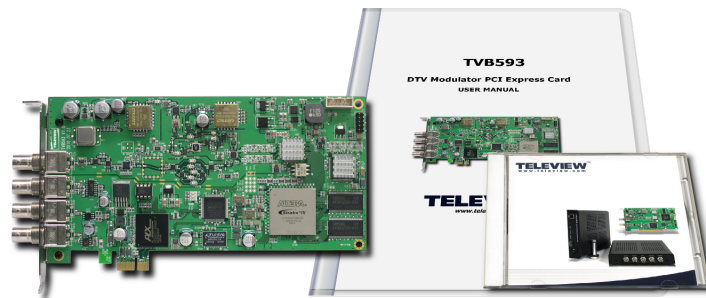


# TVB593

## DTV Modulator PCI Express Card



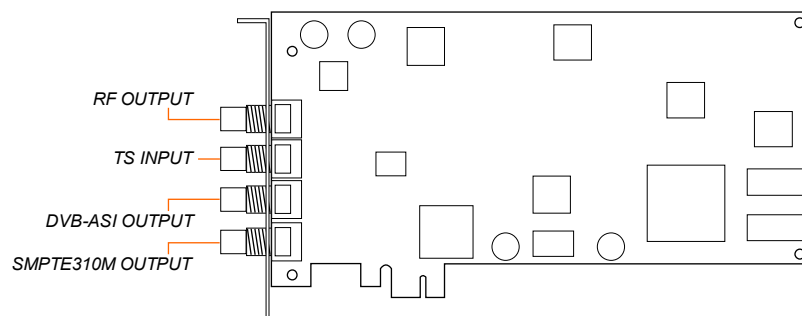
### Overview

The digital streaming DTV modulator PCI express card can play MPEG stream from hard disk and DVB-ASI/SMPTE-310M input into on-air signal. The output can be industry standard 55~2150MHz selectable RF signal. On board synthesizer can generate stable and accurate symbol clock and tuning frequency. The transport stream can be supplied through PCI express bus interface and DVB-ASI/SMPTE-310M input.

### Features

- Transport stream from hard drive thru PCI express bus interface and DVB-ASI/SMPTE-310M input
- DVB-ASI, SMPTE-310M output for monitoring
- On board VHF/UHF/L-BAND RF output up-converter
- Programmable RF output level (0.1dB step)
- Superposition white noise over modulated signal and control the output C/N ratio
- SDK for Windows 2000/XP(32/64bit)/Vista(32/64bit)/7(32/64bit) WDM and Linux
- CMMB, DVB-T/DVB-H, ATSC 8VSB, QAM, DVB-S/DVB-S2, T-DMB, ISDB-T, ISDB-S, DTMB, ATSC-M/H, DVB-T2, DVB-C2 modulation option available
- Free 0dBm amplifier option

### Board View



## Module Specifications

<p><b>Transport Stream Input</b> From hard disk thru PCI express</p> <p><b>Bit Rate</b> Up to 90Mbits/s</p> <p><b>ASI/ SMPTE-310M Input/Output</b> Connector: 75ohm BNC</p>	<p><b>RF Output</b> Connector: 75ohm BNC Freq: VHF/UHF 55~2150MHz Level: 0dBm max Freq accuracy: +/-5KHz max Attenuation step: 0.1dB Phase noise &lt;-90dBc/Hz @ 10KHz RF step size: 50KHz step(except for TDMB: 8KHz step)</p> <p><b>PCI Bus</b> PCI express x1 compliant</p>	<p><b>Physical/Environmental</b> HxWxL: 25mm x 107mm x 210mm</p> <p><b>Driver</b> Windows2000/XP(32/64bit)/Vista(32/64bit)/7(32/64bit) WDM and Linux</p> <p><b>Application Software</b> Television made GUI</p> <p><b>Operating Condition</b> Temperature: 0~45°C Humidity: 0~85%</p>
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## DVB-T/H Option Specifications

<p><b>Standard</b> ETSI EN300744 v1-4-1 compliant Non-hierarchical single program mode</p> <p><b>Punctured Code Rate</b> 1/2, 2/3, 3/4, 5/6, 7/8 selectable</p> <p><b>Constellation</b> QPSK, 16-QAM, 64-QAM</p>	<p><b>Transmission Mode</b> 2K/4K/8K mode selectable 4K mode only for DVB-H</p> <p><b>Guard Interval</b> 1/4, 1/8, 1/16, 1/32 selectable</p>	<p><b>In-depth Interleaving</b> Only for DVB-H</p> <p><b>Bandwidth</b> 5/6/7/8 MHz mode selectable 5 MHz only for DVB-H</p>
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## 8VSB Option Specifications

<p><b>Standard</b> ATSC A.53 Part 2: 8VSB compatible</p>		
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## QAM Option Specifications

<p><b>Standard</b> ITU-T J.83 Annex A/C and B compliant</p>	<p><b>Constellation</b> Annex A/C: 16-QAM, 32-QAM, 64-QAM, 128-QAM,256-QAM</p>	<p>Annex B: 64-QAM, 256-QAM</p>
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## QPSK Option Specifications

<p><b>Standard</b> ETSI EN 300421 (DVB-S) compliant</p>	<p><b>Code Rate</b> 1/2, 2/3, 3/4, 5/6, 7/8</p>	<p><b>Symbol Rate</b> 1~45 M symbols/s</p> <p><b>DC Blocking Voltage</b> 50V max</p>
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## DVB-S2 Option Specifications

<p><b>Standard</b> ETS 302 307 Broadcast services compliant</p> <p><b>LDPC Code</b> 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, and 9/10 supports</p>	<p><b>Modulation Mode</b> QPSK, 8PSK, 16APSK, 32APSK</p> <p><b>Baseband Shaping Filter</b> Roll-off 0.20, 0.25, 0.35 selectable</p>	<p><b>Symbol Rate</b> 1~45 M symbols/s</p> <p><b>DC Blocking Voltage</b> 50V max</p>
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## T-DMB Option Specifications

<p><b>Standard</b> ETS 300401, ETS300799 compliant</p> <p><b>Transmission Mode</b> DAB transmission modes I, II, III, IV</p>	<p>- Transmission mode automatically selected from the ETI stream</p>	<p>Supports ETI(NI, G.703), ETI(NA, G.704)5592 and ETI(NA, G.704)5376 file format</p> <p>*T-DMB modulation from TS input is not supported</p>
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## ISDB-T Option Specifications

<p><b>Standard</b> ARIB STD-B31 v1.6 compliant</p> <p><b>Mode</b> Mode I, Mode II, Mode III</p> <p><b>Code Rate</b> 1/2, 2/3, 3/4, 5/6, 7/8 selectable</p> <p><b>Mapping</b> DQPSK, QPSK, 16QAM, 64 QAM</p>	<p><b>Guard Interval</b> 1/4, 1/8, 1/16, 1/32</p> <p><b>Time Interleaving Length</b> Mode I - 0, 4, 8, 16 Mode II - 0, 2, 4, 8 Mode III - 0, 1, 2, 4</p>	<p><b>The Number of Segment</b> 1 / 13 Segment</p> <p><b>Support TMCC Information and Generation</b> (ISDB-T information and IIP)</p> <p>*ISDB-T direct modulation from DVB-ASI input is supported.</p>
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### ISDB-S Option Specifications

<b>Standard</b> ARIB STD-B20 v3 compliant <b>FEC</b> inner:Trellis, convolutional coders outer:RS(204,188)	<b>Modulation</b> TC8PSK, QPSK, BPSK (hierarchical) <b>Code Rate</b> 1/2, 2/3, 3/4, 5/6, 7/8 selectable	*ISDB-S modulation from DVB-ASI input is not supported *Supports framed TS with TMCC (1~8 TS have totally 48 slots can be selected)
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### DTMB Option Specifications

<b>Standard</b> GB20600-2006 compliant <b>Number of Carrier</b> 1 or 3780 sub-carriers selectable <b>Frame Length</b> 4200, 4335, 4725 symbols	<b>Constellation</b> 4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM <b>Code Rate</b> 0.4, 0.6, 0.8	<b>Time Interleaving Length</b> 240, 720 symbols <b>Bandwidth</b> 8MHz
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### CMMB Option Specifications

<b>Standard</b> GY/T 220.1-2006 compliant <b>Constellation</b> BPSK, QPSK, 16QAM	<b>Subcarrier</b> 4096/8MHz	*CMMB modulation from DVB-ASI input is not supported *CMMB stream should have control information table (CMCT)
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### ATSC-M/H Option Specifications

<b>Standard</b> ATSC A/153 Part2 compliant	*Supports captured file play, live from external ATSC-M/H MUX through ASI-SMPTE-310M input	
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### DVB-T2 Option Specifications

<b>Standard</b> ETSI EN302 755 compliant <b>MISO/SISO</b> SISO <b>FFT Size</b> 1K, 2K, 4K, 8K(Normal and extended) <b>Guard Interval</b> 1/4, 1/8, 1/16, 1/32, 1/128, 19/128, 19/256 <b>PAPR</b> None <b>L1 Modulation</b> BPSK, QPSK, 16QAM, 64QAM <b>Pilot Pattern</b> PP1, PP2, PP3, PP4, PP5, PP6, PP7, PP8	<b>The Number of RF (TFS)</b> Single <b>FEF</b> None <b>The Number of PLP</b> Single PLP, Multi PLP (8 PLPs) <b>PLP Code Rate</b> 1/2, 3/5, 2/3, 3/4, 4/5, 5/6 <b>PLP Modulation</b> QPSK, 16QAM, 64QAM, 256QAM <b>Constellation Rotation</b> Supports at QPSK, 16QAM	<b>PLP FEC Type</b> 16K, 64K <b>Frame Interval</b> '1' <b>Time Interleaving Length</b> '0' <b>Time Interleaving Type</b> '0' <b>Bandwidth</b> 5/6/7/8 MHz mode selectable  *DVB-T2 modulation from DVB-ASI input is not supported *Supports T2MI multiplexed stream
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### DVB-C2 Option Specifications

<b>Standard</b> ETSI EN302 769 compliant <b>L1 TI Mode</b> NONE, BEST FIT, 4 Symbols, 8 Symbols <b>Guard Interval</b> 1/64, 1/128 <b>Data Slice Type</b> TYPE1, TYPE2 <b>Time Interleaving Depth</b> '00'	<b>FEC Header Type</b> ROBUST, HEM <b>BBHeader Format</b> NORMAL, HEM <b>The Number of PLP</b> Single PLP, Multi PLP (10 PLPs) <b>PLP Code Rate</b> 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 <b>PLP Modulation*</b> 16QAM, 64QAM, 256QAM, 1024QAM,4096QAM	<b>PLP FEC Type</b> 16K, 64K <b>Bandwidth</b> 6/7/8 MHz mode selectable  *256QAM,1024QAM,4096QAM configurations could have some post LDPC errors
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