

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

**IN RE PAPST LICENSING GMBH & CO.
KG LITIGATION**

**This Document Relates To:
ALL CASES**

**Misc. Action No. 07-493 (RMC)
MDL Docket No. 1880**

**PAPST LICENSING GMBH & CO. KG'S ASSERTED CLAIMS AND
INFRINGEMENT CONTENTIONS**

Pursuant to this Court's Second Practice and Procedure Order, Papst Licensing GmbH & Co. KG ("Papst") provides the following for its asserted claims and infringement contentions:

PRELIMINARY STATEMENTS

1. Papst has not completed its investigation of the facts relating to this action. Accordingly, with respect to these asserted claims and infringement contentions, Papst reserves the right to amend and/or supplement its responses, if necessary, with additional information based upon further investigation and discovery, and to rely upon such information in the course of this action and at trial.

2. Papst reserves the right to amend or supplement the present disclosure as the parties comply with the disclosure, briefing, and hearing schedule concerning claim construction as set forth in the Order. Papst further reserves the right to amend or supplement the present disclosure after such time as the Court provides any rulings concerning the scope of the claims of the patents-in-suit.

3. Papst also notes that Papst served Papst Licensing GmbH & Co. KG's First Joint Set Of Interrogatories To Defendants on the Camera Manufacturers. These interrogatories seek, among other things, information concerning USB descriptors and information regarding which SCSI Block Commands and which PTP Commands are supported by each device. Such information is relevant to the present disclosure. Papst does not expect responses from Camera Manufacturers, however, until after service of this disclosure. Papst recently received over 60,000 pages of documents from Casio, but Papst has not had an opportunity to completely review those documents yet and notes that many of the Casio documents are in Japanese. Nevertheless, Papst provides its disclosure below based on currently available information. Papst reserves the right to amend or supplement this response after it receives and evaluates any additional information as may become known as discovery progresses in this case.

ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS

Subject to the Preliminary Statements above, and according to Papst's best understanding at this time, devices which are believed to be configurable to operate as USB Mass Storage mode ("Mass Storage Class Digital Cameras," or "MSC Digital Cameras") and digital cameras configured to operate in PTP mode ("PTP Digital Cameras") include at least the following:

Camera Brand	Device Model
Casio	EXILIM EX-V7
	EXILIM EX-Z110
	EXILIM EX-Z60
	EXILIM EX-Z1050
	EXILIM EX-Z75

Camera Brand	Device Model
	EXILIM EX-S600
	EXILIM EX-Z700
	EXILIM EX-Z1000
	EXILIM Pro EX-P700
	EXILIM EX-Z600
	EXILIM EX-S500
	EXILIM EX-S770
Fujifilm	FINE PIX F10
	FINE PIX F650
	FINEPIX S9100
	FINE PIX A700
	FINE PIX S5600
	FINE PIX E900
	FINE PIX V10
HP	PHOTOSMART R827
	PHOTOSMART R817
	PHOTOSMART M425
	PHOTOSMART M527
	PHOTOSMART E427
	PHOTOSMART R927
	PHOTOSMART R725
	PHOTOSMART M627
JVC	GZ-MG67E
	GZ-MG505E
	GZ-MG20E
Olympus	STYLUS 760
	STYLUS 730

Camera Brand	Device Model
	EVOLT E-410
	FE-250
	SP-510UZ
	Stylus 1000
	FE-190
	E-500
	STYLUS 710
	FE 120
	SP-500UZ
	mju Digital 600
	Stylus 720 SW
Panasonic	DMC-LZ5 EG
	DMC-LX1
	DMC-L1K
	PV-GS320
	HDC-SD1
	VDR-D230
	DMC-FX07
	DMC-FX01
	DMC-FX8 EG
	DMC-TZ1 EG
	DMC-FZ7 EG
	DMC-LZ3
Samsung	Digimax L55W
Nikon	Coolpix 4600
	Coolpix P2
	Coolpix S4

Camera Brand	Device Model
	Coolpix 7600
	Coolpix L101
	D50 SLR
	Coolpix L3
	Coolpix S9
	Coolpix L6
	Coolpix S7c
	Coolpix L5
	Coolpix S10

Subject to the above Preliminary Statements and subject to further discovery in this case, according to Papst's best understanding at this time, devices which are believed to be configurable to operate at least as MSC Digital Cameras include:

Camera Brand	Model
JVC	GZ-MG155U
Olympus	FE110
	Camedia C 4000
	Camedia C 370
	FE-170
Samsung	SGH-D900i
	SGH-D820
	Digimax V700
	Digimax I5
	Digimax A55W
	Digimax A40
	NV10

Camera Brand	Model
	Digimax S800
	Digimax L85
	PRO815

Subject to the above Preliminary Statements and subject to further discovery in this case, according to Papst's best understanding at this time, devices which are believed to be configurable to operate at least as PTP Digital Cameras include:

Camera Brand	Model
Fujifilm	FINEPIX A800
	FINEPIX F40FD
	FINEPIX Z5FD
	FINEPIX S700
	FINEPIX S5 PRO
	FINE PIX F31FD
	FINE PIX S6000FD
	FINE PIX F20

Subject to the above Preliminary Statements and subject to further discovery in this case, according to Papst's best understanding at this time, devices identified in the following table are likely to be found to be configurable as a MSC Digital Camera, as a PTP Digital Camera, or both, after additional discovery or investigation:

Camera Brand	Model
Casio	EXILIM EX-Z80
	EXILIM EX-Z1200
	EXILIM EX-Z120

Camera Brand	Model
	EXILIM EX-Z50
	EXILIM EX-S100
	QV-R62
	EXILIM EX-P505
	EXILIM EX-Z750
	EXILIM EX-Z57
	EXILIM EX-Z55
	EXILIM EX-Z500
	EXILIM EX-Z200
	EXILIM EX-Z850
	EXILIM EX-Z1080
	EXILIM EX-V8
	EXILIM EX-Z100
	EXILIM EX-Z9
	QV-R4
	QV-R52
	QV-5700
	QV-R3
	EXILIM EX-S10
	QV-R61
	GV-20
	EXILIM EX-S2
	EXILIM EX-M2
	EXILIM EX-Z3
	EXILIM EX-S3
	EXILIM EX-Z40
	EXILIM EX-Z4/EX-Z4U

Camera Brand	Model
	EXILIM EX-S20U
	EXILIM EX-M20U
	EXILIM EX-P600
	QV-R40
	Exilim EX-Z30
	QV-R51
	EXILIM EX-Z70
Fujifilm	FINEPIX E 550
	FINEPIX J10
	FinePix F30 ZOOM
	FinePix A600 ZOOM
	FinePix F470 ZOOM
	FinePix A500 ZOOM
	FinePix A400 ZOOM
	FinePix F460
	FinePix A345 ZOOM
	FinePix S9500/S9000
	FinePix Z1
	FinePix A350 ZOOM
	FinePix Z3
	FinePix F100fd
	FinePix S3100
	FinePix F11 ZOOM
	FinePix A610
	FinePix A900
	FinePix A920
	FinePix F480

Camera Brand	Model
	FinePix F50fd
	FinePix S5800
	FinePix Z10fd
	FinePix J50
	FinePix S1000fd
	FinePix S8100fd
	FinePix Z20fd
	FinePix F455 ZOOM
	FinePix A820
	FinePix S8000fd
	FinePix S602Z PRO
	FinePix S5500 ZOOM / S5100
	FinePix S5700
	FinePix F401 ZOOM
	FinePix A202/A200
	FinePix A203
	FinePix A204/FinePix 2650
	FinePix A303
	FinePix S304/FinePix 3800
	FinePix M603
	FinePix F410 ZOOM
	FinePix F700
	FinePix A310 ZOOM
	FinePix A210 ZOOM
	FinePix F450 ZOOM
	FinePix F810 ZOOM
	FinePix E510 ZOOM

Camera Brand	Model
	FinePix F402
	FinePix E500 ZOOM
	FinePix A205 ZOOM / A205S
	FinePix F440 ZOOM
	FinePix S3 PRO
	FinePix S20 PRO
	FinePix A330
	FinePix A120
	FinePix S3000 Z
	FinePix S7000 Z
	FinePix A340
	FinePix S5000 Z
	FINEPIX S100fs
HP	PHOTOSMART R717
	PHOTOSMART M517
	PHOTOSMART M23
	PHOTOSMART M525
	PHOTOSMART R507
	PHOTOSMART R607/R607V/R607XI
	PHOTOSMART M22
	PHOTOSMART R837
	PHOTOSMART R818
	PHOTOSMART M415
	PHOTOSMART R967
	PHOTOSMART E327/E327V
	PHOTOSMART R727

Camera Brand	Model
	PHOTOSMART M417
	PHOTOSMART M407/M407V/M407XI
	PHOTOSMART E317/E317V/E317XI
	PHOTOSMART 620
	PHOTOSMART M307
	PHOTOSMART E217
	PHOTOSMART 320
	PHOTOSMART 720
	PHOTOSMART 850
	PHOTOSMART 733
	PHOTOSMART 735
	PHOTOSMART 935
	PHOTOSMART 435
	PHOTOSMART 635
	PHOTOSMART 945
	PHOTOSMART R707
	PHOTOSMART 120
	PHOTOSMART R937
JVC	GZ-HD5
	XA-F57P
	XA-F107A
	GC-A50
	GC-A55
	GC-A70
	XA-C210
Olympus	LS-10

Camera Brand	Model
	WS-110
	SP-570UZ
	STYLUS 1200
	μ Mini S/Stylus Verve Mini S
	μ Mini Digital/Stylus Verve Digital
	C-765 UZ
	C-770 UZ
	C-160/D-395
	C-360 Zoom/D-575 Zoom
	C-60 ZOOM
	C-725 UZ
	C-70 Zoom/C-7000 ZOOM
	E-300 / EVOLT E-300
	C-470 Zoom/D-590 Zoom
	μ 500/Stylus 500
	C-170/D-425
	C-460 Zoom/D-580 Zoom
	C-7070 WideZoom
	C-740 UZ
	C-480 ZOOM/D-545 ZOOM
	C-500 Zoom/D-595 Zoom
	C55/C-5500 SPORT ZOOM
	μ 400/Stylus 400
	IR-300
	C-120/D-380
	C-220 Zoom/D-520 Zoom

Camera Brand	Model
	C-300 Zoom/D-550 Zoom
	C-720 UZ
	C-5050 ZOOM
	C-50 ZOOM
	C-450 Zoom
	μ 300/Stylus 300
	C-310 Zoom/D-540 Zoom
	C-150/D-390
	C-350 Zoom/D-560 Zoom
	C-750 UZ
	E-1
	C-5000 ZOOM
	C-5060 ZOOM
	μ 410/Stylus 410
	C-730 UZ
	μ 1010/Stylus 1010
	μ 780/Stylus 780
	E-510
	FE-210
	μ 790 SW/Stylus 790 SW
	μ 820/Stylus 820
	μ 830/Stylus 830
	FE-270
	FE-280
	SP-550 UZ
	E-3
	FE-290

Camera Brand	Model
	μ 1020/Stylus 1020
	μ 1030 SW/Stylus 1030 SW
	μ 840/Stylus 840
	μ 850 SW/Stylus 850 SW
	FE-340
	FE-350
	E-420
	C-8080 WideZoom
	FE-5500/D-630 Zoom
	FE-300
	μ 700/Stylus 700
	IR-500
	SP-560 UZ
	FE-240
	C-180/D-435
	FE-100
	SP-310
	SP-700
	μ 800/Stylus 800
	μ 810/Stylus 810
	E-330 / Evolt E-330
	FE-180
	FE-230
	μ 770/Stylus 770
	SP-350
	FE-200
	FE-115

Camera Brand	Model
	µ 750/Stylus 750
	µ 740/Stylus 740
	SP-320
	FE-140
	FE-130
	DS-20
	FE-310
Panasonic	EB-VS3 / VS3
	DMC-FX100
	Lumix DMC-TZ3
	Lumix DMC-FZ50
	Lumix DMC-FX12
	Lumix DMC-FX30
	Lumix DMC-FZ8
	Lumix DMC-LS75
	Lumix DMC-LZ6
	Lumix DMC-LZ7
	Lumix DMC-LX2
	Lumix DMC-FX10
	Lumix DMC-TZ5
	Lumix DMC-FX55
	Lumix DMC-L10K
	Lumix DMC-FS20
	Lumix DMC-FS3
	Lumix DMC-FS5
	Lumix DMC-FX35
	Lumix DMC-LZ10

Camera Brand	Model
	Lumix DMC-TZ4
	Lumix DMC-FX50
	Lumix DMC-FX33
	Lumix DMC-LZ8
	Lumix DMC-LC43
	Lumix DMC-FX3
	Lumix DMC-FZ18
	Lumix DMC-FZ1
	Lumix DMC-LC33
	Lumix DMC-FX5
	Lumix DMC-FZ10
	Lumix DMC-LC50
	Lumix DMC-LC70
	Lumix DMC-LC1
	Lumix DMC-FX7
	Lumix DMC-LZ2
	Lumix DMC-FZ30
	Lumix DMC-F1
	Lumix DMC-LS2
	Lumix DMC-FZ20
	Lumix DMC-FX9
	Lumix DMC-LZ1
	Lumix DMC-FZ5
	Lumix DMC-FZ4
	Lumix DMC-FZ15
	Lumix DMC-LC80
	Lumix DMC-FZ3

Camera Brand	Model
	DMC-LS80
	HDC-SD9
	VDR-D50
	SDR-H18
	EXLIM CARD EX-F1
Ricoh	Caplio GR
	GR Digital
	Caplio RR120
	Caplio R5
	Caplio GX100
	Caplio R7
	Caplio GR Digital II
	Caplio R8
	Caplio RR630
Samsung	SC-HMX10C
	L73
	Digimax S600
	Digimax D53
	GX-10
	Digimax S700
	Digimax S1000
	L700
	NV7 OPS
	NV3
	Digimax A503
	GX-1L
	Digimax S500

Camera Brand	Model
	GX-1S
	L74 wide
	L100
	Digimax L60
	S85
	i8
	S860
	NV40
	NV4
	NV30
	Digimax V6
	Digimax i85
	Digimax i6 PMP
	NV11
	L830
	L730
	Digimax L77
	S850
	S630
	S1050
	S730
	NV15
	Digimax 240
	Digimax A6
	Digimax 301
	Digimax 202
	Digimax (Cyber) 530

Camera Brand	Model
	Digimax U-CA 3
	Digimax 420
	Digimax 401
	Digimax V4
	Digimax 430
	Digimax 201
	Digimax 340
	Digimax 410
	Digimax 350SE
	Digimax 230
	NV24 HD
	Digimax 360
	Digimax A5
	Digimax V800
	Digimax U-CA 5
	Digimax A50
	Digimax A402
	Digimax A7
	Digimax A4
	Digimax 370
	Digimax U-CA 505
	Digimax L50
	Digimax A400
	Digimax U-CA 4
	Digimax 250
	Digimax V50
	Digimax V5

Camera Brand	Model
	Digimax U-CA 401
	Digimax V70
	NV20

Papst reserves the right to amend, add to, or otherwise revise the above lists of devices as its investigation proceeds and as discovery in this case proceeds.

Also, as set forth above, Papst has served discovery requests on the Camera Manufacturers, the responses to which are expected to be highly relevant to the preparation of claim charts, but are not available at the time of service of this disclosure. Nevertheless, and without waiving its general objection, Papst provides claim charts for two representative devices: 1) digital cameras which are configurable to operate as MSC Digital Cameras; and 2) digital cameras which are configurable to operate in PTP mode.

The claim charts below provide the asserted claims and infringement contentions with respect to the MSC Digital Cameras identified above:

'399 Patent Claims	MSC Digital Cameras
1. An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, comprising:	Generally, a preamble is not limiting. This claim covers an interface device as defined in the body of the claim below, and does not expressly require or exclude a host device or a data/transmit receive device. See the Claim Preamble section below for

‘399 Patent Claims	MSC Digital Cameras
	additional information.
a processor;	The interface portion of MSC Digital Cameras typically has a processor, such as a microprocessor or microcontroller.
a memory;	The interface portion of MSC Digital Cameras typically includes memory. Also, a socket is typically provided for adding a memory card.
a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and	The MSC Digital Cameras include a first connecting device comprising a Universal Serial Bus (USB) circuit for interfacing the interface device with a multipurpose USB interface on a host PC.
a second connecting device for interfacing the interface device with the data transmit/receive device, the second connecting device including a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for	The MSC Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit receive

‘399 Patent Claims	MSC Digital Cameras
converting data sampled by the sampling circuit into digital data,	device (typically including a CCD image sensor) with the interface device. For example some MSC Digital Cameras use a Correlated Double Sampler (CDS).
wherein the interface device is configured by the processor and the memory to include a first command interpreter and a second command interpreter,	The interface device of MSC Digital Cameras is configured to include first and second command interpreters as set forth more fully below.
wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device,	The first command interpreter may comprise, for example, a USB command interpreter. When a MSC Digital Camera is plugged in to a USB port on a host PC, the camera may receive a "Get_Descriptor" USB command. The "Get_Descriptor" USB command is an inquiry from the host PC. The first command interpreter of the MSC Digital Camera interprets the "Get_Descriptor" USB command and returns the requested descriptor(s).

'399 Patent Claims	MSC Digital Cameras
	MSC Digital Cameras are believed, for example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the MSC Digital Camera is a mass storage class device, such as a disk drive, which is an I/O device customary in a host PC. See "First Command Interpreter" and "Signals to the Host Device and Customary in a Host Device" sections below for additional information.
whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device, and	Upon receiving the information signaling the host computer that the MSC Digital Camera is a mass storage device, the host PC automatically communicates with the interface device of the MSC Digital Camera by means of one or more software drivers for disk drives customary in the host

'399 Patent Claims	MSC Digital Cameras
	PC. The interface device is configured to respond to communications from one or more of these drivers. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to communicate with the interface device by means of disk.sys, PartMgr.sys and usbstor.sys. Digital camera-specific drivers are not necessary. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives, which are input/output devices customary in the host PC. The host PC also uses usbstor.sys to communicate with hard disk drives attached to the USB port.
wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first	As set forth above, the first command interpreter signals to the host PC that the MSC Digital Camera is a mass storage device, such as a disk drive.

'399 Patent Claims	MSC Digital Cameras
command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.	The second command interpreter is configured to interpret data request commands for such disk drives. For example, the second command interpreter may be configured to interpret SCSI Block Commands (SBC) and/or ATAPI commands. This second command interpreter, for example, is believed to interpret the READ(10) command (Operation code 28h). MSC Digital Cameras are believed to interpret this data request command and provide the requested sectors of information, including data representing images acquired by, for example, a CCD sensor and digitized by the second connecting device.
2. An interface device according to claim 1, wherein the drivers for input/output drivers customary in a host device comprise a hard disk driver, and the signal indicates to the host device that the host device is communicating	Windows XP drivers disk.sys and PartMgr.sys are the same drivers that would be used to communicate with a hard disk. The Interface Descriptor signals sent by the MSC Digital

'399 Patent Claims	MSC Digital Cameras
with a hard disk.	Camera indicating a SCSI command set indicate to the host PC that the MSC Digital Camera is a hard disk.
3. An interface device according to claim 1, wherein the memory means comprises a buffer to buffer data to be transferred between the data transmit/receive device and the host device.	MSC Digital Cameras include internal memory and structure for receiving a memory card. The internal memory and/or memory card comprise a buffer to buffer data acquired by the transmit/receive device until it is transferred to the host PC. The MSC Digital Cameras may also comprise a memory buffer used during processing of images acquired by the image sensor.
5. An interface device according to claim 1, wherein the processor is a digital signal processor.	MSC Digital Cameras may further comprise a digital signal processor.
7. An interface device according to claim 2, which further comprises a root directory and virtual files which are present on the signaled hard disk drive and which can be accessed	The MSC Digital Cameras are believed to comply with, for example, the Design Rule for Camera File System (DCF). The DCF requires a

'399 Patent Claims	MSC Digital Cameras
from the host device.	root directory, and for files of images to be placed in certain locations in the directory tree. The files can be accessed from the host device.
11. An interface device for communication between a host device, which comprises a multi-purpose interface and a specific driver for this interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, comprising:	Generally, a preamble is not limiting. This claim covers an interface device, and does not expressly require or exclude a host device or a data/transmit receive device. See the Claim Preambles section below for additional information.
a processor;	The interface portion of MSC Digital Cameras typically has a processor, such as a microprocessor or microcontroller.
a memory;	The interface portion of a MSC Digital Camera typically includes memory. Also, a socket is typically provided for adding a memory card.
a first connecting device for interfacing the host device with the interface device via the	The MSC Digital Cameras include a first connecting device comprising a

'399 Patent Claims	MSC Digital Cameras
multi-purpose interface of the host device; and	Universal Serial Bus (USB) circuit for interfacing the interface device with a multipurpose USB interface on a host PC.
a second connecting device for interfacing the interface device with the data transmit/receive device, the second connecting device including a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data,	The MSC Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit receive device (typically including a CCD image sensor) with the interface device. For example some MSC Digital Cameras use a Correlated Double Sampler (CDS).
where the interface device is configured using the processor and the memory to include a first command interpreter and a second command interpreter,	The interface device of MSC Digital Cameras is configured to include first and second command interpreters as set forth more fully below.
wherein the first command interpreter is configured in such a way that the interface	The first command interpreter may comprise, for example, a USB

‘399 Patent Claims	MSC Digital Cameras
device, when receiving an inquiry from the host device as to the type of a device attached at the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device,	command interpreter. When a MSC Digital Camera is plugged in to a USB port on a host PC, the camera may receive a "Get_Descriptor" USB command. The "Get_Descriptor" USB command is a type of inquiry from the host PC. The first command interpreter of the MSC Digital Camera interprets the "Get_Descriptor" USB command and returns the requested descriptor(s). MSC Digital Cameras are believed, for example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the MSC Digital Camera is a mass storage class device, such as a disk drive, which is an I/O device customary in a host PC. See "First Command Interpreter" and "Signals to the Host Device and Customary in a

'399 Patent Claims	MSC Digital Cameras
	Host Device" sections below for additional information.
whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface, and	Upon receiving the information signaling the host computer that the MSC Digital Camera is a mass storage device, the host PC automatically communicates with the interface device of the MSC Digital Camera by means of one or more software drivers specifically adapted for the multipurpose USB interface. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to communicate with the interface device by means of usbd.sys, which is a specific driver for the multipurpose USB interface. Digital camera-specific drivers are not necessary.
wherein the second command interpreter is	As set forth above, the first command

'399 Patent Claims	MSC Digital Cameras
configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.	interpreter signals to the host PC that the MSC Digital Camera is a mass storage device, such as a disk drive. The second command interpreter is configured to interpret data request commands for such disk drives. For example, the second command interpreter may be configured to interpret SCSI Block Commands (SBC) and/or ATAPI commands. This second command interpreter, for example, is believed to interpret the READ(10) command (Operation code 28h). MSC Digital Cameras are believed to interpret this data request command and provide the requested sectors of information, including data representing images acquired by, for example, a CCD sensor and digitized by the second connecting device.
14. A method of communication between a host device, which comprises drivers for	This claim covers a method of communicating between a host device

'399 Patent Claims	MSC Digital Cameras
input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, via an interface device, comprising:	interface device and a data transmit/receive device via an interface device. See the Claim Preambles section below for additional information concerning the host device and the data/transmit receive device
interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device;	User manuals for the various MSC Digital Cameras instruct users, including users of cameras destined for the U.S., to interface a first connecting device of the MSC Digital Camera with a multipurpose interface of a host PC by connecting the MSC Digital Camera to the USB port on the host PC.
interfacing of the data transmit/receive device with a second connecting device of the interface device, the second connecting device including a sampling circuit for sampling the analog data provided by the	The MSC Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically

'399 Patent Claims	MSC Digital Cameras
data/transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data;	provided by a data transmit receive device (typically including a CCD image sensor) with the interface device.
inquiring by the host device at the interface device as to the type of device to which the multi-purpose interface of the host device is attached;	When a MSC Digital Camera is plugged in to a USB port on a host PC, the host PC may inquire the interface device as to the type of device it is by sending a "Get_Descriptor" USB command.
regardless of the type of the data transmit/receive data attached to the second connecting device of the interface device, responding to the inquiry from the host device by the interface device in such a way that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the usual driver for the input/output device, and	A MSC Digital Camera responds to the "Get_Descriptor" inquiry in such a way that it is an input/output device customary in a host device. MSC Digital Cameras are believed, for example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the MSC Digital Camera is a mass

'399 Patent Claims	MSC Digital Cameras
	storage class device, such as a disk drive, which is an I/O device customary in a host PC. See "First Command Interpreter" and "Signals to the Host Device and Customary in a Host Device" sections below for additional information. Upon receiving the information signaling the host computer that the MSC Digital Camera is a mass storage device, the host PC automatically communicates with the interface device of the MSC Digital Camera by means of one or more of the usual software drivers for disk drives customary in the host PC. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to communicate with the interface device by means of disk.sys, PartMgr.sys and usbstor.sys. Digital

'399 Patent Claims	MSC Digital Cameras
	camera-specific drivers are not necessary. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives, which are input/output devices customary in the host PC. The host PC also uses usbstor.sys to communicate with hard disk drives attached to the USB port.
interpreting a data request command from the host device to the type of input/output device customary in the host device as a data transfer command for initiating a transfer of the digital data to the host device.	A MSC Digital Camera is believed to interpret SCSI Block Commands (SBC) and/or ATAPI commands. For example, the MSC Digital Camera is believed to interpret the READ(10) command (Operation code 28h). MSC Digital Cameras are believed to interpret this data request command and provide the requested sectors of information, including data representing images acquired by, for example, a CCD sensor and digitized by the second connecting device.

'399 Patent Claims	MSC Digital Cameras
15. A method according to claim 14, wherein the drivers for input/output devices customary in a host device comprise a driver for a storage device and in particular for a hard disk drive.	Windows XP drivers disk.sys and PartMgr.sys are the same drivers that would be used to communicate with a storage device comprising a hard disk.

'449 Patent Claims	MSC Digital Cameras
1. An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device comprising the following features:	Generally, a preamble is not limiting. This claim covers an interface device, and does not expressly require or exclude a host device or a data/transmit receive device. See the Claim Preambles section below for additional information.
a processor;	The interface portion of MSC Digital Cameras typically has a processor, such as a microprocessor or microcontroller.
a memory;	The interface portion of a MSC Digital Camera typically includes memory. Also, a socket is typically provided for adding a memory card.
a first connecting device for interfacing	The MSC Digital Cameras include a first

'449 Patent Claims	MSC Digital Cameras
the host device with the interface device via the multi-purpose interface of the host device; and	connecting device comprising a Universal Serial Bus (USB) circuit for interfacing the interface device with a multipurpose USB interface on a host PC.
a second connecting device for interfacing the interface device with the data transmit/receive device,	The MSC Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit receive device (typically including a CCD image sensor) with the interface device.
wherein the interface device is configured by the processor and the memory in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device	The interface device is believed to be configured by the processor and a program stored in the memory, for example, in such a way that when the MSC Digital Camera receives a "Get_Descriptor" USB command, the MSC Digital Camera sends the requested descriptor(s). The "Get_Descriptor" USB command is a type of inquiry from the host PC. MSC Digital Cameras are

'449 Patent Claims	MSC Digital Cameras
which signals to the host device that it is a storage device customary in a host device,	believed, for example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the MSC Digital Camera is a mass storage class device, such as a disk drive, which is a storage device customary in a host PC.
whereupon the host device communicates with the interface device by means of the driver for the storage device customary in a host device, and	Upon receiving the information signaling the host computer that the MSC Digital Camera is a mass storage device, the host PC automatically communicates with the interface device of the MSC Digital Camera by means of one or more software drivers for disk drives customary in the host PC. The interface device is configured to respond to communications from one or more of these drivers, as set forth below. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to communicate with the interface device

'449 Patent Claims	MSC Digital Cameras
	by means of disk.sys, PartMgr.sys and usbstor.sys. Digital camera-specific drivers are not necessary. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives, which are input/output devices customary in the host PC. The host PC also uses usbstor.sys to communicate with hard disk drives attached to the USB port.
wherein the interface device is arranged for simulating a virtual file system to the host, the virtual file system including a directory structure.	The interface portion of the MSC Digital Camera is believed to simulate a virtual file system, including, for example, simulating a master boot record, a boot sector and a sequence of sectors comprising at least one file allocation table, at least one directory, and files, as would be found on a disk drive having rotating media.
2. An interface device in accordance with claim 1, in which the directory structure has a configuration file for setting and	MSC Digital Cameras may include configuration files and files used for transferring data from the data

'449 Patent Claims	MSC Digital Cameras
controlling functions of the interface device or an executable or a batch file for conducting a routine stored in the memory or a data file used for transferring data from the data transmit/receive device to the host device or a help file for giving help on handling the interface device.	transmit/receive device to the host device.
6. An interface device in accordance with claim 1 wherein, in response to a request from the host to read a boot sequence, the processor is arranged to send a virtual boot sequence to the host.	In response to a request from the host PC to read the first sector on the simulated disk drive (a typical location for a master boot record), the processor of the MSC Digital Camera is arranged to send a virtual boot sequence to the host. For example, in response to the request for the first sector, the MSC Digital Cameras is believed to provide 512 bytes of data which contain the information typically found in a master boot record (MBR), including information for at least one partition.

'449 Patent Claims	MSC Digital Cameras
7. An interface device in accordance with claim 6 wherein the virtual boot sequence includes a starting position and a length of a file allocation table, an indication of a type of the storage device or a number of sectors of the storage device.	The MSC Digital Cameras are believed to provide a boot sequence including a master boot record and a boot sector, which typically include a starting location and a length of a File Allocation Table.
8. An interface device in accordance with claim 7 wherein, in response to a request from the host to display a directory of the storage device, a processor is arranged for transferring the file allocation table and the directory structure to the host.	The MSC Digital Camera is configured such that, in response to a request from the host PC to display a directory of the MSC Digital Camera (which appears to the host PC to be a storage device), the processor is arranged for transferring the file allocation table and the directory structure to the host PC.
9. An interface device in accordance with claim 1 wherein the file allocation table and the directory structure is transferred to the host in response to a request from the host to read data from or store data to the storage device.	The MSC Digital Camera is configured such that, in response to a request from the host PC to read data from or store data to the MSC Digital Camera (which appears to the host PC to be a storage device), the processor is arranged for transferring the file allocation table and the directory

'449 Patent Claims	MSC Digital Cameras
	structure to the host PC.
12. An interface device in accordance with claim 1 wherein the file allocation table includes information on numbers of blocks occupied by the data file wherein the interface device is arranged for receiving block numbers or a block number range from the host when the host wants to read the data file, and wherein the interface device is arranged to start a data transfer to the host, when the block numbers or the block number range is received from the host.	In FAT file systems believed to be used in the MSC Digital Cameras, the number of the first cluster of a file is in the directory. READ(10) command supports reading a single logical block address comprising a single 512 byte sector, or a starting logical block address plus a transfer length comprising a range of blocks of data.
13. An interface device in accordance with claim 12 wherein the processor is arranged for formatting the data acquired by the second connecting device into blocks having a predetermined size, the predetermined size being suited for the storage device.	It is believed that the processor is arranged for formatting the data acquired by the second connecting device into 512 byte blocks, which is a size being suited for a storage device.
15. An interface device in accordance	The Interface Descriptor sent by the MSC

'449 Patent Claims	MSC Digital Cameras
with claim 1 wherein the storage device is a hard disk.	Digital Camera indicating a SCSI command set is the same as an Interface Descriptor as would be sent by a hard disk. Thus, the Interface Descriptor signals the host PC that the storage device is a hard disk.
16. An interface device in accordance with claim 1 wherein the memory has a data buffer for permitting independence in terms of time of the data transmit/receive device attachable to the second connecting device from the host device attachable to the first connecting device.	Images are typically stored in a data buffer, permitting time independence from when a photograph is captured and when it is transferred to the host PC.
17. An interface device for communication between a host device, which comprises a multi-purpose interface and a specific driver for this interface, and a data transmit/receive device comprising the following features:	Generally, a preamble is not limiting. This claim covers an interface device, and does not expressly require or exclude a host device or a data/transmit receive device. See the Claim Preambles section below for additional information.
a processor;	The interface portion of MSC Digital

'449 Patent Claims	MSC Digital Cameras
	Cameras typically has a processor, such as a microprocessor or microcontroller.
a memory;	The interface portion of a MSC Digital Camera typically includes memory. Also, a socket is typically provided for adding a memory card.
a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and	The MSC Digital Cameras include a Universal Serial Bus (USB) circuit. A USB interface present on a host PC is a multipurpose interface.
a second connecting device for interfacing the interface device with the data transmit/receive device,	The MSC Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit receive device (typically including a CCD image sensor) with the interface device. For example some MSC Digital Cameras use a Correlated Double Sampler (CDS).
where the interface device is configured using the processor and the memory in	The interface device is believed to be configured by the processor and a

‘449 Patent Claims	MSC Digital Cameras
such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached at the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device,	program stored in the memory, for example, in such a way that when the MSC Digital Camera receives a "Get_Descriptor" USB command, the MSC Digital Camera sends the requested descriptor(s). MSC Digital Cameras are believed, for example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached, that the MSC Digital Camera is a mass storage class device, such as a disk drive, which is a storage device customary in a host PC.
whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface, and	Upon receiving the information signaling the host computer that the MSC Digital Camera is a mass storage device, the host PC automatically communicates with the interface device of the MSC Digital Camera by means of one or more software drivers for disk drives customary in the host PC. The interface device is

'449 Patent Claims	MSC Digital Cameras
	configured to respond to communications from one or more of these drivers, as set forth below. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to communicate with the interface device by means of usbd.sys. Digital camera-specific drivers are not necessary. The host PC also uses the usbd.sys driver to communicate with hard disk drives connected to the USB interface, and hard disk drives are input/output devices customary in the host PC.
wherein the interface device is arranged for simulating a virtual file system to the host, the virtual file system including a file allocation table and a directory structure.	The interface portion of the MSC Digital Camera is believed to simulate a virtual file system, including, for example, simulating a master boot record, a boot sector and a sequence of sectors comprising at least one file allocation table, at least one directory, and files, as would be found on a disk drive having rotating media.

'449 Patent Claims	MSC Digital Cameras
18. A method of communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device via an interface device comprising the following steps:	Generally, a preamble is not limiting. This claim covers a method of communicating between a host device interface device and a data transmit/receive device via an interface device. See the Claim Preambles section below for additional information concerning the host device and the data/transmit receive device
interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device;	User manuals for the various MSC Digital Cameras instruct users, including users of cameras destined for the U.S., to interface the a first connecting device of the MSC Digital Camera with a multipurpose interface of a host PC by connecting the MSC Digital Camera to the USB port on the host PC.
interfacing of the data transmit/receive device with a second connecting device of the interface device;	The MSC Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit

'449 Patent Claims	MSC Digital Cameras
	receive device (typically including a CCD image sensor) with the interface device.
inquiring by the host device at the interface device as to the type of device to which the multi-purpose interface of the host device is attached;	When a MSC Digital Camera is plugged in to a USB port on a host PC, the host PC may inquire the interface device as to the type of device it is by sending a "Get_Descriptor" USB command.
regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, responding to the inquiry from the host device by the interface device in such a way that it is a storage device customary in a host device, whereupon the host device communicates with the interface device by means of the usual driver for the storage device, and	A MSC Digital Camera responds to the "Get_Descriptor" inquiry in such a way that it is an input/output device customary in a host device. MSC Digital Cameras are believed, for example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the MSC Digital Camera is a mass storage class device, such as a disk drive, which is an storage device customary in a host PC. See "First Command Interpreter" and "Signals to the Host Device and

'449 Patent Claims	MSC Digital Cameras
	Customary in a Host Device" sections below for additional information. Upon receiving the information signaling the host computer that the MSC Digital Camera is a mass storage device, the host PC automatically communicates with the interface device of the MSC Digital Camera by means of one or more of the usual software drivers for disk drives customary in the host PC. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to communicate with the interface device by means of disk.sys, PartMgr.sys and usbstor.sys. Digital camera-specific drivers are not necessary. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives, which are storage devices customary in the host PC. The host PC also uses usbstor.sys to communicate with hard disk drives

'449 Patent Claims	MSC Digital Cameras
	attached to the USB port.
wherein the interface device is arranged for simulating a virtual file system to the host, the virtual file system including a file allocation table and a directory structure.	The interface portion of the MSC Digital Camera is believed to simulate a virtual file system, including, for example, simulating a master boot record, a boot sector and a sequence of sectors comprising at least one file allocation table, at least one directory, and files, as would be found on a disk drive having rotating media.

The claim chart below provides the asserted claims and infringement contentions with respect to the PTP Digital Cameras identified above:

'399 Patent Claims	PTP Digital Cameras
1. An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device, the data transmit/receive	Generally, a preamble is not limiting. This claim covers an interface device as defined in the body of the claim below, and does not expressly require or exclude a host device or a data/transmit receive device. See the Claim Preamble section below for additional information.

'399 Patent Claims	PTP Digital Cameras
device being arranged for providing analog data, comprising:	
a processor;	The interface portion of PTP Digital Cameras typically has a processor, such as a microprocessor or microcontroller.
a memory;	The interface portion of PTP Digital Cameras typically includes memory. Also, a socket is typically provided for adding a memory card.
a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and	The PTP Digital Cameras include first connecting device comprising a Universal Serial Bus (USB) circuit for interfacing the interface device with a multipurpose USB interface on a host PC.
a second connecting device for interfacing the interface device with the data transmit/receive device, the second connecting device including a sampling circuit for sampling the analog data provided by the data	The PTP Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit receive device (typically including a CCD image

'399 Patent Claims	PTP Digital Cameras
transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data,	sensor) with the interface device. For example some PTP Digital Cameras use a Correlated Double Sampler (CDS).
wherein the interface device is configured by the processor and the memory to include a first command interpreter and a second command interpreter,	The interface device of PTP Digital Cameras is configured to include first and second command interpreters as set forth more fully below.
wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device	The first command interpreter may comprise, for example, a USB command interpreter. When a PTP Digital Camera is plugged in to a USB port on a host PC, the camera may receive a "Get_Descriptor" USB command. The "Get_Descriptor" USB command is a type of inquiry from the host PC. The first command interpreter of the PTP Digital Camera interprets the "Get_Descriptor" command and returns the requested descriptor(s). PTP Digital Cameras are believed, for example, to send a

'399 Patent Claims	PTP Digital Cameras
customary in a host device,	signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the PTP Digital Camera is an imaging device, such as a scanner, which is believed to be an I/O device customary in a host PC. See "First Command Interpreter" and "Signals to the Host Device and Customary in a Host Device" sections below for additional information.
whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device, and	Upon receiving the information signaling the host computer that the PTP Digital Camera is an imaging device, the host PC automatically communicates with the interface device of the PTP Digital Camera by means of one or more software drivers for imaging devices customary in the host PC. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to

'399 Patent Claims	PTP Digital Cameras
	communicate with the interface device by means of at least usbscan.sys. The host PC also uses usbscan.sys drivers to communicate with scanners which are customary on the host PC.
wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.	The second command interpreter may be configured to interpret, for example, interpret certain operation codes specified in PIMA 15740 (the PTP specification). For example, PTP Digital Cameras are believed to interpret and respond to the operation code for the GetObject command (PIMA 15740, 10.4.9). PTP Digital Cameras are believed to interpret this data request command and provide the requested object, including data representing images acquired by, for example, a CCD sensor and digitized by the second connecting device.
3. An interface device according to claim 1, wherein the memory means comprises a buffer to buffer data to be	PTP Digital Cameras include internal memory and structure for receiving a memory card. The internal memory and/or

'399 Patent Claims	PTP Digital Cameras
transferred between the data transmit/receive device and the host device.	memory card comprise a buffer to buffer data acquired by the transmit/receive device until it is transferred to the host PC. The PTP Digital Cameras may also comprise a memory buffer used during processing of images acquired by the image sensor.
5. An interface device according to claim 1, wherein the processor is a digital signal processor.	PTP Digital Cameras may further comprise a digital signal processor.
11. An interface device for communication between a host device, which comprises a multi-purpose interface and a specific driver for this interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, comprising:	Generally, a preamble is not limiting. This claim covers an interface device, and does not expressly require or exclude a host device or a data/transmit receive device. See the Claim Preambles section below for additional information.
a processor;	The interface portion of a PTP Digital Camera typically has a processor, such as a microprocessor.

'399 Patent Claims	PTP Digital Cameras
a memory;	The interface portion of a PTP Digital Camera typically includes memory. Also, a socket is typically provided for adding a memory card.
a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and	The PTP Digital Cameras include first connecting device comprising a Universal Serial Bus (USB) circuit for interfacing the interface device with a multipurpose USB interface on a host PC.
a second connecting device for interfacing the interface device with the data transmit/receive device, the second connecting device including a sampling circuit for sampling the analog data provided by the data transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data,	The PTP Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit receive device (typically including a CCD image sensor) with the interface device. For example some PTP Digital Cameras use a Correlated Double Sampler (CDS).
where the interface device is configured using the processor and the	The interface device of PTP Digital Cameras is configured to include first and second

'399 Patent Claims	PTP Digital Cameras
memory to include a first command interpreter and a second command interpreter,	command interpreters as set forth more fully below.
wherein the first command interpreter is configured in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached at the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device,	The first command interpreter may comprise, for example, a USB command interpreter. When a PTP Digital Camera is plugged in to a USB port on a host PC, the camera may receive a "Get_Descriptor" USB command. The "Get_Descriptor" USB command is a type of inquiry from the host PC. The first command interpreter of the PTP Digital Camera interprets the "Get_Descriptor" command and returns the requested descriptor(s). PTP Digital Cameras are believed, for example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the PTP Digital Camera is an imaging device, such as a scanner, which is believed to be an I/O

'399 Patent Claims	PTP Digital Cameras
	device customary in a host PC. See "First Command Interpreter" and "Signals to the Host Device and Customary in a Host Device" sections below for additional information.
whereupon the host device communicates with the interface device by means of the specific driver for the multi-purpose interface, and	Upon receiving the information signaling the host computer that the PTP Digital Camera is a mass storage device, the host PC automatically communicates with the interface device of the PTP Digital Camera by means of one or more software drivers specifically adapted for the multipurpose USB interface. For example, when the host PC is configured with the Windows XP operating system, the host PC is believed to communicate with the interface device by means of usbd.sys, which is a specific driver for the multipurpose USB interface.
wherein the second command interpreter is configured to interpret a data request command from the host	The second command interpreter may be configured to interpret, for example, interpret certain operation codes specified in

'399 Patent Claims	PTP Digital Cameras
device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.	PIMA 15740 (the PTP specification). For example, PTP Digital Cameras are believed to interpret and respond to the operation code for the GetObject command (PIMA 15740, 10.4.9). PTP Digital Cameras are believed to interpret this data request command and provide the requested object, including data representing images acquired by, for example, a CCD sensor and digitized by the second connecting device.
14. A method of communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, via an interface device, comprising:	This claim covers a method of communicating between a host device interface device and a data transmit/receive device via an interface device. See the Claim Preambles section below for additional information concerning the host device and the data/transmit receive device
interfacing of the host device with a first connecting device of the interface	User manuals for the various PTP Digital Cameras instruct users, including users of

'399 Patent Claims	PTP Digital Cameras
device via the multi-purpose interface of the host device;	cameras destined for the U.S., to interface a first connecting device of the PTP Digital Camera with a multipurpose interface of a host PC by connecting the PTP Digital Camera to the USB port on the host PC.
interfacing of the data transmit/receive device with a second connecting device of the interface device, the second connecting device including a sampling circuit for sampling the analog data provided by the data/transmit/receive device and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data;	The PTP Digital Cameras include a second connecting device comprising a sampling circuit and an analog to digital converter. This circuitry interfaces analog data typically provided by a data transmit receive device (typically including a CCD image sensor) with the interface device.
inquiring by the host device at the interface device as to the type of device to which the multi-purpose interface of the host device is attached;	When a PTP Digital Camera is plugged in to a USB port on a host PC, the host PC may inquire the interface device as to the type of device it is by sending a "Get_Descriptor" USB command.
regardless of the type of the data	PTP Digital Cameras are believed, for

'399 Patent Claims	PTP Digital Cameras
transmit/receive data attached to the second connecting device of the interface device, responding to the inquiry from the host device by the interface device in such a way that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the usual driver for the input/output device, and	example, to send a signal to the Host PC, regardless of the image sensor, microphone, or other data transmit/receive device which may be attached to the interface device, that the PTP Digital Camera is an imaging class device, such as a scanner, which is believed to be an I/O device customary in a host PC. See "First Command Interpreter" and "Signals to the Host Device and Customary in a Host Device" sections below for additional information. Upon receiving the information signaling the host computer that the PTP Digital Camera is imaging class device, the host PC automatically communicates with the interface device of the PTP Digital Camera by means of one or more software drivers for imaging devices customary in the host PC. The interface device is configured to respond to communications from one or more of these drivers, as set forth below. For example, when the host PC is configured with the

'399 Patent Claims	PTP Digital Cameras
	Windows XP operating system, the host PC is believed to communicate with the interface device by means of usbscan.sys. The host PC also uses the usbscan.sys driver to communicate with scanners, which are input/output devices customary in the host PC.
interpreting a data request command from the host device to the type of input/output device customary in the host device as a data transfer command for initiating a transfer of the digital data to the host device.	The second command interpreter may be configured to interpret, for example, interpret certain operation codes specified in PIMA 15740 (the PTP specification). For example, PTP Digital Cameras are believed to interpret and respond to the operation code for the GetObject command (PIMA 15740, 10.4.9). PTP Digital Cameras are believed to interpret this data request command and provide the requested object, including data representing images acquired by, for example, a CCD sensor and digitized by the second connecting device.

Papst reserves the right to amend or to supplement the identification of devices in this disclosure to provide additional designations of devices as being MSC Digital Cameras, PTP Digital Cameras, or both, as discovery progresses in this case and additional information becomes available.

Based on information currently known to Papst, Papst contends that the asserted claims are literally infringed. However, at this point, the Camera Manufacturers have not provided their claim interpretation contentions or Markman briefs. Papst reserves the right to supplement or otherwise amend this response as discovery in this case progresses, and as the claim construction process in this case progresses.

Papst asserts that the apparatus claims are directly infringed by the Digital Cameras-in-suit. However, at this point, the Camera Manufacturers have not provided their claim interpretation contentions or Markman briefs. Papst reserves the right to supplement or otherwise amend this disclosure as discovery in this case progresses, and as the claim construction process in this case progresses.

Additionally, a reasonable opportunity for discovery is likely to yield evidence relating to whether the Camera Manufacturers had or have the requisite intent to induce the infringement of method claims 14 and 15 of the '399 patent, and method claim 18 of the '449 patent. The Digital Cameras-in-suit, on their own, do not perform the step of: "interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device;" as recited in claim 14 of the '399 patent and claim 18 of the '449 patent. Also, the Digital Cameras-in-suit, on their own, do not perform the step of: "inquiring by the host device at the interface device as to the type of device to which the multi-purpose interface of the host device is attached;" as recited in

claim 14 of the '399 patent and claim 18 of the '449 patent. However, the owners manuals and other documentation provided by the Camera Manufacturers instruct the end users of the Digital Cameras-in-suit to connect the cameras to host PCs in such a way that the steps identified above will be performed. Based on this evidence, the Camera Manufacturers intended to cause in the U.S. the actual steps that constitute direct infringement.

In addition, Papst gave notice to each of the Camera Manufacturers that the Digital Cameras-in-suit, when used in as directed in the user manuals provided with those devices, infringe the patents-in-suit. The notice provided by Papst is relevant to each Camera Manufacturer's state of mind. However, the Camera Manufacturers have not, to date, provided discovery regarding their state of mind regarding their actions vis-à-vis the patents-in-suit.

Unless specifically discussed below, all claim terms should be given their plain and ordinary meaning. Papst relies on the claims themselves and the written description of the patents in suit for claim construction. The claim interpretation given below, and its application to the devices in suit, is to be read in combination with the claim charts provided above.

1. Claim Preambles

In construing patent claims, structure recited in the preamble of a claim is generally not considered a limitation of the claim. One generally should look to the body of the claims, which define the structure of the interface device. In one example, claim 1 of the '399 patent recites the following preamble:

An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and

a multi-purpose interface, and a data transmit/receive device, the data transmit/receive device being arranged for providing analog data, comprising:

In this claim, the preamble states that the claim is for an “interface device.” The italicized portion of the claim preamble should not be interpreted to comprise limitations of the interface device. Other independent apparatus claims of the ‘399 patent and the ‘449 patent similarly recite an “interface device” in the preamble, and should be interpreted similarly.

The “interface device” (which is defined later in the body of each claim) is for communicating between a “host device” and a “data transmit/receive device.” The claims neither expressly require, nor prohibit, a permanently attached data transmit/receive device. Also, the apparatus claims neither expressly require, nor prohibit, a host device. Instead, the inquiry should be directed to whether the interface portion of a digital camera meets the limitations in the claims for the interface device.

To provide context for the remaining portions of a claim, the term “host device” means host systems, such as Personal Computers (“PCs”) and other host devices as described in the patent written description. Depending on the claim, a host device is defined in the preamble to include drivers for input/output devices customary in a host device, or a multipurpose interface. Drivers for input/output devices customary in the host device are provided with the host device.

The phrase “an input/output device customary in a host device” means a device which inputs or outputs data with respect to a host device, and is a device which is sufficiently common such that software drivers for communicating with the input/output device are typically provided with the host device as it is purchased. See, for example

the '399 patent at column 4, lines 23-39, column 4, line 60 to column 5, line 32, column 8, lines 43-67, and column 12, lines 23-40. Input/output devices customary in a host device include, for example, hard disk drives (e.g. column 8, lines 1-11), floppy disk drives, CD-ROM drives, or tape drives (e.g., column 4, lines 23-39) or printers (e.g., column 9, lines 38-48).

A "storage device" should be given its plain and ordinary meaning of a type of input/output device that provides for non-volatile storage of data, typically on rotating magnetic media. The phrase "a storage device customary in a host device," should be construed to mean any one of a wide variety of storage devices, including disk drives. The '449 patent defines storage devices to include, for example, hard disk drives, floppy disk drives, CD-ROM drives, or tape drives. See, e.g., '449 patent, col. 3, ll. 26-42. Memory typically is not understood to be a type of "storage device" customary in a host device.

As described in the written description of each patent in suit: "Drivers for input/output devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for graphics devices or for printer devices. As however the hard disk interfaces in common host devices which can be, for example, IBM PCs, IBM-compatible PCs, Commodore PCs, Apple computers or even workstations, are the interfaces with the highest data transfer rate, the hard disk driver is utilized in the preferred embodiment of the interface device of the present invention. Drivers for other storage devices such as floppy disk drives, CD-ROM drives or tape drives could also be utilized in order to implement the interface device according to the present invention." Accordingly, drivers for input/output devices should be construed to

include at least drivers for disk drives, for graphics devices and for printer devices.

Drivers for storage devices should be construed to include drivers for hard disk drives, floppy disk drives, CD-ROM drives or tape drives.

A specific driver for the multipurpose interface should be given its plain and ordinary meaning, i.e., a software driver that enables a host system to communicate via a multipurpose interface.

To provide context for the remaining portions of a claim, the term “data transmit/receive device” means a device that senses some physical property external to the sensor, and converts it into an electrical signal. The term “data transmit/receive device” should be construed to cover an entire spectrum of sensors. The written description of the ‘399 patent, for example, gives as an example an image-acquisition system, which is a diagnostic radiology system. In some claims (but not all) the data transmit/receive device produces an analog signal. A CCD image sensor typically found in a digital camera is a “data transmit/receive device.” Also, depending on the configuration, a microphone may be a “data transmit/receive device.”

Additionally, the term data transmit/receive device is recited differently in the two patents-in-suit. For example, in claim 1 of the ‘399 patent, the data transmit/receive device is recited as “being arranged for providing analog data.” (CCD image sensors provide analog data). However, in claim 1 of the 449 patent, there is no recitation that the data transmit receive device be arranged to provide analog data. If there is any interpretation of the term data transmit/receive device, that term in the ‘449 patent therefore should, for example, be construed more broadly than the data transmit/receive devices of the ‘399 patent.

2. Processor.

The term "processor" means "any [] kind of microprocessor," including Digital Signal Processors. A Digital Signal Processor (e.g., claim 5 of the '399 patent) should be given its plain and ordinary meaning of a processor with a "pipeline" architecture optimized to perform repetitive operations.

3. Memory

Memory should be given its plain and ordinary meaning, and encompass any type of memory.

4. First Connecting Device

The term "first connecting device" means the circuitry used to interface the interface device to the host PC. The first connecting device should not be limited to a mere connector. Examples of a "first connecting device" described in the '399 patent and the '449 patent include an interface circuit. The Digital Cameras in suit all include a first connecting device because they include a Universal Serial Bus (USB) circuit. The USB interface circuit is for interfacing the interface device with a multipurpose USB interface on a host PC.

5. Second Connecting Device

The term "second connecting device" as it is used in the '399 patent means the structure actually recited in claim 1, i.e., "a sampling circuit for sampling the analog data provided by the data transmit/receive device" and "an analog-to-digital converter for converting data sampled by the sampling circuit into digital data." The word "including" means that the second connecting device includes, but is not limited to, the sampling circuit and the analog to digital converter. The terms "sampling circuit" and "analog to

digital converter” should be given their plain and ordinary meanings. The second connecting device should not be limited to a mere connector. In this regard, the word “interfacing” should not be interpreted to require or prohibit a permanent interface with a permanently attached data transmit/receive device.

Digital cameras-in-suit typically include a sample-and-hold circuit and an analog to digital converter as part of the circuitry that interfaces the data transmit/receive device to the processor of the interface device.

In the ‘449 patent, the claims recite a “second connecting device for interfacing the interface device with the data transmit/receive device,” which is broader than the language in the ‘399 patent, because it does not recite the sampling circuit or the analog-to-digital converter. Independent claim 18 of the ‘449 patent recites the step of interfacing a data transmit/receive device with a broadly recited second connecting device, which does not require any particular sampling circuit or analog-to-digital converter. The claims of the ‘449 patent should not be limited to the structure recited in the claims of the ‘399 patent.

6. First Command Interpreter

The independent claims of the ‘399 patent recite that the interface device be configured by the processor and the memory to include a first command interpreter and a second command interpreter. In the claims of the ‘399 patent, the first command interpreter is configured to interpret inquiries from the host device. A "command interpreter" should be given its plain and ordinary meaning of a portion of the interface device or its programming that interprets commands.

7. Receiving an Inquiry

The term “receiving an inquiry from the host device” means receiving a command seeking identification or configuration information concerning the interface device, with such a command requiring interpretation and a response. An inquiry from a host device typically occurs before the host device has established the identity of the interface device.

The portion of a digital camera which interprets USB commands, including those USB commands relating to the device enumeration process, comprise a first command interpreter.

The claims of the ‘449 patent are not limited to a “first command interpreter” because, for example, claim 1 of the ‘449 patent does not recite a first command interpreter. Claim 1 recites that the interface device is configured by the processor and the memory to provide certain signals in response to an inquiry received from a host PC. This need not be performed by a particular command interpreter.

8. “Signals” to the Host Device

Claim 1 of the ‘399 patent recites, in part, that the “the first command interpreter” (which is part of the interface device) sends a signal to the host device “which signals to the host device that it is an input/output device customary in a host device.” Claim 1 of the ‘449 patent recites, in part, that the “interface device” (not necessarily limited to a “command interpreter”) sends a signal to the host device “which signals to the host device that it is a storage device customary in a host device.” “Signal[ing]” to the host device does not require an unequivocal express identification of the device as any particular input/output device (‘399 patent) or storage device (‘449 patent). Instead, “signaling” means that the response to the inquiry from the host device is consistent with

a response that an input/output device customary in a host device would provide to the inquiry ('399 patent) or consistent with a response that a storage device customary in a host device would provide to the inquiry ('449 patent).

The "signals" may be found in the responses to the "Get_Descriptor" USB commands. For example, a Casio Exilim Z75 Digital Camera is believed to respond to a "Get_Descriptor" USB command from a host PC by returning the requested descriptor(s). For example, the Casio Exilim Z75 Digital Camera, when in USB Mass Storage mode, is believed to return an Interface Descriptor which identifies the Casio Exilim Z75 Digital Camera as having a bInterfaceClass = 0x08, a bInterfaceSubClass = 0x05, and a bInterfaceProtocol = 0x50. An Interface Descriptor having the above information does not identify the attached device as a camera having an image sensor. Instead, the Interface Descriptor information given above is believed to signal to the host PC that the Casio Exilim Z75 device is an ATAPI removable rewriteable media device compatible with a SFF-8070i command set. It is further believed that a host PC receiving the above Interface Descriptor information would recognize the Exilim Z75 digital camera as an ATAPI disk drive. The host PC automatically loads standard software drivers, such as usbstor.sys, disk.sys and PartMgr.sys, and the host PC communicates with the interface device of the camera by means of such drivers. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives.

In another example, a Panasonic DMC-LX1 Digital Camera, when in USB Mass Storage mode, is believed to return an Interface Descriptor which identifies the Panasonic DMC-LX1 Digital Camera as having a bInterfaceClass = 0x08, a bInterfaceSubClass = 0x06, and a bInterfaceProtocol = 0x50. An Interface Descriptor having the above

information does not identify the attached device as a camera having an image sensor. Instead, the Interface Descriptor information given above is believed to signal to the host PC that the Panasonic DMC-LX1 Digital Camera is a disk drive compatible with a SCSI command set. It is further believed that a host PC receiving the above Interface Descriptor information would recognize the DMC-LX1 Digital Camera as a SCSI disk drive. The host PC automatically loads standard software drivers, such as usbstor.sys, disk.sys and PartMgr.sys, and the host PC communicates with the interface device of the camera by means of such drivers. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives.

In another example, an Olympus E-500 Digital Camera, when in USB Mass Storage mode, is believed to return an Interface Descriptor which identifies the Olympus E-500 Digital Camera as having a bInterfaceClass = 0x08, a bInterfaceSubClass = 0x06, and a bInterfaceProtocol = 0x50. An Interface Descriptor having the above information does not identify the attached device as a camera having an image sensor. Instead, the Interface Descriptor information given above is believed to signal to the host PC that the Olympus E-500 Digital Camera is a disk compatible with a SCSI command set. It is further believed that a host PC receiving the above Interface Descriptor information would recognize the Olympus E-500 Digital Camera as a SCSI disk drive. The host PC automatically loads standard software drivers, such as usbstor.sys, disk.sys and PartMgr.sys, and the host PC communicates with the interface device of the camera by means of such drivers. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives.

In another example, a Fujifilm F10 Digital Camera, when in USB Mass Storage

mode, is believed to return an Interface Descriptor which identifies the Fujifilm F10 Digital Camera as having a bInterfaceClass = 0x08, a bInterfaceSubClass = 0x06, and a bInterfaceProtocol = 0x50. An Interface Descriptor having the above information does not identify the attached device as a camera having an image sensor. Instead, the Interface Descriptor information given above is believed to signal to the host PC that the Fujifilm F10 Digital Camera is a disk compatible with a SCSI command set. It is further believed that a host PC receiving the above Interface Descriptor information would recognize the Fujifilm F10 Digital Camera as a SCSI disk drive. The host PC automatically loads standard software drivers, such as usbstor.sys, disk.sys and PartMgr.sys, and the host PC communicates with the interface device of the camera by means of such drivers. The host PC also uses the disk.sys and PartMgr.sys drivers to communicate with hard disk drives.

In another example, in PTP mode, a PTP Digital Camera is believed to respond to a "Get_Descriptor" USB command from a host PC by returning the requested descriptor(s). For example, the PTP Digital Camera is believed to return an Interface Descriptor which identifies the PTP Digital Camera as having a bInterfaceClass = 0x06. An Interface Descriptor having bInterfaceClass = 0x06 is believed to signal to the host PC that the PTP Digital Camera is an I/O imaging device such as a scanner. The host PC, in response to this Interface Descriptor, loads and communicates with the interface device of the camera by means of Microsoft standard software drivers, such as usbscan.sys. The host PC believed to use the usbscan.sys driver to communicate with imaging devices such as scanners.

9. Whereupon the Host Device Communicates with the Interface Device

Claim 1 of the '399 patent, for example, recites communication from the host device to the interface device to be by way of a driver for an input/output device customary in a host device:

whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device, and

"whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device" means that the host device automatically uses one or more drivers developed for use with the customary input/output devices to communicate with the interface device.

The body of claim 1 of the '449 patent, for example, also recites communication between the host device and the interface device, but by way of a driver for a storage device:

whereupon the host device communicates with the interface device by means of the driver for the storage device customary in a host device, and

"whereupon the host device communicates with the interface device by means of the driver for the storage device customary in a host device" means that the host device automatically uses one or more drivers developed for use with a customary storage device to communicate with the interface device.

Host devices, such as a PC are believed to communicate with the interface device of a Digital Camera-in-suit as recited above. For example, a PC operating Windows XP is believed to communicate with a Casio Exilim Z75 digital camera in USB Mass Storage Mode by means of Microsoft standard software drivers, such as usbstor.sys, disk.sys and PartMgr.sys (disk.sys and PartMgr.sys drivers are also used to communicate with I/O

storage devices, such as hard disk drives, and usbstor.sys is used to communicate with hard disk drives attached to a USB port). In another example, a PC operating Windows XP is believed to communicate with a Casio Exilim Z75 digital camera in PTP Mode by means of Microsoft standard software drivers, such as usbscan.sys (the usbscan.sys driver is also used to communicate with imaging devices, such as scanners).

Claim 11 of the '399 patent and claim 17 of the '449 patent, for example, recite communication from the host device to the interface device to be by way of a driver for an input/output device customary in a host device:

whereupon the host device communicates with the interface device by means of the specific driver for multipurpose interface, and

Host devices, such as a PC are believed to communicate with the interface device of a Casio digital camera as recited above. For example, a PC operating Windows XP is believed to communicate with a MSC Digital Camera by means of a specific software drivers for the multipurpose USB interface, such as usbstor.sys. In another example, a PC operating Windows XP is believed to communicate with a PTP Digital Camera by means of a specific software driver for the multipurpose USB bus, such as usbscan.sys.

10. Second Command Interpreter

The "second command interpreter" of claim 1 of the '399 patent is a command interpreter that interprets a data request command:

wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.

The "second command interpreter" is defined in claim 1 of the '399 patent as a command interpreter that interprets data request commands from a host device. The term "the

digital data," while referring to the data digitized in the second connecting device, should be construed to mean the data as it is output by the analog to digital converter, and/or the data as it is output by the analog to digital converter after it has undergone additional processing, such as digital signal processing and/or data compression. See, e.g., '399 patent claim 5 (reciting that the processor is a digital signal processor), '449 patent claim 4 (reciting that the data acquired by the second connecting device is transformed into the frequency domain), '449 patent claim 5 (reciting compressing data to be transmitted from the data transmit/receive device to the host device), '399 patent column 9, lines 17-32 (describing optional data compression and other operations). The term "the digital data" should not be construed to exclude such additional data processing.

The set of USB commands that are interpreted by the first command interpreter, e.g., the "Get_Descriptor" commands and commands like those, do not have a data request command for retrieving, for example, digital data corresponding to images acquired by a Digital Camera-in-suit. Instead, data request commands are specified in different command sets. For example, the SCSI Block Command ("SBC") set includes READ commands. In another example, the ATAPI command set includes many of the SBC commands, including the READ commands. MSC Digital Cameras are believed to interpret and respond to the SBC READ command. In USB Mass Storage mode, the Casio Exilim Z75 Digital Camera is believed to respond to, for example, a SCSI READ(10) command by transferring one or more requested sectors as specified by the READ(10) command. It is further believed that the Casio Exilim Z75 Digital Camera will transfer to a host computer digital data representing images acquired by a CCD image sensor and associated components in response to the READ(10) command. The

READ(10) command is, for example, a standard data request command that a host PC may send to a hard disk drive.

Also, the PIMA 15470:2000 specification specifies commands such as "GetObject" (PIMA Commands). PTP Digital Cameras are believed to interpret this data request command and provide the requested "object," including data representing images acquired by the CCD sensor and digitized by the second connecting device.

The interpretation of the SBC, ATAPI, and/or PIMA commands is believed to occur in a command interpreter other than the command interpreter that interprets the USB device enumeration commands. This comprises a second command interpreter.

11. Hard Disk Drive Driver

A hard disk drive driver should be given its plain and ordinary meaning, i.e., a software driver that enables a host system to communicate with a hard disk drive.

12. Data Buffer

As stated in the written description, "a data buffer can be implemented in the memory means 14 to permit independence in terms of time of the data transmit/receive device attached to the second connecting device from the host device attached to the first connecting device." Therefore, the "memory means compris[ing] a buffer to buffer data" means that the memory is adapted to store the acquired data until it is transferred to allow time independence in terms of when the data is acquired and when the data is later transferred to a host system.

13. Root Directory and Virtual Files

A root directory should be given its plain and ordinary meaning of a directory which is not in another directory. Virtual files means files which appear to be present on

a simulated disk drive, yet which are not on rotating media.

14. Virtual File System

As described in the '449 patent, a virtual file system involves responding to a host computer with information that is consistent with what would be provided by a disk drive with rotating magnetic media:

In reply to an instruction from the host device to display the directory of the "virtual" hard disk drive simulated by the interface device 10 with respect to the host device, the digital signal processor can respond to the host device in exactly the same way as a conventional hard disk would, namely by reading on request the file allocation table or FAT on a sector specified in the boot sequence, normally the first writable sector, and transferring it to the host device, and subsequently by transferring the directory structure of the virtual hard disk.

The Digital Cameras in suit are believed to represent to a host PC a file system which simulates the existence of addressable sectors, even though flash memory cards do not have any physical "sectors." This is an example of virtualization of the file system. The term "file system" generally implies the use of rotating media, which is not present in the Digital Cameras-in-suit.

Similarly, a virtual boot sequence means configuring the interface device to provide information that is consistent with the boot sectors of a drive having rotating magnetic media. Such sectors may include, for example, a sequence that includes a starting position and a length of a file allocation table, an indication of a type of the storage device, or a number of sectors of the storage device ('449 patent, claim 7). The terms file allocation table and directory structure should be given their plain and ordinary meanings.

The Digital Cameras in suit are believed to send a virtual boot sequence to the host PC in response to a request from the host PC. For example the written descriptions

of the patents-in-suit explain that when the host device receives the response that indicates that a drive is present, it then sends a request to the interface device to read the boot sequence. The written description also explains that on actual hard disks, the boot sequence normally resides on the first sectors of the disk. It is believed that, upon identifying the MSC Digital Camera as a disk drive, the host PC sends a read request to the MSC Digital Camera to read the first sector of the disk drive (which is a virtual disk drive).

In response to the request to read the first sector of the hard disk, the MSC Digital Camera is believed to send a 512 byte sector of information to the host PC. This 512 byte sector appears to contain the information of a master boot record (MBR), including partition information, which indicates the location of, for example, a boot sector. The MBR and the boot sector of the MSC Digital Camera, like the example given in the written description, are believed to include the drive type, the starting position and the length of the file allocation table (FAT), the number of sectors, etc

Documents and things that relate to infringement as pointed out above include, but are not limited to, the patents-in-suit and their respective file histories, the devices made by the Camera Manufacturers that are configurable to operate as a MSC Digital Camera and/or as a PTP Digital Camera, including the devices specifically identified in this response, Universal Serial Bus Specification, Revision 2.0, Universal Serial Bus Common Class Specification, Revision 1.0, Universal Serial Bus Mass Storage Class Specification Overview, Revision 1.2, Universal Serial Bus Mass Storage Class Bulk-Only Transport, Revision 1.0, USB Still Image Capture Device Definition, Revision 1.0, SCSI Block Commands-2 (SBC-2) (T10/1417-D) and/ or SCSI Block Commands - 3

(SBC-3) (T10/1799-D), PIMA 15740:2000, Picture Transfer Protocol (PTP) for Digital Still Photography Devices, and/or ISO 15740:2005, Picture Transfer Protocol (PTP) for Digital Still Photography Devices.

Additional documents that may relate or refer to the infringement of the patents in suit by products manufactured and/or sold by the parties in suit include documents which may be found in the following ranges: PAP0000377-PAP0000509, PAP0018972-PAP0019046, PAP0000920-PAP0001021, PAP 0019082-PAP0019155, PAP0000042-PAP0000106, PAP0019239-PAP0019285, PAP0010286-PAP0019313, PAP0001918-PAP0002010, PAP0021190-PAP0021244, PAP0001622-PAP0001688, PAP0021128-PAP0021182, PAP0000107-PAP0000184, PAP0019314-PAP0019367.

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/s/ Robert F. Muse

Robert F. Muse (Bar No. 166868)
Stein Mitchell & Mezines, LLP
1100 Connecticut Ave., NW
Suite 1000
Washington D.C. 20036
(202) 737-7777

James P. White
Jerold B. Schnayer
Walter J. Kawula
Joseph E. Cwik
WELSH & KATZ, LTD.
120 South Riverside Plaza • 22nd Floor
Chicago, Illinois 60606
(312) 655-1500
**Attorneys Papst Licensing GmbH & Co.
KG**