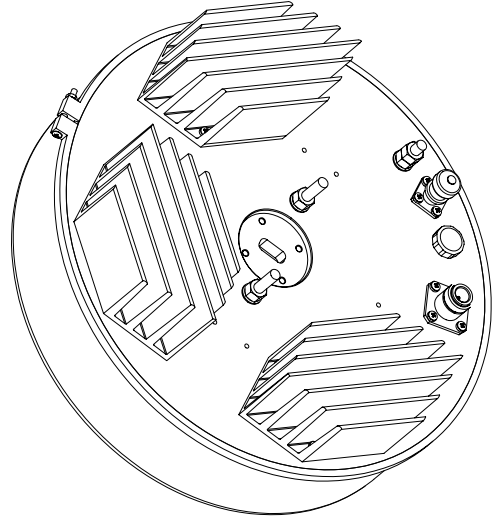
October 11, 2005

INTRODUCTION

The ODU works as a sub-unit in the CFQ microwave link system. The unit is designed to be mounted in a out-door environment. Interconnection between IDU and ODU is done by a single coaxial cable.

FEATURES

- 128-QAM modulation.
- Radio loop mode to test the active components in the radio.
- N-type socket for connection to the IDU.
- RSL port for antenna alignment.
- Grounding screw and mounting screws.



CFQ series digital microwave radio unit

Technical Specification

October 11, 2005

SPECIFICATION SUMMARY

| | ODU model | | | | | | | | | |
|-----------------------------------|--|----------|------------------|----------------|---|----------|------------------|----------|------------------|----------|
| | CFQ-7 | CFQ-7 | CFQ-13 | CFQ-18 | CFQ-38 | | | | | |
| Product number | Q07RFM01 | Q07RFM02 | Q13RFM01 | Q18RFM01 | Q38RFM01 | | | | | |
| Capacity | STM-1 | | | | | | | | | |
| Channel spacing | 28 MHz | | | | | | | | | |
| Modulation | 128-QAM | | | | | | | | | |
| Performance | Performance parameters correspond to recommendation ETSI EN 301 129 V1.1.2 (1999-05) | | | | | | | | | |
| TX | | | | | | | | | | |
| Output power dynamic range | +10 ... +24 dBm | | +5 ... +22 dBm | +5 ... +19 dBm | 0 ... +14 dBm | | | | | |
| Output power accuracy | ± 2 dB | ± 2 dB | ± 2 dB | ± 2 dB | ± 2 dB | | | | | |
| Output power increments | 0.1 dB | 0.1 dB | 0.1 dB | 0.1 dB | 0.1 dB | | | | | |
| Guaranteed max power | 24 dBm | 24 dBm | 22 dBm | 19 dBm | 14 dBm | | | | | |
| Spurious emissions | 21.2 to 27 GHz: < -30 dBm 5 to 21.2 GHz: < -50 dBm | | | | 21.2 to 79 GHz: < -30 dBm 5 to 21.2 GHz: < -50 dBm | | | | | |
| RX | | | | | | | | | | |
| RSL dynamic range | -70 – -20 dBm | | | | | | | | | |
| RSL accuracy | ± 5 dB | | | | | | | | | |
| Max allowed RSL level for damage | 10 dBm | | | | | | | | | |
| Receiver sensitivity | BER | RSL, dBm | BER | RSL, dBm | BER | RSL, dBm | BER | RSL, dBm | BER | RSL, dBm |
| | 10 ⁻⁶ | -67 | 10 ⁻⁶ | -67 | 10 ⁻⁶ | -66 | 10 ⁻⁶ | -65 | 10 ⁻⁶ | -64 |
| | 10 ⁻³ | -71 | 10 ⁻³ | -71 | 10 ⁻³ | -70 | 10 ⁻³ | -69 | 10 ⁻³ | -68 |
| Ports | | | | | | | | | | |
| Flange | UBR84 | UBR84 | UBR140 | UBR220 | UBR320 | | | | | |
| IF port | For 50 Ohm coaxial, N connector, female | | | | | | | | | |
| RSL port | Output voltage vs RSL: 0 – 5 V vs -70 – -20 dBm | | | | | | | | | |
| Environmental requirements | | | | | | | | | | |
| Stationary use | Ref ETS 300 019-2-4, class 4.1E Non Weather-protected locations. Temperature range = -45 °C to +55 °C. | | | | | | | | | |
| Storage | Ref ETS 300 019-2-1, class 1.2 Weather-protected, not temperature-controlled storage locations. Temperature range = -25 °C – +55 °C. | | | | | | | | | |
| Transportation | Ref ETS 300 019-2-2, class 2.3 Public transportation. Temperature range = -45 °C – +70 °C. | | | | | | | | | |
| Mechanical data | | | | | | | | | | |
| Weight: | 3.8 kg | | | | | | | | | |
| Dimensions: | Ø 280 x 120 mm | | | | | | | | | |
| DC Power distribution | | | | | | | | | | |
| Max power | 42 W | 42 W | 37 W | 24 W | 31 W | | | | | |

CFQ series digital microwave radio unit

Technical Specification

October 11, 2005

FREQUENCY CHANNELS

Tx/Rx channel centre frequencies for the **CFQ-7** ODU (product number Q07RFM01), duplex frequency = **154 MHz**, channel spacing = **28 MHz**.

| | Channel no. | Type High | | Type Low | |
|--------|-------------|----------------|----------------|----------------|----------------|
| | | Tx Freq. [MHz] | Rx Freq. [MHz] | Tx Freq. [MHz] | Rx Freq. [MHz] |
| Band A | 1 | 7296 | 7142 | 7142 | 7296 |
| | 2 | 7324 | 7170 | 7170 | 7324 |
| Band B | 3 | 7352 | 7198 | 7198 | 7352 |
| | 4 | 7380 | 7226 | 7226 | 7380 |
| Band C | 4 | 7380 | 7226 | 7226 | 7380 |
| | 5 | 7408 | 7254 | 7254 | 7408 |

Tx/Rx channel centre frequencies for the **CFQ-7** ODU (product number Q07RFM02), duplex frequency = **154 MHz**, channel spacing = **28 MHz**.

| | Channel no. | Type High | | Type Low | |
|--------|-------------|----------------|----------------|----------------|----------------|
| | | Tx Freq. [MHz] | Rx Freq. [MHz] | Tx Freq. [MHz] | Rx Freq. [MHz] |
| Band A | 1 | 7596 | 7442 | 7442 | 7596 |
| | 2 | 7624 | 7470 | 7470 | 7624 |
| Band B | 3 | 7652 | 7498 | 7498 | 7652 |
| | 4 | 7680 | 7526 | 7526 | 7680 |
| Band C | 4 | 7680 | 7526 | 7526 | 7680 |
| | 5 | 7708 | 7554 | 7554 | 7708 |

Tx/Rx channel centre frequencies for the **CFQ-13** ODU, duplex frequency = **266 MHz**, channel spacing = **28 MHz**.

| | Channel no. | Type High | | Type Low | |
|--------|-------------|----------------|----------------|----------------|----------------|
| | | Tx Freq. [MHz] | Rx Freq. [MHz] | Tx Freq. [MHz] | Rx Freq. [MHz] |
| Band A | 1 | 13031 | 12765 | 12765 | 13031 |
| | 2 | 13059 | 12793 | 12793 | 13059 |
| | 3 | 13087 | 12821 | 12821 | 13087 |
| | 4 | 13115 | 12849 | 12849 | 13115 |
| Band B | 5 | 13143 | 12877 | 12877 | 13143 |
| | 6 | 13171 | 12905 | 12905 | 13171 |
| | 7 | 13199 | 12933 | 12933 | 13199 |
| | 8 | 13227 | 12961 | 12961 | 13227 |

CFQ series digital microwave radio unit

Technical Specification

October 11, 2005

Tx/Rx channel centre frequencies for the **CFQ-18** ODU, duplex frequency = **1010 MHz**, channel spacing = **27.5 MHz**.

| Channel no. | Type High | | Type Low | | |
|-------------|-------------------|-------------------|-------------------|-------------------|---------|
| | TX freq. [MHz] | RX freq. [MHz] | TX freq. [MHz] | RX freq. [MHz] | |
| Band A | 1 | 18737.5 | 17727.5 | 18737.5 | |
| | 2 | 18765.0 | 17755.0 | 17755.0 | 18765.0 |
| | 3 | 18792.5 | 17782.5 | 17782.5 | 18792.5 |
| | 4 | 18820.0 | 17810.0 | 17810.0 | 18820.0 |
| | 5 | 18847.5 | 17837.5 | 17837.5 | 18847.5 |
| | 6 | 18875.0 | 17865.0 | 17865.0 | 18875.0 |
| | 7 | 18902.5 | 17892.5 | 17892.5 | 18902.5 |
| | 8 | 18930.0 | 17920.0 | 17920.0 | 18930.0 |
| | 9 | 18957.5 | 17947.5 | 17947.5 | 18957.5 |
| | 10 | 18985.0 | 17975.0 | 17975.0 | 18985.0 |
| | 11 | 19012.5 | 18002.5 | 18002.5 | 19012.5 |
| | 12 | 19040.0 | 18030.0 | 18030.0 | 19040.0 |
| | 13 | 19067.5 | 18057.5 | 18057.5 | 19067.5 |
| | 14 | 19095.0 | 18085.0 | 18085.0 | 19095.0 |
| | 15 | 19122.5 | 18112.5 | 18112.5 | 19122.5 |
| | 16 | 19150.0 | 18140.0 | 18140.0 | 19150.0 |
| | 17 | 19177.5 | 18167.5 | 18167.5 | 19177.5 |
| | 18 | 19205.0 | 18195.0 | 18195.0 | 19205.0 |
| Band B | 18 | 19205.0 | 18195.0 | 19205.0 | |
| | 19 | 19232.5 | 18222.5 | 18222.5 | 19232.5 |
| | 20 | 19260.0 | 18250.0 | 18250.0 | 19260.0 |
| | 21 | 19287.5 | 18277.5 | 18277.5 | 19287.5 |
| | 22 | 19315.0 | 18305.0 | 18305.0 | 19315.0 |
| | 23 | 19342.5 | 18332.5 | 18332.5 | 19342.5 |
| | 24 | 19370.0 | 18360.0 | 18360.0 | 19370.0 |
| | 25 | 19397.5 | 18387.5 | 18387.5 | 19397.5 |
| | 26 | 19425.0 | 18415.0 | 18415.0 | 19425.0 |
| | 27 | 19452.5 | 18442.5 | 18442.5 | 19452.5 |
| | 28 | 19480.0 | 18470.0 | 18470.0 | 19480.0 |
| | 29 | 19507.5 | 18497.5 | 18497.5 | 19507.5 |
| | 30 | 19535.0 | 18525.0 | 18525.0 | 19535.0 |
| | 31 | 19562.5 | 18552.5 | 18552.5 | 19562.5 |
| | 32 | 19590.0 | 18580.0 | 18580.0 | 19590.0 |
| | 33 | 19617.5 | 18607.5 | 18607.5 | 19617.5 |
| | 34 | 19645.0 | 18635.0 | 18635.0 | 19645.0 |
| 35 | 19672.5 | 18662.5 | 18662.5 | 19672.5 | |

CFQ series digital microwave radio unit

Technical Specification

October 11, 2005

Tx/Rx channel centre frequencies for the **CFQ-38** ODU, duplex frequency = **1260 MHz**, channel spacing = **28 MHz**.

| Channel no. | Type High | | Type Low | |
|-------------|----------------|----------------|----------------|----------------|
| | Tx Freq. [MHz] | Rx Freq. [MHz] | Tx Freq. [MHz] | Rx Freq. [MHz] |
| Band A | 1 | 38332 | 37072 | 38332 |
| | 2 | 38360 | 37100 | 38360 |
| | 3 | 38388 | 37128 | 38388 |
| | 4 | 38416 | 37156 | 38416 |
| | 5 | 38444 | 37184 | 38444 |
| | 6 | 38472 | 37212 | 38472 |
| | 7 | 38500 | 37240 | 38500 |
| | 8 | 38528 | 37268 | 38528 |
| | 9 | 38556 | 37296 | 38556 |
| | 10 | 38584 | 37324 | 38584 |
| | 11 | 38612 | 37352 | 38612 |
| | 12 | 38640 | 37380 | 38640 |
| | 13 | 38668 | 37408 | 38668 |
| | 14 | 38696 | 37436 | 38696 |
| | 15 | 38724 | 37464 | 38724 |
| | 16 | 38752 | 37492 | 38752 |
| | 17 | 38780 | 37520 | 38780 |
| | 18 | 38808 | 37548 | 38808 |
| | 19 | 38836 | 37576 | 38836 |
| | 20 | 38864 | 37604 | 38864 |
| Band B | 21 | 38892 | 37632 | 38892 |
| | 22 | 38920 | 37660 | 38920 |
| | 23 | 38948 | 37688 | 38948 |
| | 24 | 38976 | 37716 | 38976 |
| | 25 | 39004 | 37744 | 39004 |
| | 26 | 39032 | 37772 | 39032 |
| | 27 | 39060 | 37800 | 39060 |
| | 28 | 39088 | 37828 | 39088 |
| | 29 | 39116 | 37856 | 39116 |
| | 30 | 39144 | 37884 | 39144 |
| | 31 | 39172 | 37912 | 39172 |
| | 32 | 39200 | 37940 | 39200 |
| | 33 | 39228 | 37968 | 39228 |
| | 34 | 39256 | 37996 | 39256 |
| | 35 | 39284 | 38024 | 39284 |
| | 36 | 39312 | 38052 | 39312 |
| | 37 | 39340 | 38080 | 39340 |
| | 38 | 39368 | 38108 | 39368 |
| | 39 | 39396 | 38136 | 39396 |
| | 40 | 39424 | 38164 | 39424 |

All specifications are subject to change without notice.