ROSTEC Engineering
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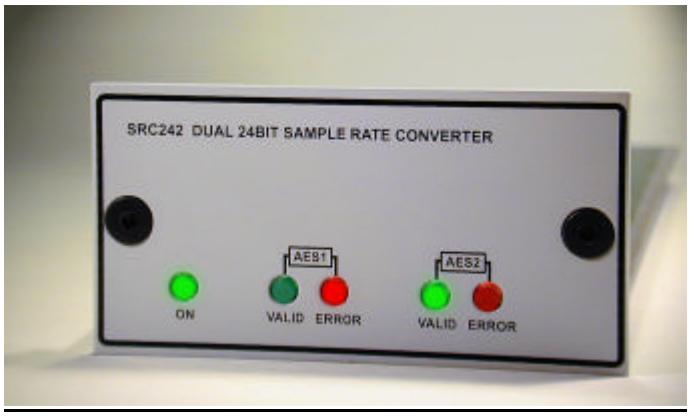

ROSTEC SRC242 Dual 24 Bit Sample Rate Converter for GPU frame

The SRC242 consist of two independent digital asynchronous 24-bit sample rate converters, intended for use in the GPU frame.
It is designed to synchronize to the GPU bus, receiving all the necessary clocks and sample rate information from a Digital Reference Generator, installed in the frame. The Digital Reference Generator will then act as a master reference, able to synchronize the GPU bus to external Video, Word or AES.
When the converter runs on the GPU bus, an Out of Sync Detector constantly compares the block position of the AES output with the block position of the GPU bus, ensuring perfect sync between all digital outputs of all modules installed in the GPU frame.

The SRC242 is also able to synchronize to an external AES. When no Digital Reference Generator is installed in the GPU frame, the converter can be configured to run from an external AES sync source. External sync mode is selected by means of a jumper on the PCB, enabling the converter to synchronize to an incoming AES signal through the back panel connector.

When operating in this mode, only the audio data bits from the SR converter chip are used in the output. System clocks, channel status, user and validity information is extracted from the external AES input and passed through transparently to the converters AES output.

The input digital audio signal is stripped of all Channel Status Information, after which it is subjected to a true 24bit asynchronous sample rate conversion. After the conversion process, professional channel status information bits are added to the audio data, and the combined signal is multiplexed and bi-phase mark encoded and transmitted as a digital AES3 Audio signal.
The input and output formats conform to the AES3, IEC60958 (S/PDIF) and EIAJ CP1201 interface standards.

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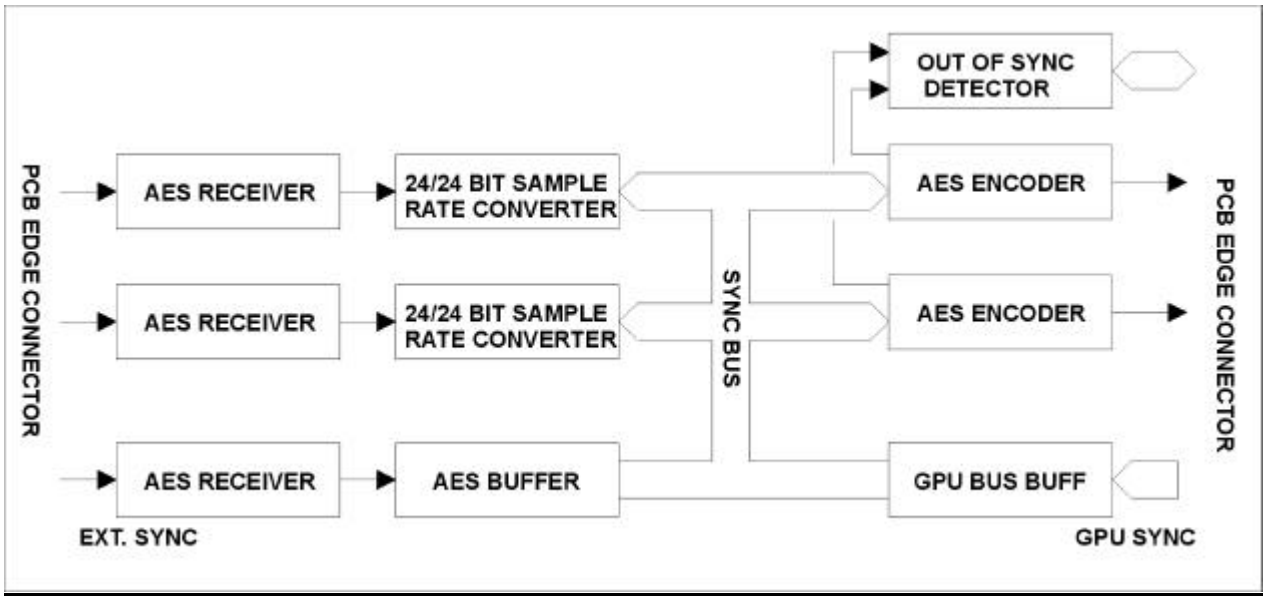
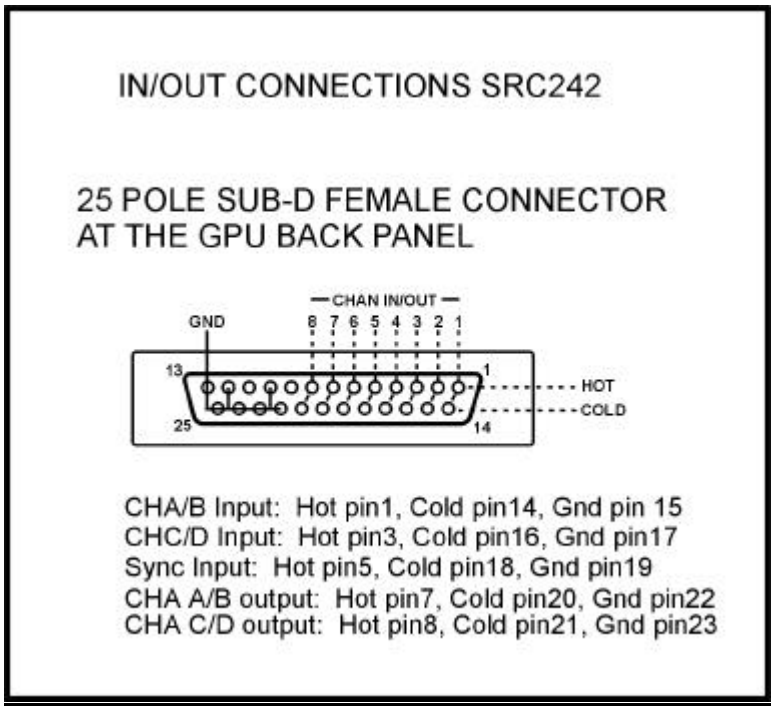
Block Schematic:



Input and output connections:



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Electrical specifications (typical):

Dimensions	: GPU Card Standard
Weight	:
Power requirements	: +5V 160 mA
Digital Audio Inputs	: AES Transformer Balanced 110 Ohms
Digital Audio Outputs	: AES Transformer Balanced 110 Ohms, 4V PP into 110 Ohms
Digital Audio specs:	: 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
	: Input sample rate range 8 kHz – 108 kHz
	: Output sample rate range 8 kHz – 108 kHz
	: Conversion range 3:1/1:3
External reference	: AES balanced 110 ohms
Internal Reference	: GPU bus

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**

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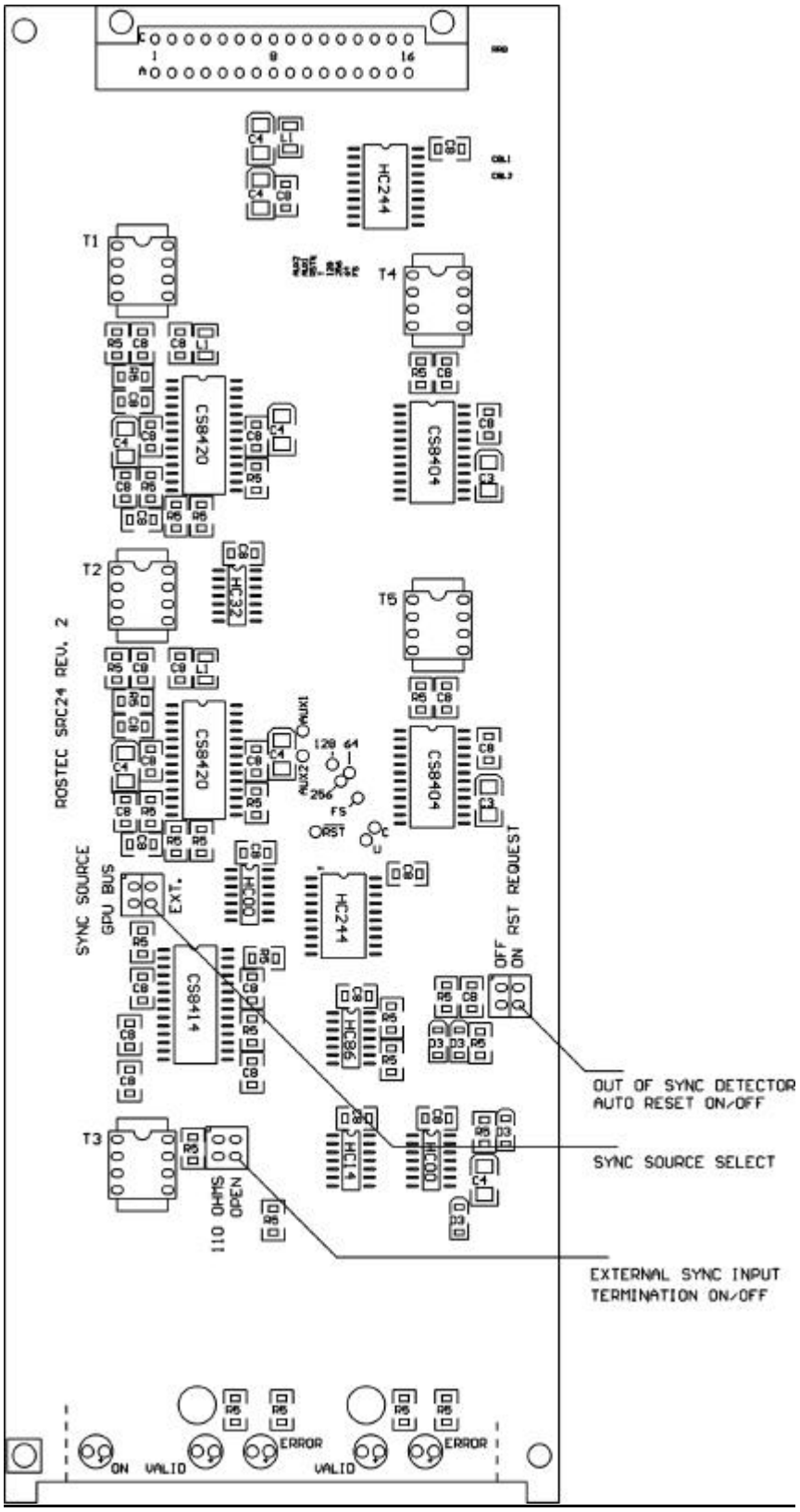

Out of sync detector:
On (default): Calls for a master reset when difference in sync position between GPU and AES output occurs.
Off: Accepts out of sync condition.

Sync source:
GPU bus (default)
External AES input

Termination
110 ohms (default)
Open (approx 16 kohms). Used for serial chain connection. Last unit in the chain must be terminated.

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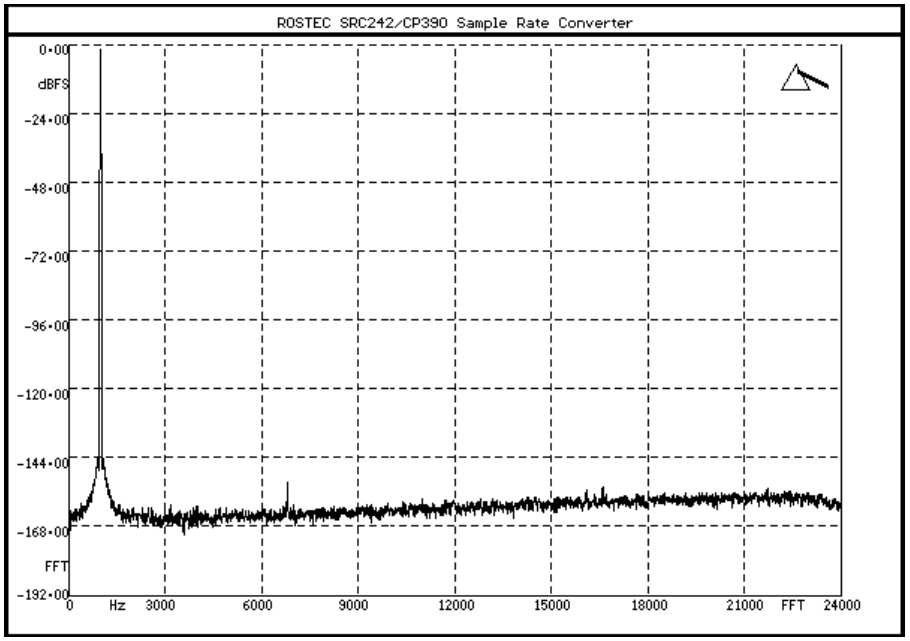
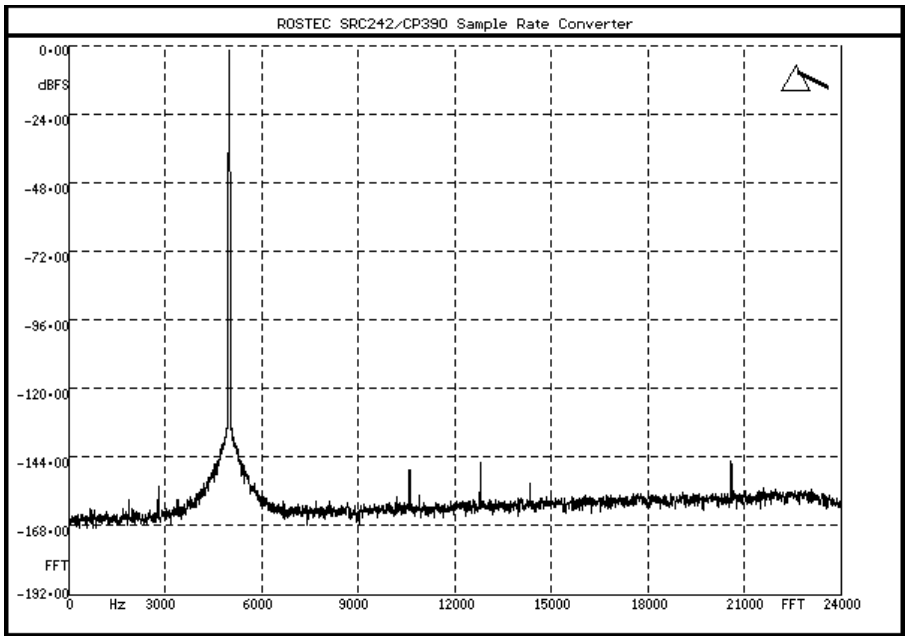
FFT analysis



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

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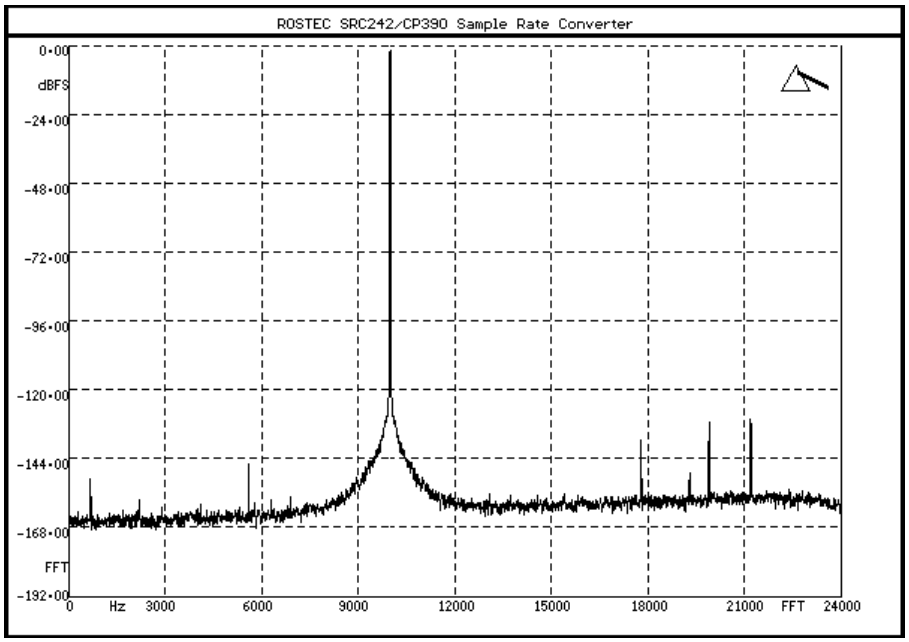
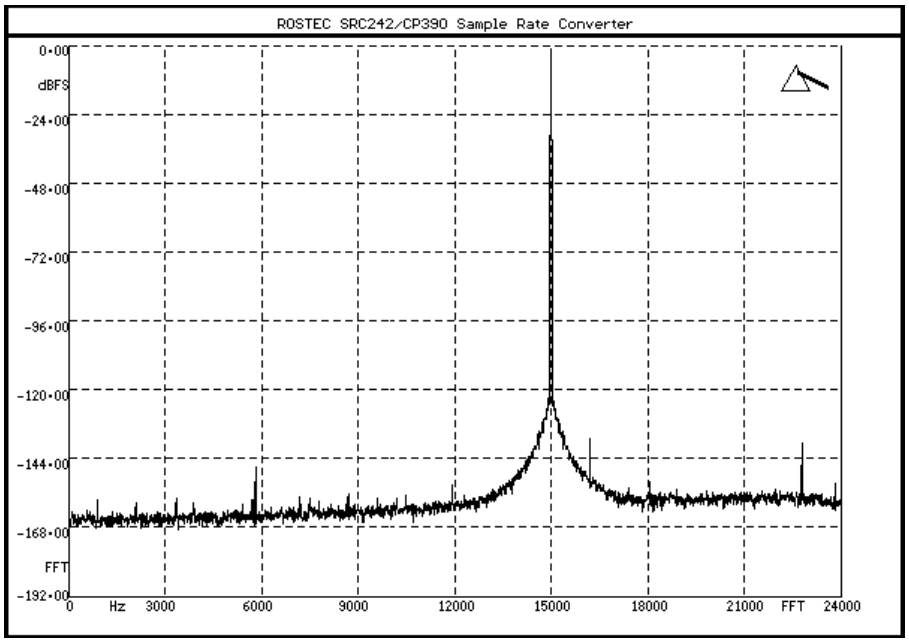


Input 10 kHz, -1 dBFs at 44.1 kHz
Output 10 kHz, -1 dBFs at 48 kHz
THD+N -121,72 dBFs, 20 Hz – 20 kHz unweighted



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

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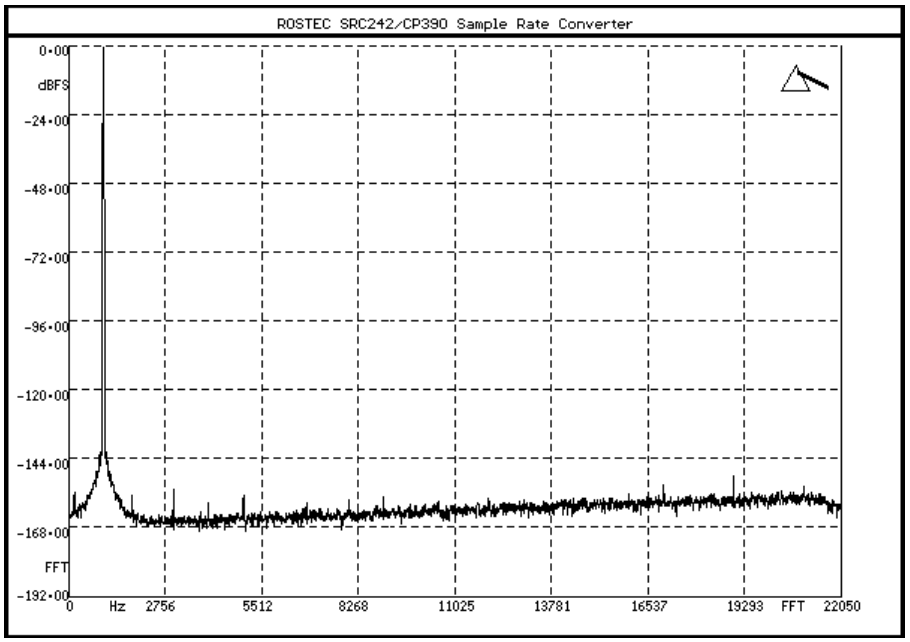
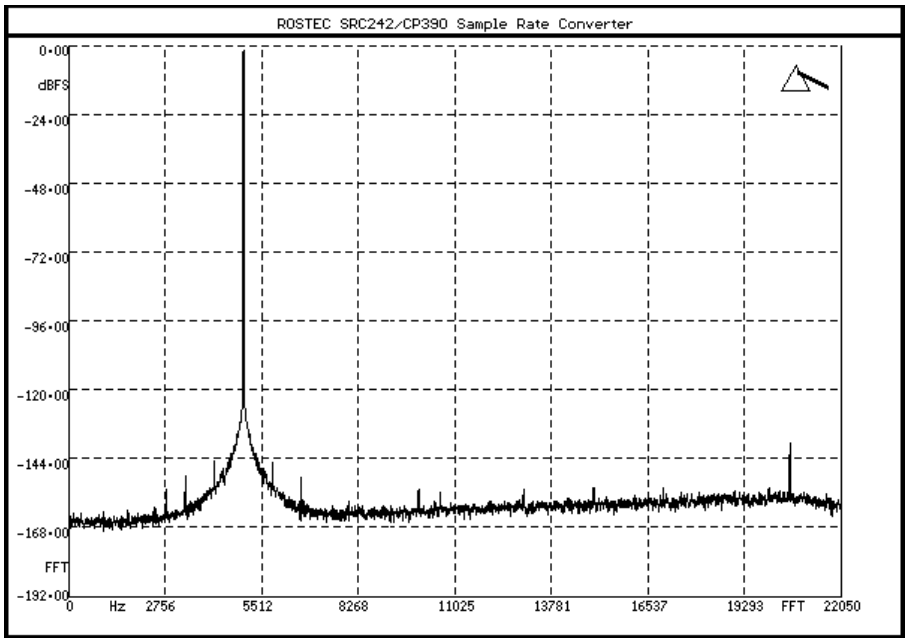


Input 1 kHz, -1 dBFs at 48 kHz
Output 1 kHz, -1 dBFs at 44.1 kHz
THD+N -127,53 dBFs, 20 Hz – 20 kHz unweighted



Input 5 kHz, -1 dBFs at 48 kHz
Output 5 kHz, -1 dBFs at 44.1 kHz
THD+N -124,11 dBFs, 20 Hz – 20 kHz unweighted

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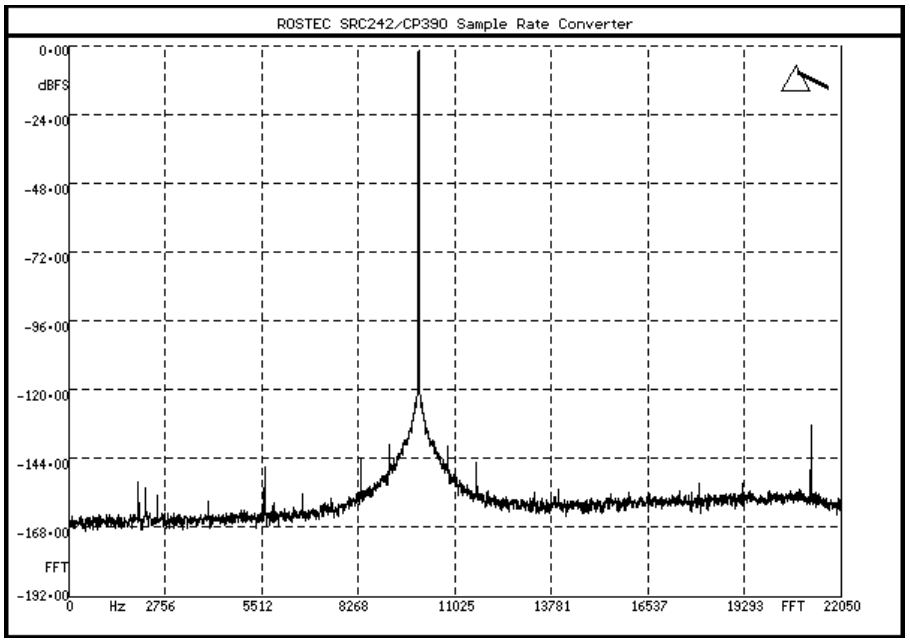
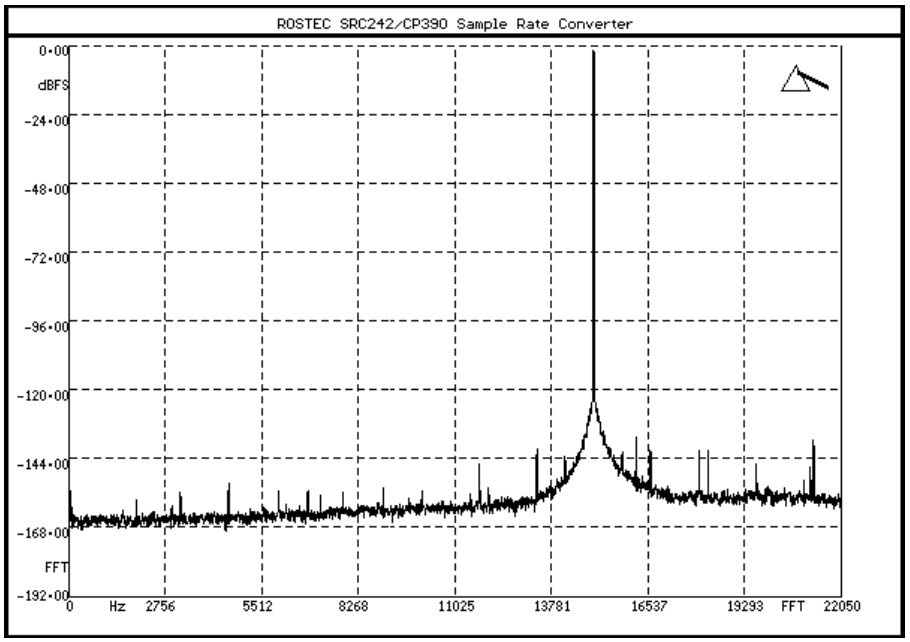


Input 10 kHz, -1 dBFs at 48 kHz
Output 10 kHz, -1 dBFs at 44.1 kHz
THD+N -119,89 dBFs, 20 Hz – 20 kHz unweighted



Input 15 kHz, -1 dBFs at 48 kHz
Output 15 kHz, -1 dBFs at 44.1 kHz
THD+N -117,11 dBFs, 20 Hz – 20 kHz unweighted