MIDI Visual Control Specification

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RP-050 MIDI Visual Control Specification

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1 Overview

This specification defines a way for MIDI to be used for control of visual presentation devices or systems. MIDI has expanded far beyond its original intention of being a control language for musical instruments. The robust nature of MIDI and wide support makes MIDI a suitable control system for visual performance or presentation devices.

Furthermore, video has become a common component of musical performances in many venues. It makes sense to use MIDI as a way to tie musical performance to visual performance.

When performing on a MIDI Visual Control compatible MIDI musical instrument, not only can sound be controlled, but images can be controlled as well. As a result, MIDI Visual Control makes it possible to create visual effects that are synchronized with a musical performance.
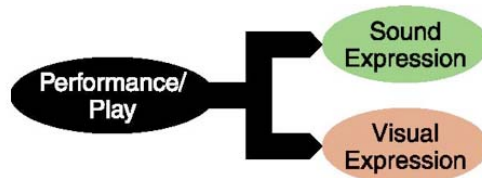
Just as you can control a sound generator from the performance control section of your MIDI instrument to create music, you can use MIDI Visual Control to control a visual source by playing back video material or switching Visual Elements such as Still Pictures, Video Clips, and Live Cameras.
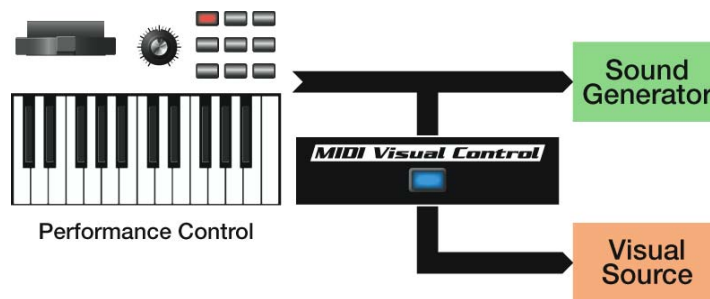
The performance control section, the sound generator, and the visual source may all be included in a single physical device that is able to handle both music and video, or you can use MIDI to connect different devices together to construct your own system. The MIDI Visual Control data is sent via MIDI.

1.1 Design Concepts

- Control over some commonly used features of visual presentation are controlled by commonly used MIDI messages of Note On/Off, Program Change and Bank Select, Control Change, and Pitch Bend.

- Extended functions and detailed control over visual elements are implemented using Universal System Exclusive messages.

- MIDI Visual Control uses a Master and Slave relationship. In general the Master device is a controller sending messages. A Slave device (usually a video output device) receives messages and changes visual content output based on the messages received.

- For Channel messages of MIDI Visual Control, the Master and Slave must be assigned to the same MIDI Channel.

- SysEx messages of MIDI Visual Control have a "Device ID" address in the message. Devices may have a user assignable Device ID so that multiple MIDI Visual Control devices can be independently addressed on one MIDI connection.

- Before any MIDI Visual Control messages are communicated, a Master device must send a "MIDI Visual Control On" message (Section 2.3.4) to the Slave. This message is a System Exclusive message which can be appended with further parameters to configure the response of the Slave device.

- MIDI Visual Control devices are not required to implement every feature of the specification. Every device must support the "MIDI Visual Control On" and "MIDI Visual Control Off" messages. Slave devices must also respond to the "Reset All Controllers" message. All other messages are optional and may be supported or not according to the needs and features of each device.

- If a Master or Slave device implements any feature of MIDI Visual Control, it must support the message that is the Default assignment for that feature. It is strongly recommended that Slave devices also support all alternate assignable messages associated with that feature.

2 Functions

2.1 Selecting/Triggering Display of Visual Content

There are 2 ways to select and trigger the display of specific visual elements:
- Program Change message (optionally with Bank Select message)
- Note On message (followed by Note Off message).

The choice of image, animation, movie, sprite, or other visual element that is displayed depends on the specification of and/or contents in the receiving device.

Master

The designer of a Master device may decide whether to send Program Change messages (optionally with Bank Select) or Note On/Off messages, or both, according to the implementation needs of the particular device. For example: changing images on the Slave device may be initiated by pressing notes on a keyboard or changing the patch on the Master device.

Slave

If a Slave has the ability to change visual content or source, it must respond to Program Changes to select and trigger the display of specific visual elements.

A Slave must also respond to Note On messages to select and trigger display of visual elements when the Slave has received the Note Message Enabled message (Section 2.3.8).

The type of image control assigned to each program change or note number is up to the Slave device itself.

2.1.1 Program Change Message

Program Change
```
CnH ppH
```

n = MIDI Channel number: 0H–FH (Ch. 1–16)
                Determined by CCM parameter (Section 2.3.6); Default CCM is 0H
pp = image number (or source): 00H–7FH (1–128)

Slave

When receiving Program Change messages the Slave device will change things such as image clips or image source, according to its own design. If there is no image available at the corresponding location for the received Program Change the Slave should ignore the message.

2.1.1.1 Bank Select Message [Optional]

Bank Select MSB
```
BnH 00H mmH
```

Bank Select LSB
```
BnH 20H llH
```

n = MIDI Channel number: 0H–FH (Ch. 1–16)
                Determined by CCM parameter (Section 2.3.6); Default CCM is 0H
mm = image bank number MSB: 00H–7FH (1–128)
ll = image bank number LSB: 00H–7FH (1–128)

The Bank Select message is used for selecting sets of images, which expands the number of available image clips or sources that can be selected using the Program Change message.

<u>Master</u>

A Master will transmit Bank Select MSB (most significant byte) and LSB (least significant byte) messages, always in that order and always as a set. Immediately following the transmission of the Bank Select message, a Program Change message must be sent in order to select the image. If there is no need to change the image bank, transmission of Bank Select messages can be omitted.

<u>Slave</u>

On the Slave side, images are not changed just by receiving only the Bank Select message. The images will be changed only after reception of the Program Change.

The product designer may decide the response of the Slave device to Bank Select messages, according to the implementation needs of the device. If the device does not support multiple banks of images, it may ignore Bank Select messages.

2.1.2 Note On/Off

Note On
```
9nH kkH vvH
```

Note Off
```
8nH kkH vvH
```

n = MIDI Channel number: 0H–FH (Ch. 1–16)
          Determined by CCM parameter (Section 2.3.6); Default CCM is 0H
kk = note number: 00H–7FH (0–127)
vv = Velocity: 00H–7FH (0–127) (Note On vv="00" functions as Note Off Message)

<u>Master</u>

Using the Note On/Off Message is optional. If used, the following rules apply:

- Before the Master Device sends Note On/Off messages for Changing/Triggering Display of Visual Content, the Master must send the Note Message Enabled message (Section 2.3.8).
- The Master must always send Note On and Note Off as pairs..

<u>Slave</u>

Note On/Off messages do not select/trigger visual content on slave devices until they are enabled using the Note Message Enabled message (Section 2.3.8).

When a valid Note On message is received by a Slave device, the Slave changes the image source or plays an image clip assigned to the corresponding Note Number. Slaves must only respond to Note On messages with Note Numbers in the range specified in the Note Message Enabled message. If the Slave has no content assigned for the Note number that is received, the Slave must ignore the message.

Slave recognition of Note Off messages is optional. MIDI Visual Control does not define any specific usage of a Note Off message.

The Velocity value of the Note On/Off can be used by the Slave to control any parameter (i.e. is undefined).

2.2 Manipulating the Current Image

MIDI Pitch Bend, Channel Pressure (Aftertouch), and certain Control Change messages may be used to manipulate the current visual element, such as to change the brightness, color, intensity, or control the time between images, etc.

Master

Masters may use any appropriate physical controller (such as Pitch Bender, Aftertouch, Modulation Wheel, knobs, faders, etc.) to transmit the defined MIDI messages for manipulating the current image. The Master device is not required to implement every message that MIDI Visual Control supports.

Slave

The default assignment of MIDI messages to MIDI Visual Control parameters is shown below. The assignments can also be changed using System Exclusive Messages (Section 2.3). Slave devices are not required to implement every type of message that MIDI Visual Control supports.

2.2.1 Control Change Message

Control Change
BnH ccH vvH

n   = MIDI Channel number: 0H–FH (Ch. 1–16); Default= 0H
            For Bank Select MSB and LSB:
                Determined by CCM parameter (Section 2.3.6)
            For Other Controllers:
                Determined by CCM parameter (Section 2.3.6) if assigned to Clip Control
                Determined by ECM parameter (Section 2.3.7) if assigned to Effect Control
cc   = Controller number ("CC#"): 00H–77H (0–119)
        (Note: CC# 0, 32 are used for Bank Select only)
vv   = Value: 00H–7FH (0–127)

The default assignments of MIDI CC# to MIDI Visual Control parameters are shown below.

Default CC# Assignments

CC #		MIDI Visual Control Parameter
Hex	Dec	
00H	0	Bank Select MSB*
05H	5	Dissolve Time MSB
20H	32	Bank Select LSB*
25H	37	Dissolve Time LSB
47H	71	Effect Control 1
49H	73	Effect Control 2
4AH	74	Effect Control 3
*described in Section 2.1.1.1		

2.2.1.1 Dissolve Time

The MIDI Controllers #05 (MSB) and #37 (LSB) are assigned to Dissolve Time by default. The Dissolve Time parameter controls the overlap time when changing images. The resulting change from these Controllers depends on the features and implementation of the Slave Device.

The MIDI receive Channel for Dissolve Time can be set with the Clip Control Channel (CCM) parameter (Section 2.3.6).

2.2.1.2 Effect Control

The MIDI Controllers #71, 73, and 74 are assigned to Effect Control by default. The resulting change from these Controllers depends on the features and implementation of the Slave Device.

Typically, Effect Control messages will control parameters of the Color Space of the Slave. There is no direct mapping between Color Space implementations commonly used by video devices, but the same 3 messages are used regardless of the color space of that device. The table below shows the function of each Effect Control in each Color Space.

The Slave device may also use Effect Control messages to control any other parameter (Custom Effect). Or, a Slave may use one or more Effect Control messages to control color space parameters while using another Effect Control message to control a custom effect. (For example, a Slave may use Effect Control 1 to control frequency of a strobe effect, Effect Control 2 to control Hue, and Effect Control 3 to control Brightness.)

The MIDI receive Channel for Effect Control can be set with the Effect Control Channel (ECM) parameter (Section 2.3.7).

Function of Effect Controls In Each Color Space Type (or Custom Use)

Message	Color Space			Custom Use
	RGB	HSB	YCbCr	
Effect Control 1	Red	Saturation	Cr – Chroma Red	Device Dependent
Effect Control 2	Blue	Hue	Cb – Chroma Blue	Device Dependent
Effect Control 3	Green	Brightness	Y - Luma	Device Dependent

2.2.2 Channel Pressure (Aftertouch) Message

Channel Pressure (Aftertouch)
```
DnH vvH
```

n = MIDI Channel number: 0H–FH (Ch. 1–16); Default= 0H
    Determined by CCM parameter (Section 2.3.6) if assigned to Clip Control
    Determined by ECM parameter (Section 2.3.7) if assigned to Effect Control
vv = Channel Pressure Value: 00H-7FH (0-127)

The Channel Pressure (Aftertouch) message has no default usage and may be used to manipulate any control that is accessible on the slave device.

2.2.3 Pitch Bend Message

Pitch Bend Change
`EnH llH mmH`

`n`   = MIDI Channel number: 0H–FH (Ch. 1–16); Default= 0H
                 Determined by CCM parameter (Section 2.3.6) if assigned to Clip Control
                 Determined by ECM parameter (Section 2.3.7) if assigned to Effect Control
`mm,ll` = Pitch Bend Value MSB, LSB: 00 00H–40 00H–7F 7FH (-8192–0–+8191)

By default, the Pitch Bend message controls the speed of image playback (Playback Speed parameter). The relation between pitch bend value and playback speed can be set using the Playback Speed Control Range message (Section 2.3.9). Typically the center value (0) is for normal speed, positive (+) values accelerate (speed up image playback) and negative (-) values decelerate (slow down image playback).

The MIDI receive Channel for playback speed can be set with the Clip Control Channel (CCM) parameter (Section 2.3.6).

2.2.4 Reset All Controllers Message [Required for Slave]

Channel Mode Message
`BnH 79H 00H`

`n`   = MIDI Channel number: 0H–FH (Ch. 1–16); Default= 0H
                 Determined by CCM parameter (Section 2.3.6) if assigned to Clip Control
                 Determined by ECM parameter (Section 2.3.7) if assigned to Effect Control

If the Clip Control MIDI receive Channel and the Effect Control MIDI receive Channel are set to different Channels, then the Reset All Controllers message must be sent on both Channels.

If a Slave receives the MIDI Reset All Controllers message the slave shall reset the following MIDI Visual Control parameters to these default values:

Parameter	Default value
Dissolve Time	0 sec.
Playback Speed	Normal
Effect-1	Normal
Effect-2	Normal
Effect-3	Normal

2.3 Mode & Parameter Settings

MIDI System Exclusive Messages are used to:

- enable/disable MIDI Visual Control operation in devices that operate in other modes;
- enable/disable response to certain messages in Slave devices (if supported);
- set MIDI receive Channels and other aspects for certain messages.

2.3.1 Universal System Exclusive Format

MIDI Visual Control Messages comply with the MIDI Universal System Exclusive Format:

Universal System Exclusive
```
FOH 7EH Dev OCH 01H {. . .} F7H
```

FOH	= System Exclusive Status
7EH	= Universal System Exclusive Non Realtime Header
DEV	= Device ID (00-7F; MVC Default = 00H)
OCH	= Sub-ID#1 (MIDI Visual Control)
01H	= Sub-ID#2 (MVC Command Set ID; 01H="Version 1.0")
{. . .}	= MIDI Visual Control "Data Set" (See Section 2.3.2 below)
F7H	= End of System Exclusive ("EOX")

2.3.1.1 Device ID ("DEV")

When MIDI Visual Control information is transmitted via system exclusive messages the Device ID included within the message is used to determine whether the message should be recognized by a specific device. This means that the Device ID of messages transmitted by the Master device must match the Device ID being recognized by the Slave device.

The Device ID of the Slave unit shall be 00H by default. If the device allows the Device ID to be changed, the device may store the user-edited Device ID setting. Device ID "7F" is used to indicate that all devices should respond.

2.3.2 MIDI Visual Control "Data Set"

The MIDI Visual Control Data Set is comprised of an address for the data, the actual data to be transmitted, and a check sum:

[ADDR]: This is the address of the data to be transmitted. If transmitting multiple items of data, this will be the address of the *starting* data. Each byte of data has a 3 Byte address in the range 10H 00H 00H to 10H 7FH 7FH. In the future, if it becomes necessary to add parameters for MIDI Visual Control, addresses will be assigned from this range. (New parameters may be added only by AMEI/MMA). See Section 2.3.2.1 (Parameter Address Map) for the addresses for specific parameters.

[DATA]: This is the actual parameter data to be transmitted. If the parameters to be set have consecutive addresses, without any reserved addresses between them, multiple data items may be transmitted in the same message. However, if there are 128 or more bytes, the data must be divided into packets of less than 128 bytes and transmitted with a time interval of at least 20 ms.

SUM: This is a value that produces a lower seven bits of zero when the [ADDR], [DATA], and checksum itself are summed.

2.3.2.1 Parameter Address Map

The following table describes the addresses that are used for MIDI Visual Control settings. MSN means "most significant Nibble", or the upper 4 bits of a byte. LSN means "least significant Nibble", or the lower 4 bits of a byte. These are combined to create the 8-bit byte.

PARAMETER ADDRESS MAP				
[ADDR] **Address**	**Parameter**	**[DATA]**		**Notes**
		Range of value	**Default value**	
System Preference Area				
10H 00H 00H	MIDI Visual Control ON/OFF	00H–01H	-	0=Off, 1=On
10H 00H 01H	CCM (Clip Control Rx MIDI Ch.)	00H–10H	00H	0=Ch. 1, F=Ch. 16, 10h=Off
10H 00H 02H	ECM (Effect Control Rx MIDI Ch.)	00H–10H	00H	0=Ch. 1, F=Ch. 16, 10h=Off
10H 00H 03H	NME (Note Message Enabled)	00H–01H	00H	See Section 2.3.8
10H 00H 04H : 10H 0FH 7FH	System Preference Reserved Area	-	-	Reserved
Clip Control Assignment Area				
10H 10H 00H	Playback Speed Ctrl Assign MSN	00H–0FH	0EH	4 bit MSN + 4 bit LSN = 8 bit data. D0H = Aftertouch E0H = Pitch Bend Change FFH = No Assignment 01H-1FH, 40H-5FH = CC# All other values reserved.
10H 10H 01H	Playback Speed Ctrl Assign LSN	00H–0FH	00H	
10H 10H 02H	Dissolve Time Ctrl Assign MSN	00H–0FH	00H	
10H 10H 03H	Dissolve Time Ctrl Assign LSN	00H–0FH	05H	
10H 10H 04H : 10H 1FH 7FH	Clip Control Assignment Reserved Area	-	-	Reserved
Effect Control Assignment Area				
10H 20H 00H	Effect Control 1 Assign MSN	00H–0FH	04H	4 bit MSN + 4 bit LSN = 8 bit data. D0H = Aftertouch E0H = Pitch Bend Change FFH = No Assignment 01H-1FH, 40H-5FH = CC# All other values reserved.
10H 20H 01H	Effect Control 1 Assign LSN	00H–0FH	07H	
10H 20H 02H	Effect Control 2 Assign MSN	00H–0FH	04H	
10H 20H 03H	Effect Control 2 Assign LSN	00H–0FH	09H	
10H 20H 04H	Effect Control 3 Assign MSN	00H–0FH	04H	
10H 20H 05H	Effect Control 3 Assign LSN	00H–0FH	0AH	
10H 20H 06H : 10H 2FH 7FH	Effect Control Assignment Reserved Area	-	-	Reserved
Clip Control Preference Area				
10H 30H 00H	Reserved	-	-	Reserved
10H 30H 01H	Playback Speed Ctrl Range	00H–7FH	00H	See Section 2.3.9
10H 30H 02H	Keyboard Range Lower	00H–7FH	24H	See Section 2.3.8.1
10H 30H 03H	Keyboard Range Upper	00H–7FH	54H	See Section 2.3.8.1
10H 30H 04H : 10H 30H 7FH	Clip Control Preference Reserved Area	-	-	Reserved
Reserved Area				
10H 40H 00H : 10H 7FH 7FH	Reserved	-	-	Reserved

2.3.3 Set Parameter Message

Parameters can be set individually or as consecutive addresses (without any reserved addresses between them) as shown in the examples, below.

Single Parameter Examples:

```
Example 1
F0H 7EH 00H 0CH 01H {[10H 00H 00H] 01H} SUM F7H
```

```
  {[10H 00H 00H] = System Preference Area: MVC On/Off
  01H}           = Set MVC On
```

```
Example 2
F0H 7EH 00H 0CH 01H {[10H 30H 01H] 02H} SUM F7H
```

```
  {[10H 30H 01H] = Clip Control Preference Area:
                    Playback Speed Ctrl Range
  02H}           = Set 02H Range
```

Consecutive Parameters Example:

```
F0H 7EH 00H 0CH 01H {[10H 00H 01H] 0EH 0EH} SUM F7H
```

```
  {[10H 00H 01H] = System Preference Area: CCM
  0EH            = Set Clip Ctrl Rx MIDI Ch (15)
  0EH}           = Set Effect Ctrl Rx MIDI Ch (15)
```

2.3.4 MIDI Visual Control ON [Required]

<u>Master</u>

The Master must set MVC On before beginning to transmit any MIDI Visual Control messages.

```
 F0H 7EH DEV 0CH 01H {[10H 00H 00H] 01H} SUM F7H
```

```
  {[10H 00H 00H] = System Preference Area: MVC On/Off
  01H}           = MVC On
```

Note: One or more additional parameters from the System Preference Area (only) may also be set using the MIDI Visual Control ON message (consecutive addresses only), as shown below.

Example:

```
F0H 7EH DEV 0CH 01H {[10H 00H 00H] 01H CCM ECM NME} SUM F7H
```

```
  {[10H 00H 00H] = System Preference Area: MVC On/Off
  01H            = MVC On
  CCM            = Clip Control Rx MIDI Channel (0=1, F=16, 10H=Off)
  ECM            = Effect Control Rx MIDI Channel (0=1, F=16, 10H=Off)
  NME}           = Note Message Enabled (0=Off, 1=On)
```

<u>Slave</u>

When the Slave device that operates in other modes receives the "MVC On" mode message it will enable response to MIDI Visual Control messages.

The Slave will also reset all MIDI Visual Control parameters to the default values as shown in section 2.2.4 and perform all the same processes as having received a "Reset All Controllers". If the MIDI Visual Control On message contains added parameters then the Slave's parameters are set to the received values instead of their default values.

2.3.5 MIDI Visual Control OFF [Required]

Master

The Master transmits this to indicate that it is finished sending MIDI Visual Control messages.

```
F0H 7EH DEV 0CH 01H {[10H 00H 00H] 00H} SUM F7H

  {[10H 00H 00H] = System Preference Area: MVC On/Off
  00H}            = MVC Off
```

Slave

The Slave device will exit MIDI Visual Control mode and stop responding to MIDI Visual Control messages.

2.3.6 Clip Control Rx. MIDI Channel

This parameter tells the slave which MIDI Channel to listen to for Clip Control messages (Selecting/Triggering Display, Playback Speed, Dissolve Time). The default value is 0H.

2.3.7 Effect Control Rx. MIDI Channel

This parameter tells the slave which MIDI Channel to listen to for Effect Control messages. The default value is 0H.

2.3.8 Note Message Enabled

Although Bank Select and Program Change messages are always enabled to be used to change images, this switch allows Note On/Off messages to also be used to change images.

- OFF (0): Note messages will not be used for video control.

- Assignable (1): Only note messages in the range specified by the Keyboard Range Lower parameter and Keyboard Range Upper parameter will be used for image control according to the specifications of the Slave device (see Section 2.3.8.1 below).

2.3.8.1 Keyboard Lower/ Upper Range Parameters

When the Note Message Enabled parameter is set to "Assignable (1)," these parameters further specify the range of notes used for image control. The values are MIDI Note Numbers (where 60 = Middle C).

  Example: Keyboard Range Lower = 1CH (28); Keyboard Range Upper = 28H (40)

If the Keyboard Range Lower and Keyboard Range Upper parameters are not set, the Default range shall be used (24H/54H).

Master

If the keyboard range requirement of the Master device differs from the default, the Keyboard

Range Lower parameter and Keyboard Range Upper parameter must be transmitted to the Slave device, so that only the note messages in the specified range will be used for image control.

<u>Slave</u>

When the Slave device receives note messages in this range, it will optimally allocate image presets for the specified range, and perform video control operations, according to the specifications of that device. Note messages outside this range must be ignored.

2.3.9 Playback Speed Control Range

This parameter sets the range of response when controlling the playback speed with a MIDI Continuous Controller assigned to that purpose using the "Playback Speed Ctrl Assign MSN" and "Playback Speed Ctrl Assign LSN" parameters.

The rows of the table represent different possible ranges of playback speeds.

The first column represents the data value sent via the "Playback Speed Control Range" Message in order to select the desired range

The second column represents the intended Playback speed when the control (slider or pitch bender) is set to its minimum. Note: 0.0 = playback paused, negative numbers = reverse playback.

The third column represents the intended Playback speed when the control is at the center of its range.

The fourth column represents the intended Playback speed when the control is set to its maximum.

	Minimum	Center	Maximum	Notes
	=======	======	=======	==================
7 bit:	00H	40H	7FH	(-64 -- 0 -- +63)
14 bit:	00H 00H	40H 00H	7FH 7FH	(-8192 -- 0 -- +8191)

Multiple of Original Playback Speed

00H	0.0	1.0	2.0	(default)
01H	0.5	1.0	2.0	
02H	0.0	1.0	4.0	
03H	0.5	1.0	4.0	
04H	0.0	1.0	8.0	
05H	0.5	1.0	8.0	
06H	0.0	1.0	16.0	
07H	0.5	1.0	16.0	
08H	0.0	1.0	32.0	
09H	0.5	1.0	32.0	
0AH – 13H	–	–	–	(reserved)
14H	0.0	2.0	4.0	
15H	0.0	4.0	8.0	
16H	0.0	8.0	16.0	
17H	0.0	16.0	32.0	
18H – 1DH	–	–	–	(reserved)
1EH	-2.0	1.0	4.0	
1FH	-6.0	1.0	8.0	
20H – 7FH	–	–	–	(reserved)

3 Instrument Design Recommendations

3.1 Master (transmitter)

A MIDI Visual Control Master device should include switches and indicators as described below.

3.1.1 MIDI Visual Control ON/OFF Button

A MIDI Visual Control Master device should include a MIDI Visual Control ON/OFF button on its operating panel to turn ON and OFF the MIDI Visual Control function.

The MIDI Visual Control ON/OFF Button operations are as follows:

- Turn ON: Send "MIDI Visual Control ON" message. Send some System Exclusive messages, for environment setting, if required.
- Turn OFF: Send "MIDI Visual Control OFF" message to the external video equipment.

If the product is designed to be connected to a video device, inform the user of this fact. One good way of doing this is by displaying a message on the screen of the product when turning on MIDI Visual Control.

If a dedicated MIDI Visual Control ON/OFF button cannot be provided, it is acceptable to have an existing button double as the MIDI Visual Control ON/OFF button, or to provide for control within the display screen.

3.1.2 MIDI Visual Control ON/OFF Indicator

An electronic musical instrument that functions as a MIDI Visual Control Master device should include a MIDI Visual Control ON/OFF indicator. A blue LED indicator is recommended in or near the MIDI Visual Control ON/OFF button, The LED lights when MIDI Visual Control is turned on and goes out when MIDI Visual Control in turned off. We recommend the following three display methods:

- A self-illuminating MIDI Visual Control ON/OFF button.
- An LED placed near the MIDI Visual Control ON/OFF button.
- The status may be displayed in a display screen such as LCD.

3.1.3 Changing / Triggering Display of Visual Content

With an instrument that has some controllers such as pads or registration buttons, we recommend using the pads or buttons to transmit bank select messages or program change messages to perform control operations such as switching images.

In the case of the keyboard products without pads or registration buttons, we recommend using the leftmost or rightmost octave (12 keys) of the keyboard (using note messages to perform control operations such as switching images). The product designer may decide whether to allow this to be switched on/off by a setting on the keyboard, depending on the implementation needs of the particular product. Depending on the specifications of the keyboard, it is also conceivable that this key range be more or less than one octave, or that it be set specifically for the product.
In most cases, when keys are assigned for image control they should not be used for conventional playing of sounds.

3.2 Slave (receiver)

A device that functions as a MIDI Visual Control Slave device does not require any specific switches or knobs.. The Slave will be managed by the information from the MIDI Visual Control Master device.

Note: In some cases it may be useful to provide a user selectable operation on the Slave that allows the user to turn OFF the Slave's MIDI Visual Control function.

3.2.1 Upon Reception of MIDI Visual Control ON

- Light the MIDI Visual Control ON/OFF indicator (if such indicator exists).

4 Logo Usage Requirements

4.1 Compliance

The term MIDI Visual Control may only be used in conjunction with products that comply with this specification.

4.2 Logo

The following logo may be licensed for use in conjunction with products that comply with this specification. The logo is recommended for inclusion on product packaging, in marketing materials, and on device control panels.

The logo is the property of the MIDI Manufacturers Association (MMA) and Association of Musical Electronics Industry (AMEI) and may not be used without written license.

Please contact MMA or AMEI for the license.