

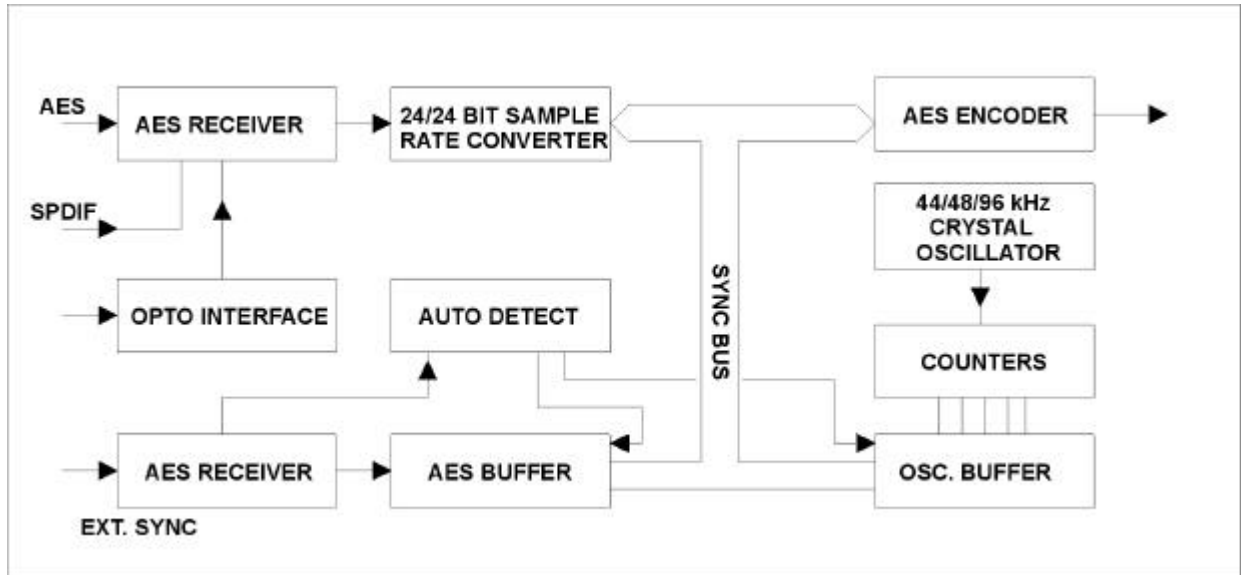


ROSTEC CP390 Consumer/Professional Interface

Features:

- Electrical coax and optical SPDIF consumer inputs
- Transformer balanced AES professional input
- Automatic selection of active input
- Input sample rate range 8kHz – 96 kHz
- 44.1, 48 or 96kHz crystal controlled output sampling frequency
- Able to synchronize to external AES
- 3:1 and 1:3 conversion ratio
- 120 dB dynamic range
- 24 bit input and output formats
- Excellent jitter tolerance. No transfer of input jitter to the AES output.

Block Schematic



Electrical/mechanical specs:

Dimensions	: Width 154 mm , height 38 mm, depth 108 mm
Weight	: approx.1 kg
Power requirements	: 9 - 15 VDC 200mA, polarity independent
Digital Audio Inputs	: S/PDIF 75 Ohms : Optical, Toshiba TOSLINK (EIAJ Standard CP-1201) : AES Transformer Balanced 110 Ohms
Digital Audio Output	: AES11 transformer balanced 110 ohms, 4V PP into 110 Ohms. : Dynamic Range 120 dB : THD+N -117 dB, conversion ratio <1,7 : THD+N -104 dB, conversion ratio < 3 : Idle channel noise -140 dBFs : Group delay 1,75 mSec
External reference	: AES balanced 110 ohms
Internal Reference	: AES GRADE 2 crystal oscillator : Initial frequency accuracy +/- 2 ppm at 25 deg. C. : Temperature stability 0,3 ppm/deg. C. : Temperature range 0 - +50 deg. C. : Jitter < 1nsec SS. 700Hz - 100kHz

Channel Status reporting

Using External Reference : Channel status, validity and user bits received from the External Reference are transferred unchanged to the AES output.

Using Internal Reference :

- Byte 0, bit 0: **PRO**
- Byte 0, bit 1: **AUDIO USE**
- Byte 0, bit 2,3,4: **NO EMPHASIS**
- Byte 0, bit 5: **Fs LOCK**
- Byte 0, bit 6,7: **44,1kHz, 48kHz**. 96kHz is reported as “**not indicated**”

- Byte 1, bit 0,1,2,3: Not indicated. Receiver defaults to **2-channel mode**.
- Byte 1, bit 4,5,6,7: **No user info**

- Byte 2, bit 0,1,2: Auxiliary sample bits, **Not defined** (default)
- Byte 2, bit 3,4,5: Source Word length, **Not indicated** (default)
- Byte 2, bit 6,7: Not used

- Byte 3, bit 0-7: Vector target, **Not indicated**

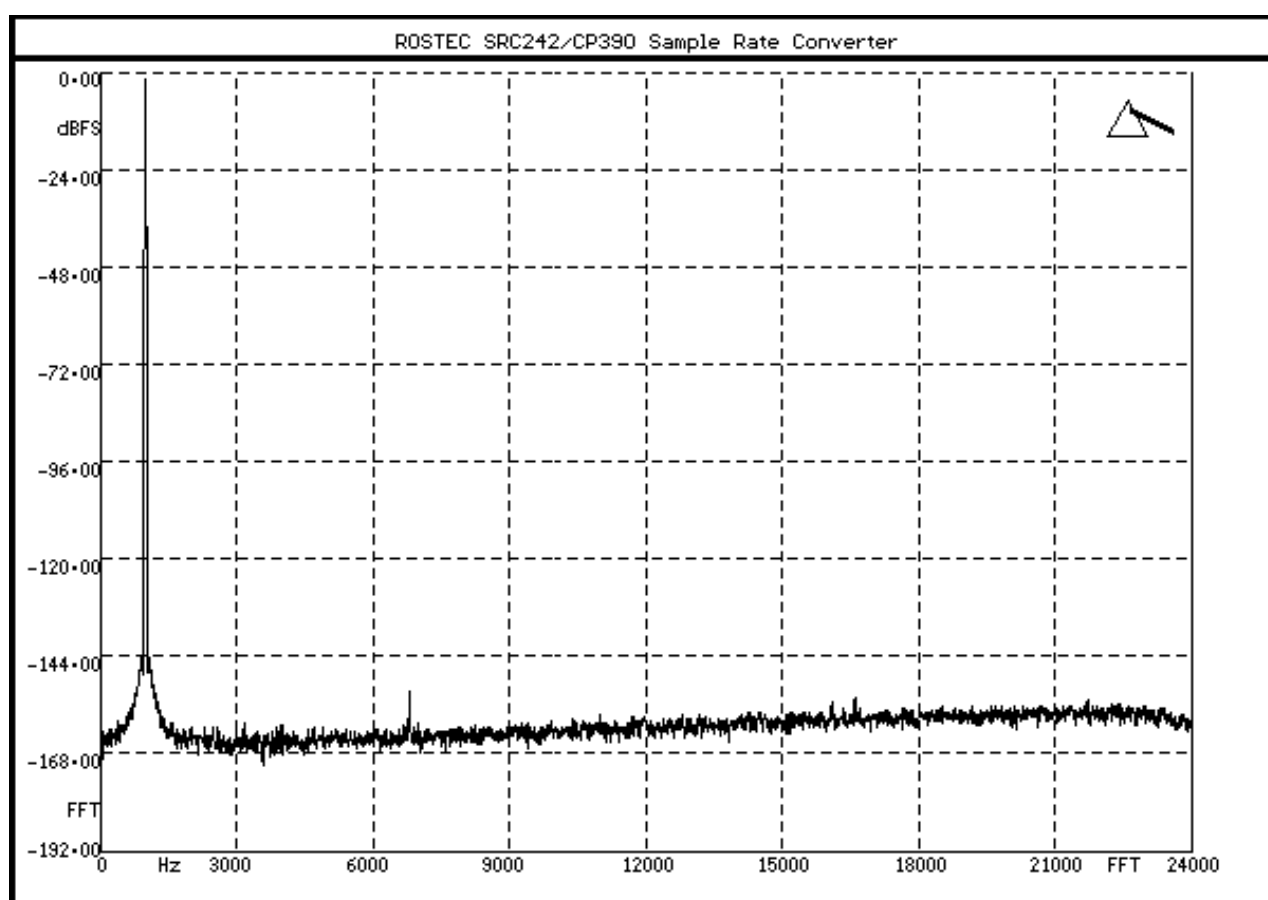
- Byte 4, bit 0,1: **Not reference** signal (default)
- Byte 4, bit 2-7: Not used

- Validity: **VALID**

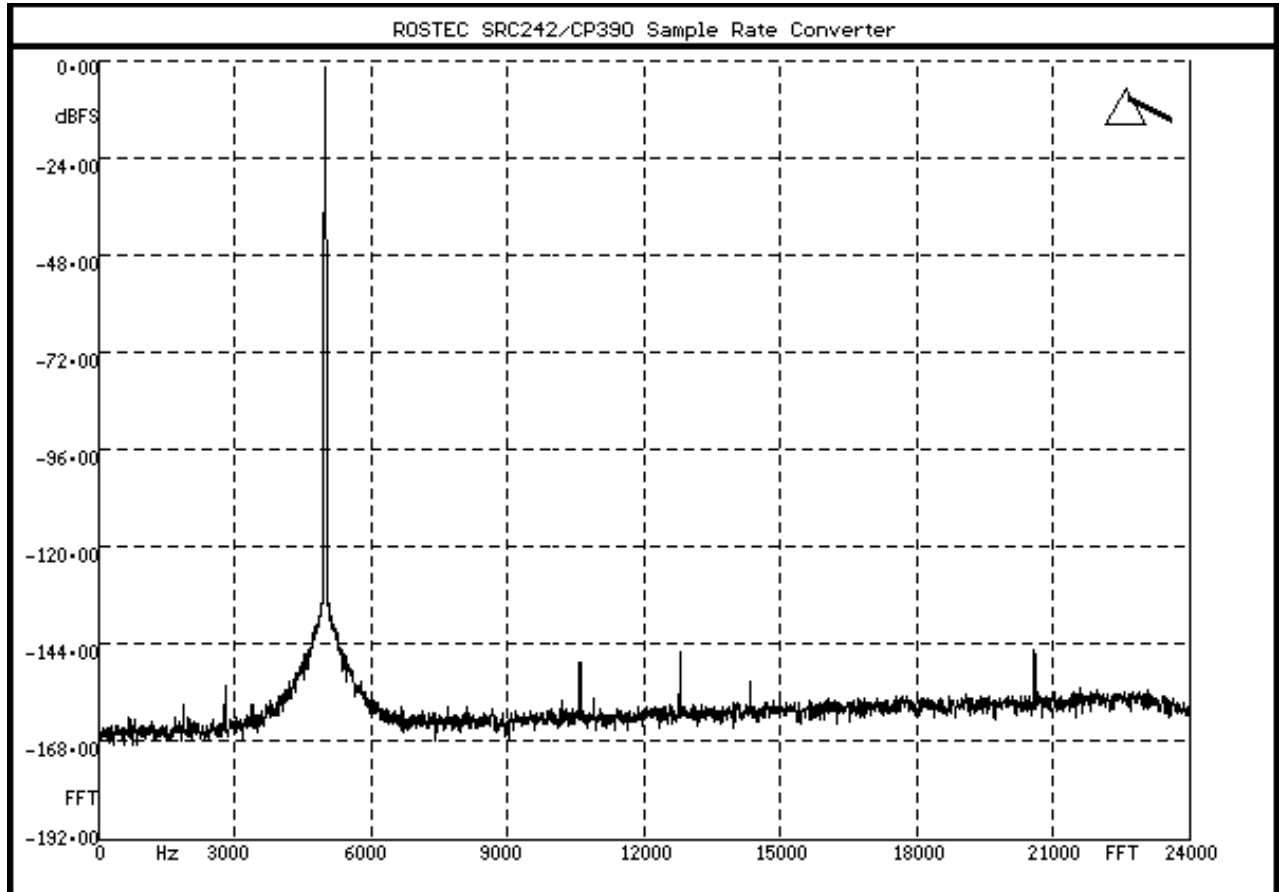
FFT analysis:

The primary application of the CP390 is to convert the 44.1 kHz digital audio signal from a CD-player or a DAT-Recorder to the professional 48 kHz AES signal format. The received Channel Status Bits are changed from CON to PRO, and the output sampling frequency is synchronized to the professional environment. The audio bits are rate changed to fit into the altered frame rate, while the audio information is kept intact.

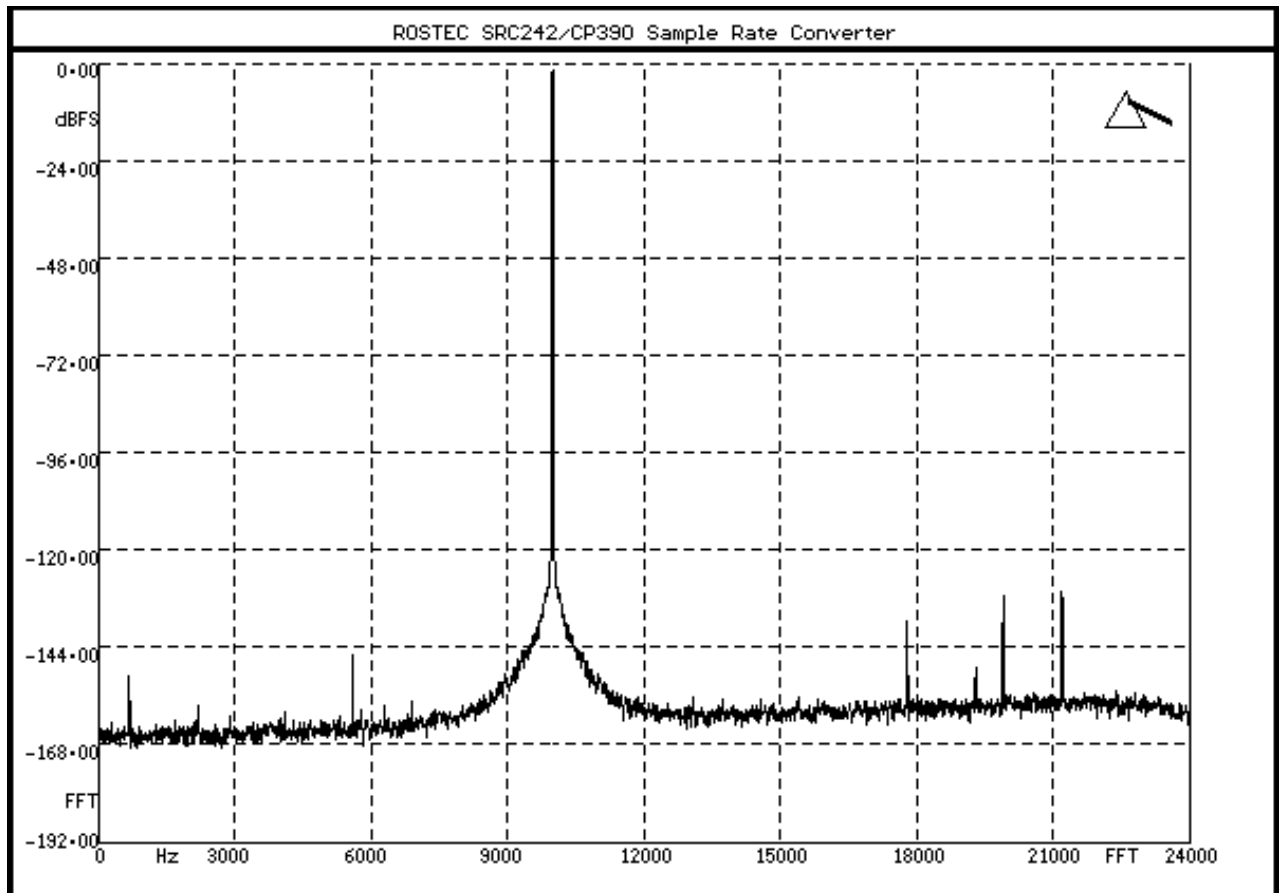
The process involves complex mathematical algorithms, and cannot be done 100% error free. However, as seen on the graphs below, the CP390 performs excellent in comparison to the quality of the signal source. The artifacts produced in the process are 20 –30 dB below the noise floor of typical consumer equipment.



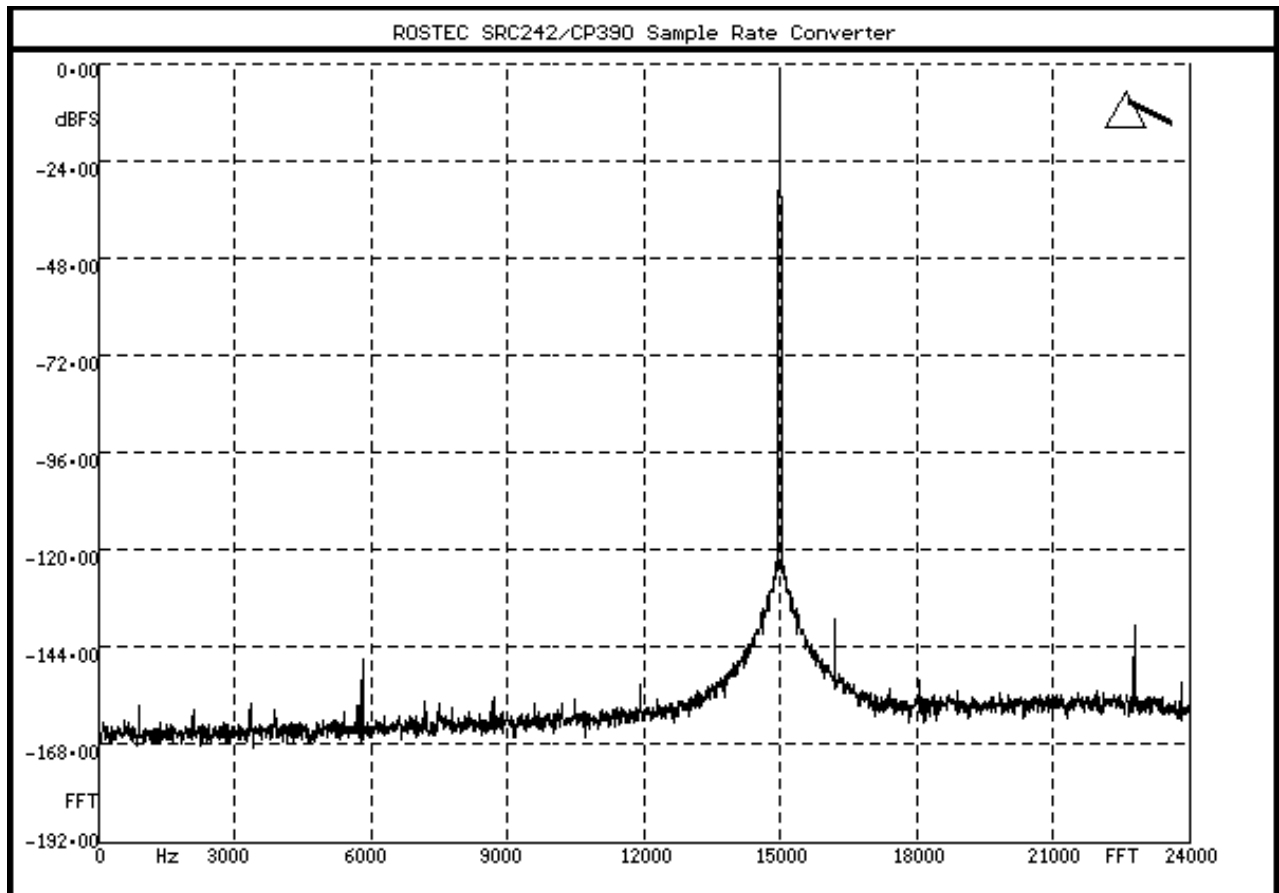
Input 1 kHz, -1 dBFS at 44.1 kHz
Output 1 kHz, -1 dBFS at 48 kHz
THD+N -127,68 dBFS, 20 Hz – 20 kHz unweighted



Input 5 kHz, -1 dBFS at 44.1 kHz
Output 5 kHz, -1 dBFS at 48 kHz
THD+N -125,84 dBFS, 20 Hz – 20 kHz unweighted



Input 10 kHz, -1 dBFS at 44.1 kHz
Output 10 kHz, -1 dBFS at 48 kHz
THD+N -121,72 dBFS, 20 Hz – 20 kHz unweighted



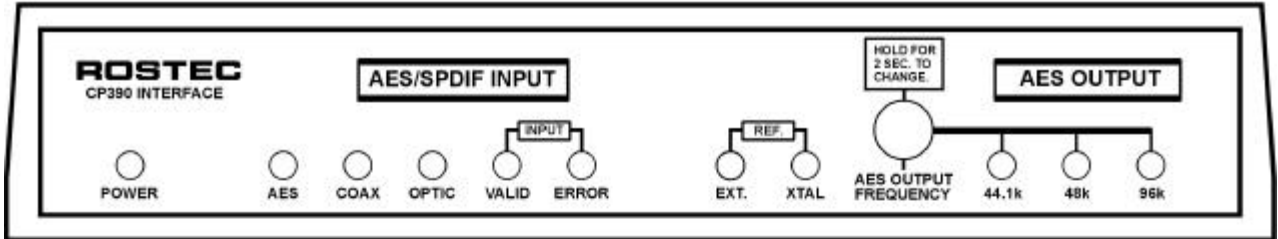
Input 15 kHz, -1 dBFS at 44.1 kHz
Output 15 kHz, -1 dBFS at 48 kHz
THD+N -123,13 dBFS, 20 Hz – 20 kHz unweighted

ROSTEC Engineering

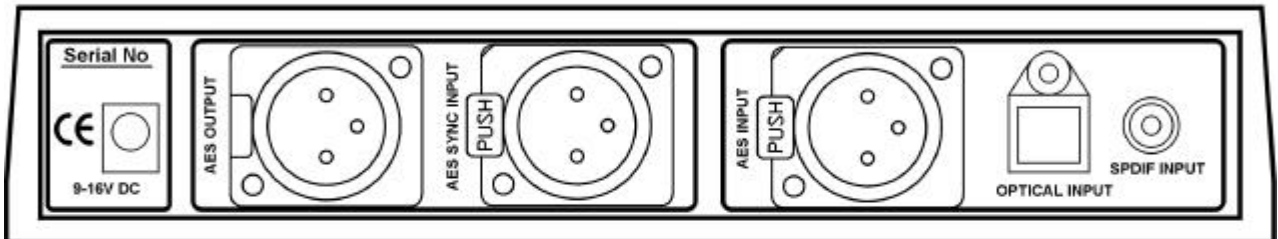
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FRONT VIEW



REAR VIEW



TOP VIEW

