



# **MaxEye Digital Audio and Video Signal Generation**

ISDB-T Signal Generation Toolkit

Version 2.0.0

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## **Remote C API User Manual**

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For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

## 1 Introduction

MaxEye Technologies provides generation functions in C for generating the standard compliant signals for various digital audio and video broadcasting standards. This guide explains Remote C APIs Structure and how to make use of APIs to control the ISDB-T Signal Generation toolkit Soft Front Panel remotely, to run programming examples by using NI hardware Vector Signal Generator (NI VSG), Vector Signal Transceiver (NI VST) and Universal Software Radio Peripheral (NI USRP).

Integrated Services Digital Broadcasting - Terrestrial (ISDB-T) is a Japanese standard for digital terrestrial television and a derivative of ISDB. Developed by the Brazilian government.

## 2 Installed File Location

The remote C API Documentation file is located in, C:\Program Files\MaxEye\Digital Video Toolkits\ISDB-T Generation\Remote\Documentation.

The remote C Examples are located in, C:\Program Files\MaxEye\Digital Video Toolkits \ISDB-T Generation\Remote\Examples.

The ISDB-T Signal Generation Soft Front Panel (SFP) is located in, C:\Program Files\MaxEye\Digital Video Toolkits\ISDB-T Generation\SFP.

You can also find a shortcut to the above location from the windows start menu.

**Start->All Programs->MaxEye->Digital Video Toolkits->ISDB-T**

**Note:** - For Windows 10, **Start-> MaxEye.**

## 3 Remote C APIs

The Remote C APIs allow user to configure and control the ISDB-T Signal Generation Soft Front Panel (SFP) remotely through TCP network connection. The SFP running in the signal generation hardware acts as a TCP Client and the test program running in the remote system built using the remote C APIs acts as a TCP Server. MaxEye ISDB-T Signal Generation Toolkit provides set of C APIs to establish connection, configure parameters, initiating and stopping the signal generation and to read the output parameters. The ISDB-T Signal Generation SFP operates in two modes, remote and local. To control the SFP from remote system the SFP should be in remote mode.

### 3.1 MaxEye ISDBT SG Remote TCP Open Connection

**NAME** MaxEye\_ISDBT\_SG\_Remote\_TCP\_Open\_Connection

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

**DESCRIPTION** Opens the TCP network connection between ISDB-T SFP Client and Server application.

**FUNCTION PROTOTYPE** `void __cdecl MaxEye_ISDBT_SG_Remote_TCP_Open_Connection`

```
(  
    char          IPAddress[],  
    uint16_t      PortNumber,  
    int32_t       TimeoutMs,  
    int32_t       ErrorCodeIn,  
    LVRefNum      *ConnectionIDOut,  
    int32_t       *ErrorCodeOut,  
)
```

### INPUT PARAMETERS

- PortNumber – Specifies the port number to establish network connection from server to client system. The default value is 7070.
- IPAddress – Specifies the IP Address or network name of the remote system.
- TimeoutMs – Specifies TCP Network connection timeout, in milliseconds, that the function waits to complete and return an error. The default value is 20s. A value of -1 indicates to wait indefinitely.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

## 3.2 MaxEye ISDBT SG Remote Set Number of Carriers

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_Number\_of\_Carriers

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**DESCRIPTION** Configures the number of carriers to the ISDB-T Client SFP Application through TCP Network Connection. The ISDB-T Signal Generation Toolkit supports generation of multiple ISDB-T carriers. The maximum number of carriers supported is 3.

**FUNCTION PROTOTYPE** `void __cdecl MaxEye_ISDBT_SG_Remote_Set_Number_of_Carriers`

```
(
    LVRefNum      *ConnectionIDIn,
    int32_t       NumberOfCarriers,
    int32_t       ErrorCodeIn,
    LVRefNum      *ConnectionIDOut,
    int32_t       *ErrorCodeOut
)
```

### INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- NumberOfCarriers – Specifies the number of carriers needs to be generated. The default value is 1.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

## 3.3 MaxEye ISDBT SG Remote Set Number of Frames

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_Number\_of\_Frames

**DESCRIPTION** Configures the total number of Frames to the ISDB-T Remote SFP Application through TCP Network Connection. The generator uses

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the same frame configuration for all the frames and the payload is continuous across frames.

**FUNCTION PROTOTYPE** `void __cdecl MaxEye_ISDBT_SG_Remote_Set_Number_of_Frames`

```
(
    int32_t      ErrorCodeIn,
    uint32_t     NumberOfFrames,
    LVRefNum     *ConnectionIDIn,
    int32_t      *ErrorCodeOut,
    LVRefNum     *ConnectionIDOut
)
```

### INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- NumberOfFrames – Specifies the required number of Frames. This parameter defines the length of the waveform to be generated. To generate longer duration of the waveform, increase the Number of Frames. The default value is 1.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

## 3.4 MaxEye ISDBT SG Remote Set Generation Mode

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_Generation\_Mode

**DESCRIPTION** Configures the Generation Mode to the ISDB-T Remote SFP Application through TCP Network Connection.

**FUNCTION PROTOTYPE** `void __cdecl MaxEye_ISDBT_SG_Remote_Set_Generation_Mode`

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```

    (
      LVRefNum      *ConnectionIDIn,
      uint16_t      GenerationMode,
      int32_t       ErrorCodeIn,
      LVRefNum      *ConnectionIDOut,
      int32_t       *ErrorCodeOut,
    )
  
```

## INPUT PARAMETERS

- **ConnectionIDIn** – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- **GenerationMode** – Specifies the generation mode of the MaxEye ISDB-T Signal Generator. The default value is 1. Given below are the possible values.
  - 0 – Generate and Play Waveform
  - 1 – Generate and Save Waveform
  - 2 – Play Waveform from File
- **ErrorCodeIn** – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- **Header** – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- **Library** – ISDB-T Generation.lib
- **DLL** – ISDB-T Generation.dll

### 3.5 MaxEye ISDBT SG Remote Set Hardware Type

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_Hardware\_Type

**DESCRIPTION** Configures the Hardware Type to the ISDBT SFP Application through TCP Network Connection

**FUNCTION PROTOTYPE** `void __cdecl MaxEye_ISDBT_SG_Remote_Set_Hardware_Type`  

```

(
  LVRefNum      *ConnectionIDIn,
  uint16_t      HardwareType,

```

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```

    int32_t      ErrorCodeIn,
    LVRefNum    *ConnectionIDOut,
    int32_t      *ErrorCodeOut,
  )

```

## INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- HardwareType – Specifies the hardware used. The default value is 0. Given below are the possible values.
  - 0 – VSG/VST (NI PXIe 5644R/5645R/5646R, NI PXIe 5840, NI PXIe 5672, NI PXIe 5673E)
  - 1 – USRP
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

### 3.6 MaxEye ISDBT SG Remote Set Hardware Settings

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_Hardware_Settings
<b>DESCRIPTION</b>	Configures the VSG/VST hardware settings to the ISDB-T Remote SFP Application through TCP Network Connection
<b>FUNCTION PROTOTYPE</b>	<pre> void __cdecl MaxEye_ISDBT_SG_Remote_Set_Hardware_Settings (     LVRefNum          *ConnectionIDIn,     Hardware_Settings *HardwareSettings,     int32_t           ErrorCodeIn,     int32_t           *ErrorCodeOut,     LVRefNum          *ConnectionIDOut ) </pre>

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## INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- HardwareSettings – Specifies the Hardware Settings parameters

```
typedef struct
{
    LStrHandle    RFSGResource;
    double        PowerLevelDBm;
    double        ArbPreFilterGainDB;
    double        ExternalAttenuationDB;
    LStrHandle    RefClockSource;
    double        FrequencyHz;
    LStrHandle    ClockOutputTerminal;
    double        SoftwareScalingFactor;
} Hardware_Settings
```

- RFSGResource – Specifies the Resource Name. Select the name used in NI Measurement and Automation Explorer (NI MAX) for the NI PXIe-5672/5673/5673E or NI PXIe 5644R/45R/46R or NI 5840 device.
- PowerLevelDBm – Specifies the Average Power level of the signal in dBm. The default value is -10.00dBm
- ExternalAttenuationDB – Specifies the external amplification or attenuation, if any, between the NI RF signal generator and the device under test. Positive values for this property represent amplification, and negative values for this property represent attenuation. The default value is 0.
- HaedroomDB – Needs to be added here
- ArbPreFilterGainDB – Specifies the AWG Pre-filter Gain. The pre-filter gain is applied to the waveform data before any other signal processing. Reduce this value to prevent overflow in the AWG interpolation filters. Other gains on the NI-RFSG device are automatically adjusted to compensate for non-unity AWG pre-filter gain. The default value is -1 dB
- RefClockSource – Specifies the source of the Reference Clock signal. The default value is 0. Given below are the possible values
  - 0 – OnboardClock
  - 1 – RefIn
  - 2 – PXI\_CLK
  - 3 – ClkIn
- FrequencyHz – Specifies the Reference Clock rate, in Hertz (Hz). The default value is 10MHz.
- ClockOutputTerminal – Specifies the terminal where the signal will be exported. The default value is 0. Given below are the possible values
  - 0 – Do not export signal
  - 1 – RefOut

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- 2 – RefOut2
- 3 – ClkOut
- 4 – PFI0
- 5 – PFI1
- 6 – PFI4
- 7 – PFI5
- 8 – PXI\_Trig0
- 9 – PXI\_Trig1
- 10 – PXI\_Trig2

**For more information about this, please refer NI RFSG Signal Generators help file.**

- SoftwareScalingFactor – Specifies how much to scale the data before writing it with the NI RFSG. The resulting waveform must be smaller than 1.0 in complex magnitude.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib, labview.lib
- DLL – ISDB-T Generation.dll

## 3.7 MaxEye ISDBT SG Remote Set Output Waveform Settings

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_Output_Waveform_Settings
<b>DESCRIPTION</b>	Configures the ISDBT Output Waveform Settings to the ISDBT Remote SFP Application through TCP Network Connection
<b>FUNCTION PROTOTYPE</b>	<pre>void __cdecl MaxEye_ISDBT_SG_Remote_Set_Output_Waveform_Settings (     LVRefNum     Output_Waveform_Settings     int32_t     *ConnectionIDIn,     *OutputWaveformSettings,     ErrorCodeIn,</pre>

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LVRefNum  
 int32\_t

 \*ConnectionIDOut,  
 \*ErrorCodeOut

)

## INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- OutputWaveformSettings – Specifies the Output Waveform Settings parameters

```
typedef struct
{
    double          HeadroomDB;
    uint16_t        OversamplingEnabled;
    double          OutputSamplingRate;
    uint16_t        SampleWidth;
    double          MaximumRealTimeBandwidthHz;
} Output_Waveform_Settings
```

- HeadroomDB – Specifies the Headroom value. The generator uses this value for scaling the waveform. If PAPR of the signal is higher than the Headroom value then the generator clips the signal. To avoid clipping, the Headroom value should be higher than the PAPR of the signal. The default value is 14 dB.
- OverSamplingEnabled – Specifies whether the Oversampling Property is enabled or not. If this property is set to True then the generator resamples the generated signal based on the value configured by the user for the Output Sampling Rate property. The default value is 0 (False). Given below are the possible values
  - 0 – False
  - 1 – True
- OutputSamplingRate – Specifies the Output Sampling Rate. The generator resamples the generated signal to a sampling rate equal to the Output Sampling Rate only if the Over Sampling Enabled property is set to True.
- SampleWidth – Specifies the sample width to be used to generate waveform file. The default value is 1(16 bit). MaxEye recommend using 16-bits sample width for better signal quality of the generated waveform. Given below are the possible values
  - 0 – 8 bit
  - 1 – 16 bit
- MaximumRealTimeBandwidthHz – The available bandwidth to combine the multi carrier waveform based on the selected hardware.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

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## OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- **Header** – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- **Library** – ISDB-T Generation.lib
- **DLL** – ISDB-T Generation.dll

## 3.8 MaxEye ISDBT SG Remote Set Carrier Configuration

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_Carrier\_Configuration

**DESCRIPTION** Configures the Carrier Frequency and Signal Bandwidth for each carrier based on carrier index value to the ISDBT Remote SFP Application through TCP Network Connection

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_Set_Carrier_Configuration  
(  
    LVRefNum      *ConnectionIDIn  
    int32_t       CarrierIndex,  
    double        CarrierFrequencyHz,  
    double        SignalBandwidthHz,  
    int32_t       ErrorCodeIn,  
    LVRefNum      *ConnectionIDOut,  
    int32_t       *ErrorCodeOut  
)
```

## INPUT PARAMETERS

- **ConnectionIDIn** – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- **CarrierIndex** – Specifies the index value of the selected carrier. The default value of the Carrier Index is 0 which corresponds to the first carrier. For generating multi carrier signal, configure the parameters for each carrier index.
- **CarrierFrequencyHz** – Specifies the Carrier Frequency for the selected carrier in Hz.
- **SignalBandwidth** – Specifies signal bandwidth of the selected carrier, in Hz. Configure the Bandwidth of the signal for the selected carrier. The generator internally uses the Carrier

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Frequency and Bandwidth property values internally to compute the overall bandwidth and sampling rate of the signal when more than one carrier is used.

- **ErrorCodeIn** – Specifies the error code. The **ErrorCodeIn** can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

### 3.9 MaxEye ISDBT SG Remote Set ISDBT Configuration

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_ISDBT\_Configuration

**DESCRIPTION** Configures the ISDB-T Waveform Settings for each carrier based on carrier index to the ISDBT Remote SFP Application through TCP Network Connection

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_Set_ISDBT_Configuration
(
    LVRefNum          *ConnectionIDIn,
    int32_t           CarrierIndex,
    ISDBT_Configuration *ISDBTConfiguration,
    int32_t           ErrorCodeIn,
    LVRefNum          *ConnectionIDOut,
    int32_t           *ErrorCodeOut
)
```

## INPUT PARAMETERS

- **ConnectionIDIn** – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- **CarrierIndex** – The default value of the Carrier Index is 0 which corresponds to the first carrier. For generating multi carrier signal, configure the parameters for each carrier index.
- **ISDBTConfiguration** – Allows user to configure following parameters.

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```
typedef struct
{
    uint16_t NumberOfSegments;
    uint16_t GuardInterval;
    uint16_t ModeSelection;
    uint16_t PartialReceptionEnabled;
    int16_t NumberOfHierarchicalLayers;
    uint16_t TSFileFormat;
    uint16_t ManualPIDAssignmentEnabled;
    PayloadMode_Settings DigitalVideoPayloadControl;
} ISDBT_Configuration;
```

- **NumberOfSegments** – Configure the Number of Segments to be used for generating the signal. The default value is 13. Given below are the possible values
  - 0 – 1
  - 1 – 3
  - 2 – 13
- **GuardInterval** – Configure the Guard Interval for the selected carrier. The Guard Interval is used to specify the length of cyclic prefix as a fraction of the total FFT size. The FFT size in Mode 1, Mode 2 and Mode 3 are 2048, 4096 and 8192 respectively. The default value is 1/8. Given below are the possible values
  - 0 – 1/4
  - 1 – 1/8
  - 2 – 1/16
  - 3 – 1/32
- **ModeSelection** – Configure the Mode Selection for the selected carrier. The mode selection determines the number of subcarriers used for data, pilot and other control information. The total number of used subcarriers in Mode 1, Mode 2 and Mode 3 are 1405, 2809 and 5617 respectively. The default value is Mode3. The valid values are Mode 1, Mode 2 and Mode 3.
  - 0 – Mode 1
  - 1 – Mode 2
  - 2 – Mode 3
- **PartialReceptionEnabled** – Configure the Partial Reception Enabled for the selected carrier. When this property is set to True, the first hierarchical layer is assigned for partial data reception and the number of segments in the first hierarchical layer should be 1. The toolkit returns an error if the number of segments in the first hierarchical layer is not 1 when this property is set to True. The default value is 1.
  - 0 – False
  - 1 – True

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- NumberOfHierarchicalLayers – Configure the Number of hierarchical layers for the selected carrier. The default value is 2. The valid values are 1, 2 and 3.
- TSFileFormat – Configure the TS File Format for the selected carrier. The toolkit internally uses this property only if the Manual PID Assignment Enabled property is set to True. The valid values for this property are TS File and Remultiplexed TS File. The valid enum values are TS File and Remultiplexed TS File. The default value is Remultiplexed TS File
  - 0 – TS File
  - 1 – Remultiplexed TS File
- ManualPIDAssignmentEnabled – Configure the Manual PID Assignment Enabled for the selected carrier. The valid values are True and False. When this property is set to True, the user needs to assign the PIDs for each Hierarchical layer. The toolkit ignores this property if the value for Payload Mode property is set to other than MPEG2TS File(s) mode. The default value is True. The valid enum values are
  - 0 – False
  - 1 – True
- DigitalVideoPayloadControl – Configure the following payload settings

```
typedef struct
{
    uint16_t    PayloadMode;
    uint16_t    SyncInsertionEnabled;
    int32_t     MPEG2TSNumberOfTSFiles;
}PayloadMode_Settings;
```

- PayloadMode – Choose the desired payload source. The default value is 0. Given below are the possible values
  - 0 – PN Sequence

Configure **Payload PN Order** and **Payload PN Seed** properties. The toolkit generates pseudo random sequence based on the **PN Order** and **Seed value**. The generated bit sequence is used as a payload for generating the signal. Use this mode for testing the receiver performance for random payload values. When the number of super frames is more than 1 then the toolkit maintains payload continuity across the super frames.

- 1 – User Defined Bits

Specifies desired bit pattern in the **Payload User Defined Bits** property. The generator repeats the entered bit pattern till the number of bits required for the frame, for the given configuration, is met

- 2 – Test Pattern

Specifies the test bit pattern. This mode is used for generating signal with known test patterns.

- 3 – Test File

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Specifies the path of the test file. This mode is used for generating signal with the binary data from the file.

- 4 – MPEG2TS File(s)

In this mode configure the MPEG2 TS Number of files and MPEG2 TS File Path property.

- SyncInsertionEnabled – If the Sync Insertion Enabled property is set to True, the toolkit inserts MPEG2 TS packet sync byte (0x47) after every 187 bytes. The length of the TS packet is 188 bytes and the first byte is a sync byte (0x47).
- MPEG2TSNumberOfTSFiles – Configure the required number of TS Files for the selected carrier.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

### 3.10 MaxEye ISDBT SG Remote Set TS File Path

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_TSFilePath

**DESCRIPTION** Configures the ISDBT MPEG2TS file path for each carrier based on the carrier index value to the ISDBT Remote SFP Application through TCP Network Connection

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_Set_Waveform_Settings
(
    LVRefNum      *ConnectionIDIn,
    int32_t       CarrierIndex,
    int32_t       TSFilePathIndex,
    char          MPEG2TSFilePath[],
    int32_t       ErrorCodeIn,
```

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)



```

    LVRefNum      *ConnectionIDOut,
    int32_t       *ErrorCodeOut
  )

```

## INPUT PARAMETERS

- **ConnectionIDIn** – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- **CarrierIndex** – The default value of the Carrier Index is 0 which corresponds to the first carrier. For generating multi carrier signal, configure the parameters for each carrier index.
- **TSFilePathIndex** – For generating multiple channels in one carrier, configure the MPEG2TS file path based on the TS file path index value. The default value of the TSFilePathIndex is 0, corresponds to the first MPEG2TS file path.
- **MPEG2TSFilePath** – Select the MPEG2 TS File based on the number of TS files configured for the selected carrier.
- **ErrorCodeIn** – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- **Header** – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- **Library** – ISDB-T Generation.lib
- **DLL** – ISDB-T Generation.dll

### 3.11 MaxEye ISDBT SG Remote Set Layer Configuration

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_Layer_Configuration
<b>DESCRIPTION</b>	Configures the hierarchical layer properties for each carrier to the Client ISDBT SFP Application through TCP Network Connection
<b>FUNCTION PROTOTYPE</b>	<pre> void __cdecl MaxEye_ISDBT_SG_Remote_Set_Layer_Configuration (     LVRefNum      *ConnectionIDIn,     int32_t       CarrierIndex, </pre>

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

```

    int32_t          LayerIndex,
    Layer_Configuration *LayerConfiguration,
    int32_t          ErrorCodeIn,
    LVRefNum         *ConnectionIDOut,
    int32_t          *ErrorCodeOut
  )

```

## INPUT PARAMETERS

- **ConnectionIDIn** – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- **CarrierIndex** – Specifies the index value of the selected carrier. The default value of the Carrier Index is 0 which corresponds to the first carrier. For generating multi carrier signal, configure the parameters for each carrier index.
- **LayerIndex** – The default value of the Layer Index is 0 which corresponds to the first service. The maximum supported layers are 3.
- **LayerConfiguration** – Allows user to configure the following parameters

```

typedef struct
{
    int16_t          NumberOfSegmentsInLayer;
    uint16_t         ModulationScheme;
    uint16_t         CodingRate;
    uint16_t         TimeInterleavingLengthMode1;
    uint16_t         TimeInterleavingLengthMode2;
    uint16_t         TimeInterleavingLengthMode3;
    uint32_t         PayloadPNSeed;
    uint32_t         PayloadPNOrder;
    uint16_t         PayloadTestPattern;
    LStrHandle       PayloadFilePath;
}

```

- **NumberOfSegmentsInLayer** – Configure the Number of Segments in layer for the selected layer. The total number of used segments in all the layers should be less than or equal to the value configured in the Number of Segments property. The toolkit returns an error if the total number of segments in all the layer exceeds the Number of Segments.
- **ModulationScheme** – Select one of the Modulation Scheme as per the requirement. Supporting schemes are DQPSK, QPSK, 16 QAM and 64 QAM. The valid enum values are
  - 0 – DQPSK
  - 1 – QPSK
  - 2 – 16 QAM
  - 3 – 64 QAM

The default value for layer 1 is 1.

The default value for layer 2 is 3.

- **CodingRate** – Select one of the coding rate as per the requirement. The valid enum values are

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- 0 – 1/2
- 1 – 2/3
- 2 – 5/6
- 3 – 7/8

The default value for layer 1 is 1.

The default value for layer 2 is 2.

- **TimeInterleavingLengthMode1** – Select one of the Time Interleaving Length Mode values as per the requirement. The default value is 4. The valid enum values are 0, 4, 8 and 16.
  - 0 – 0
  - 1 – 4
  - 2 – 8
  - 3 – 16
- **TimeInterleavingLengthMode2** – Select one of the Time Interleaving Length Mode values as per the requirement. The default value is 4. The valid enum values are 0, 2, 4 and 8.
  - 0 – 0
  - 1 – 2
  - 2 – 4
  - 3 – 8
- **TimeInterleavingLengthMode3** – Select one of the Time Interleaving Length Mode values as per the requirement. The default value for the layer1 is 4 & layer2 is 2. The valid enum values are 0, 1, 2 and 4.
  - 0 – 0
  - 1 – 1
  - 2 – 2
  - 3 – 4
- **PayloadPNSeed** – Specifies the initial state of the PN generator shift register. Configure this field when the Payload mode is PN Sequence.
- **PayloadPNOrder** – Specifies the order of the PN bit sequence to be generated. The valid values are 5 to 31, inclusive. Configure this field when the Payload mode is PN sequence.
- **PayloadTestPattern** – Select the required Test Pattern. Configure this field when the Payload mode is Test Pattern.
- **PayloadFilePath** – Configure the Payload File Path properties and the toolkit ignores other properties available in the Payload settings/ Digital Video Payload Control. This mode is used for generating signal with the data from the file. This Control is visible only if the Payload Mode selected as a Test File format.

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

- **ErrorCodeIn** – Specifies the error code. The **ErrorCodeIn** can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. **Connection ID Out** is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib, labview.lib
- DLL – ISDB-T Generation.dll

## 3.12 MaxEye ISDBT SG Remote Set Layer AssignedPIDs

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_Layer_AssignedPIDs
<b>DESCRIPTION</b>	Configures the layer assigned PIDs for the selected MPEG2TS File for each carrier with each layer based on the carrier & layer index value to the ISDB-T SFP application.

**FUNCTION PROTOTYPE**

```

void __cdecl MaxEye_ISDBT_SG_Remote_Set_Layer_AssignedPIDs
(
    LVRefNum      *ConnectionIDIn,
    int32_t       CarrierIndex,
    int32_t       LayerIndex,
    char          AssignedPIDs[],
    char          PayloadUserDefinedBits[],
    int32_t       ErrorCodeIn,
    LVRefNum      *ConnectionIDOut,
    int32_t       *ErrorCodeOut
)
  
```

### INPUT PARAMETERS

- **ConnectionIDIn** – Specifies the TCP connection reference. **Connection ID In** is a network connection reference that uniquely identifies the TCP connection.

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- **CarrierIndex** – Specifies the index value of the selected carrier. The default value of the Carrier Index is 0 which corresponds to the first carrier. For generating multi carrier signal, configure the parameters for each carrier index.
- **LayerIndex** – The default value of the Layer Index is 0 which corresponds to the first service. The maximum supported layers are 3.
- **AssignedPIDs** – Configure Assigned PIDs of the selected TS File for each layer. This Control is visible only if the Payload Mode selected as a MPEG2 TS File format.
- **PayloadUserDefinedBits** – Configure Payload User Defined Bits for each layer. This Control is visible only if the Payload Mode selected as a User Defined Bits format. Specifies a bit pattern as an array of ones and zeros. If the array length is greater than the required payload length, the toolkit uses a subset of the required length from the beginning of the array for waveform generation. If the array length is less than the required payload length, the toolkit repeats the bit pattern until the required length is achieved.
- **ErrorCodeIn** – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- **Header** – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- **Library** – ISDB-T Generation.lib
- **DLL** – ISDB-T Generation.dll

### 3.13 MaxEye ISDBT SG Remote Set Output Waveform File Path

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_Output_Waveform_File_Path
<b>DESCRIPTION</b>	Configures the path to save the generated waveform to the Client ISDB-T SFP Application through TCP Network Connection
<b>FUNCTION PROTOTYPE</b>	<pre>void__cdecl MaxEye_ISDBT_SG_Remote_Set_Output_Waveform_File_Path (     LVRefNum    *ConnectionIDIn,</pre>

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

```

    char          WavfeormFilePath[],
    int32_t       ErrorCodeIn,
    LVRefNum      *ConnectionIDOut,
    int32_t       *ErrorCodeOut
  )

```

### INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- WavfeormFilePath – Specifies the file location where the generated IQ baseband waveform is stored.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

## 3.14 MaxEye ISDBT SG Remote Set Play Waveform from File Settings

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_Play_Waveform_File_Settings
<b>DESCRIPTION</b>	Configures the ISDBT Play Waveform from File Settings to the Client ISDBT SFP Application through TCP Network Connection
<b>FUNCTION PROTOTYPE</b>	<pre> void __cdecl MaxEye_ISDBT_SG_Remote_Set_Play_Waveform_File_Settings (     LVRefNum          *ConnectionIDIn,     Play_Waveform_Settings *PlayWaveformSettings,     int32_t           ErrorCodeIn,     LVRefNum          *ConnectionIDOut,     int32_t           *ErrorCodeOut ) </pre>

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

## INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- PlayWaveformSettings – Allows user to configure the following parameters

```
typedef struct
{
    double        CenterFrequencyHz;
    int32_t       WriteBlockSizeSamples;
    int32_t       StreamingWaveformSizeSamples;
    uint16_t      SampleWidth;
}Play_Waveform_Settings;
```

- CenterFrequency – Specifies the center frequency of the ISDB-T signal in Hz.
- WriteBlockSizeSamples – Specifies the size of the block in samples. The waveform is written in the hardware as blocks.
- StreamingWaveformSize – Specifies the total memory allocated in the hardware for streaming the waveform in samples.
- SampleWidth – Specifies the sample width value. Use the same sample width value used for saving the waveform in the file.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

### 3.15 MaxEye ISDBT SG Remote Set Play Waveform File Path

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_Play\_Waveform\_File\_Path

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

**DESCRIPTION** Configures the play waveform file path to the ISDB-T SFP Application through TCP Network Connection.

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_Set_Play_Waveform_File_Path
(
    LVRefNum      *ConnectionIDIn,
    char           WavfeormFilePath[],
    int32_t        ErrorCodeIn,
    LVRefNum      *ConnectionIDOut,
    int32_t        *ErrorCodeOut
)
```

### INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- WaveformFilePath – Specifies the waveform file path to play the waveform
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

## 3.16 MaxEye ISDBT SG Remote Set USRP Hardware Settings

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Set\_USRP\_Hardware\_Settings

**DESCRIPTION** Configures USRP hardware settings to the ISDB-T SFP Application through TCP Network Connection.

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_Set_USRP_Hardware_Settings
(
    LVRefNum      *ConnectionIDIn,
```

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)



```

    char        USRPIPAddress[],
    double      USRPCarrierFrequencyHz,
    double      GainDB,
    char        ActiveAntenna[],
    int32_t     ErrorCodeIn,
    LVRefNum    *ConnectionIDOut,
    int32_t     *ErrorCodeOut
  )

```

## INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- USRPIPAddress – Specifies the IP address of the NI USRP
- USRPCarrierFrequencyHz – Specifies the Center Frequency of the ISDB-T signal in Hz.
- GainDB – Specifies the aggregate gain, in dB, to be applied to the RF signal.
- ActiveAntenna – Specifies the antenna port to be used for this channel.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

### 3.17 MaxEye ISDBT SG Remote Set USRP Play Waveform Settings

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_USRP_Play_Waveform_Settings
<b>DESCRIPTION</b>	Configures USRP Play Waveform from File Settings to the Client ISDBT SFP Application through TCP Network Connection
<b>FUNCTION PROTOTYPE</b>	<pre> void __cdecl MaxEye_ISDBT_SG_Remote_Set_USRP_Play_Waveform_Settings ( </pre>

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

```

    LVRefNum      *ConnectionIDIn,
    int32_t       WriteBlockSizeSamples,
    uint16_t      SampleWidth,
    char          WaveformFilePath[],
    int32_t       ErrorCodeIn,
    LVRefNum      *ConnectionIDOut,
    int32_t       *ErrorCodeOut
  )

```

## INPUT PARAMETERS

- **ConnectionIDIn** – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- **WriteBlockSizeSamples** – Specifies the size of the block in samples. The waveform is written in the hardware as blocks.
- **SampleWidth** – Specifies the sample width value. Use the same sample width value used for saving the waveform in the file.
- **WavformFilePath** – Specifies the path of the file to be played in the generator.
- **ErrorCodeIn** – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- **Header** – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- **Library** – ISDB-T Generation.lib
- **DLL** – ISDB-T Generation.dll

### 3.18 MaxEye ISDBT SG Remote Set Impairments

<b>NAME</b>	MaxEye_ISDBT_SG_Remote_Set_Impairments
<b>DESCRIPTION</b>	Configures the Impairment properties for each carrier to the Client ISDBT SFP Application through TCP Network Connection
<b>FUNCTION PROTOTYPE</b>	<code>void __cdecl MaxEye_ISDBT_SG_Remote_Set_Impairments</code> (

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

```

    LVRefNum      *ConnectionIDIn,
    int32_t       CarrierIndex
    Impairment    *Impairments,
    int32_t       ErrorCodeIn,
    LVRefNum      *ConnectionIDOut,
    int32_t       *ErrorCodeOut
  )

```

## INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- CarrierIndex – Specifies the index value of the selected carrier. The default value of the Carrier Index is 0 which corresponds to the first carrier. For generating multi carrier signal, configure the parameters for each carrier index.
- Impairments – Specifies the Impairment Configuration parameters

```

typedef struct
{
    uint16_t      ImpairmentsEnabled;
    uint16_t      AWGNEEnabled;
    double        CarrierToNoiseRatioDB;
    double        FrequencyOffsetHz;
    double        ClockOffsetPPM;
    IQ_Impairments IQImpairments;
}

```

- ImpairmentsEnabled – Specifies whether the impairment addition is enabled or not. If this property is set to True then the toolkit adds the impairments to the generated signal as per the user configuration for the supported impairments. The default value is 0 (False). Given below are the possible values
  - 0 – False
  - 1 – True
- AWGNEEnabled – Specifies if the AWGN noise addition is enabled or not. If this property is set to True then the toolkit adds Additive White Gaussian Noise (AWGN) to the created waveform based on the value configured in the Carrier to Noise Ratio property. The default value is 0 (False). Given below are the possible values
  - 0 – False
  - 1 – True
- CarrierToNoiseRatio – Specifies the Carrier to Noise ratio of the generated signal. The default value is 0 dB.
- FrequencyOffsetHz – Specifies the frequency offset in Hz. The toolkit applies frequency offset to the created waveform based on the value configured in this property. The applied frequency offset is relative to the signal generator's carrier frequency. The default value is 0.

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- **ClockOffsetPPM** – Specifies the clock offset in parts per million (ppm). The toolkit applies the clock offset to the generated waveform based on this value. The applied clock offset is relative to the clock frequency of the signal generator. The default value is 0.
- **IQImpairments** – Specifies IQ Impairment Configuration parameters

```
typedef struct
{
    double IDCOffset;
    double QDCOffset;
    double IQGainImbalanceDB;
    double QuadratureSkewDeg;
}
```

- **IDCOffset** – Specifies the In-phase DC offset value. The toolkit adds the DC offset to the in-phase signal component (I) of the complex waveform as a percentage of the root mean square magnitude of the unaltered I signal. The default value is 0.
- **QDCOffset** – Specifies the Quadrature DC offset value. The toolkit adds the DC offset to the quadrature-phase signal component (Q) of the complex waveform as a percentage of the root mean square magnitude of the unaltered Q signal. The default value is 0.
- **IQGainImbalanceDB** – Specifies the ratio, in dB, of the mean amplitude of the in-phase (I) signal to the mean amplitude of the quadrature-phase (Q) signal. The default value is 0.
- **QuadratureSkewDeg** – Specifies the deviation in angle from 90 degrees between the in-phase (I) and quadrature-phase (Q) signals. The default value for the Quadrature Skew is 0.
- **ErrorCodeIn** – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

## OUTPUT PARAMETERS

- **ConnectionIDOut** – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- **ErrorCodeOut** – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

## DEPENDENCIES

- **Header** – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- **Library** – ISDB-T Generation.lib
- **DLL** – ISDB-T Generation.dll

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

### 3.19 MaxEye ISDBT SG Remote Generation Control

**NAME** MaxEye\_ISDBT\_SG\_Remote\_Generation\_Control

**DESCRIPTION** Initiates or stops the signal generation

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_Generation_Control
(
    LVRefNum      *ConnectionIDIn,
    uint16_t      GenerationType,
    int32_t       errorCodeIn,
    LVRefNum      *ConnectionIDOut,
    int32_t       *errorCode
)
```

#### INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- GenerationType – Specifies whether to initiate or stop signal generation. The default value is 0.
  - 0 – Start Generation
  - 1 – Stop Generation
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

#### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

#### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

### 3.20 MaxEye ISDBT SG Remote TCP Get Error Status

**NAME** MaxEye\_ISDBT\_SG\_Remote\_TCP\_Get\_Error\_Status

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

**DESCRIPTION** Receives Error Message from the Remote SFP Application through TCP Network Connection

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_TCP_Send_Error
(
    LVRefNum      *ConnectionIDIn,
    int32_t       errorCodeIn,
    LVRefNum      *ConnectionIDOut,
    LVBoolean     *GenerationStatus,
    double        *GeneratingFrames,
    int32_t       len,
    char          ErrorStatus[],
    int32_t       *ErrorCodeOut
)
```

### INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ConnectionIDOut – Returns the TCP connection reference. Connection ID Out is a network connection reference that uniquely identifies the TCP connection. Use this value to refer to this connection in subsequent function calls.
- GenerationStatus – Returns the status of the generator.
- GeneratingFrames – Returns the current frame number being generated, to the user.
- len – Specifies the size of the ErrorStatus.
- ErrorStatus – Returns the description of the error occurred.
- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll

## 3.21 MaxEye ISDBT SG Remote TCP Close Connection

**NAME** MaxEye\_ISDBT\_SG\_Remote\_TCP\_Close\_Connection

For more information please contact [info@maxeyetech.com](mailto:info@maxeyetech.com)

**DESCRIPTION** Closes TCP network connection between ISDBT SFP Client and Server applications

**FUNCTION PROTOTYPE**

```
void __cdecl MaxEye_ISDBT_SG_Remote_TCP_Close_Connection  
(  
    LVRefNum      *ConnectionIDIn,  
    int32_t       ErrorCodeIn,  
    int32_t       *ErrorCodeOut  
)
```

### INPUT PARAMETERS

- ConnectionIDIn – Specifies the TCP connection reference. Connection ID In is a network connection reference that uniquely identifies the TCP connection.
- ErrorCodeIn – Specifies the error code. The ErrorCodeIn can accept error information from previously called C API function. Use this information to decide if any functionality should be bypassed in the event of errors from other C API functions.

### OUTPUT PARAMETERS

- ErrorCodeOut – Returns the error code, passes error or warning information out of an API to be used by other C API functions.

### DEPENDENCIES

- Header – ISDB-T Generation.h, extcode.h, fundtype.h, platdefines.h, lv\_epilog.h
- Library – ISDB-T Generation.lib
- DLL – ISDB-T Generation.dll