DATALOGIC™

DIAMOND™ D531 Scanners

QUICK REFERENCE GUIDE

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Should future revisions of this manual be published, you can acquire printed versions by contacting your Datalogic representative. Electronic versions may either be downloadable from the Datalogic website (www.scanning.datalogic.com) or provided on appropriate media. If you visit our website and would like to make comments or suggestions about this or other Datalogic publications, please let us know via the "Contact Datalogic" page.

DISCLAIMER

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CONTENTS

UPDATES AND LANGUAGE AVAILABILITY

UK/US

The latest drivers and documentation updates for this product are available on Internet.
Log on to: www.scanning.datalogic.com

I

Su Internet sono disponibili le versioni aggiornate di driver e documentazione di questo prodotto. Questo manuale è disponibile anche nella versione italiana.
Collegarsi a: www.scanning.datalogic.com

F

Les versions mises à jour de drivers et documentation de ce produit sont disponibles sur Internet. Ce manuel est aussi disponible en version française.
Cliquez sur: www.scanning.datalogic.com

D

Im Internet finden Sie die aktuellsten Versionen der Treiber und Dokumentation für dieses Produkt. Die deutschsprachige Version dieses Handbuches ist auch verfügbar.
Adresse : www.scanning.datalogic.com

E

En Internet están disponibles las versiones actualizadas de los drivers y documentación de este producto. También está disponible la versión en español de este manual.
Dirección Internet: www.scanning.datalogic.com

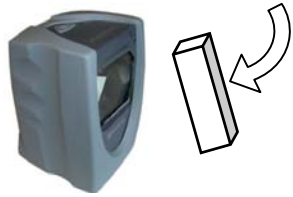
USING DIAMOND™

The Datalogic Diamond™ D531 is an omni-directional scanner, which generates a scan pattern of 16 lines, thus ensuring high performance scanning.

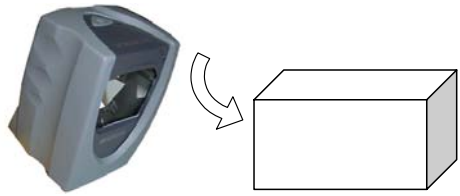
Barcodes are read simply on presentation to the scanner window.

The Diamond™ scanner can be used **handsfree** as well as **hand-held**, e.g.:

a) Handsfree scanning by presenting the item to the scanner using a sweeping curved motion towards the scanner window.



b) You can also use it as a hand-held device by presenting the scanner to the item using a sweeping curved motion towards the item.



SLEEP STATE

After a default stand-by timeout the scanner enters a "Sleep" state for minimum power consumption in which the scanner Laser is OFF and the motor is not rotating.

It is possible to exit this state by simply pressing the trigger.

SINGLE LINE MODE

When many barcodes are present in the same reading area, like in barcode price lists or in the case of configuration barcodes in this manual, selecting a specific barcode to read is not practical with the large raster pattern emitted by the Diamond™, so a special single line scanning mode can be easily entered to perform this task. In this mode only a single scanning line is enabled so that aiming and reading barcodes become very easy.

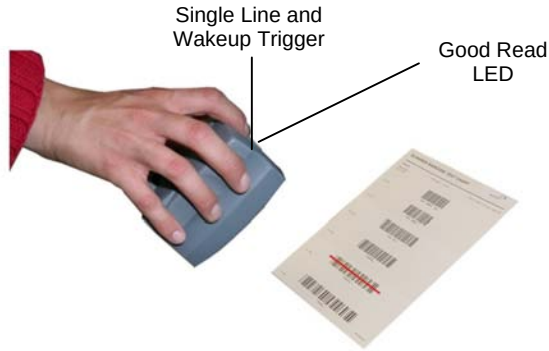
To use single line mode for barcode reading follow the procedure below:

1. While the normal raster pattern is present, press the trigger. A single laser line will appear but barcodes cannot be decoded.
2. Position the presentation scanner over the code to read and press the trigger within 5 seconds to decode the code.

When using the scanner for data entry, a programmable timeout is provided to assure that Diamond™ will return to raster mode if barcode reading is not successful in single line (*Single Line Decoding Duration*). Also a programmable timeout is available to manage how long to wait after successful reading before returning to raster mode (*Single Line Timeout OFF Before Raster*).

If you need to make consecutive readings in single line mode, simply repeat the procedure before the *Single Line Timeout OFF Before Raster* expires.

When in configuration, Diamond™ will remain in single line until the *Exit Configuration* barcode is read.



CONNECTIONS

NOTE

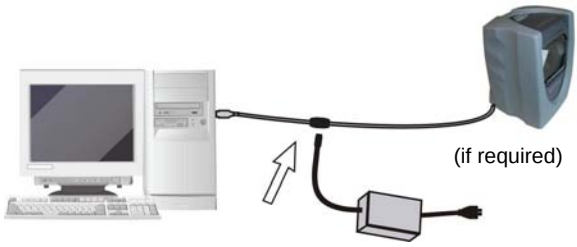
The scanner and the host system must be switched off before starting the installation of the scanner. By following this precaution you prevent any electrical damage.
You are advised to install the scanner in a place with good air circulation out of direct sunlight.

In order to install the scanner:

1. Locate the optimal scanner position in relation to the counter surface.
2. Pay attention to the product flow, the distance to the counter edge and convenience for the operator.

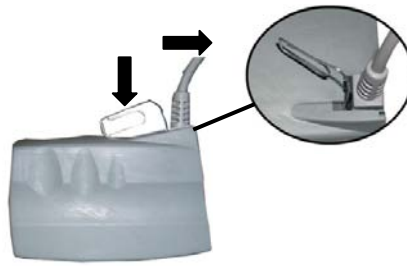
RS232

USB



KEYBOARD WEDGE

CONNECTING / DISCONNECTING THE CABLE



INTERFACE SELECTION

Follow the procedure to configure the interface required by your application.

- USB Interface
- RS232 Interface
- Wedge Interface

USB INTERFACE CONFIGURATION

The USB interface is compatible with:

- Windows 98 (and later)
- Mac OS 8.0 (and later)
- IBM POS for Windows
- 4690 Operating System

Start-Up

As with all USB devices, upon connection, the Host performs several checks by communicating with the Diamond™. During this phase the green LED on the Diamond™ reader blinks and normal operations are suspended. Two basic conditions must be met before Diamond™ is ready to read codes, the correct USB driver must be loaded and sufficient power must be supplied to the reader.

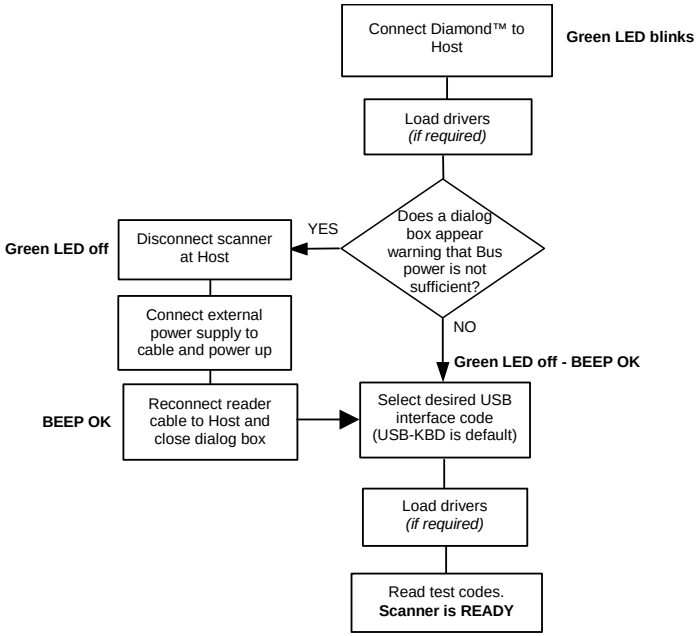
For all systems, the correct USB driver for the default USB-KBD interface is included in the Host Operating System and will either be loaded automatically or will be suggested by the O.S. and should therefore be selected from the dialog box (the first time only).

If the Host supplies sufficient power to the reader, the start-up phase ends correctly, the green LED stops blinking and the reader emits the beep OK signal.

If the Host does not supply sufficient power to the reader, a dialog box will appear on the Host and the reader will be blocked (green LED continues blinking). In this case, disconnect the USB cable at the Host (green LED stops blinking), connect and power-up an external supply to the USB cable then reconnect the USB cable to the Host and close the dialog box. The reader emits the beep OK signal. You can now read codes. At this point you can read the USB interface configuration code according to your application. Load drivers from the O.S. (if requested). When configuring the USB-COM interface, the relevant files and drivers must be installed from the USB Device Installation software, which can be downloaded from the web page http://www.scanning.datalogic.com.

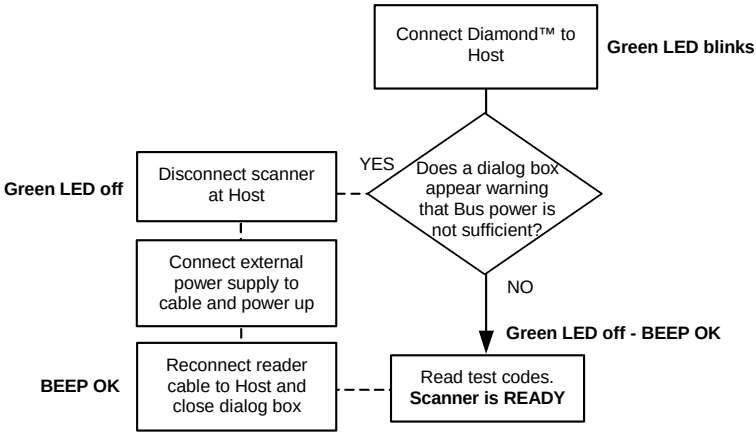
The scanner is ready.

First Start-Up



Successive start-ups will automatically recognize the previously loaded drivers. If external power is used, verify that external power is already supplied.

Successive Start-Ups



USB INTERFACE SELECTION

USB-KBD

USB-KBD-ALT-MODE

USB-KBD-APPLE

USB-COM*

USB-IBM-Table Top

USB-IBM-Hand Held

* When configuring USB-COM, the relevant files and drivers must be installed from the USB Device Installation software, which can be downloaded from the web site http://www.scanning.datalogic.com.

USB KEYBOARD NATIONALITY

USB-KBD users should select one of the following keyboard nationality codes.

Belge

Deutsch

English

Español

Français

Italiano

Svenskt

USA

Japanese

RS232 READER CONFIGURATION

Read the restore default code, then read the interface selection code for your application:

RESTORE DEFAULT

RS232 INTERFACE

Standard

POS TERMINALS

Nixdorf Mode A

Fujitsu

ICL Mode

WEDGE INTERFACE SELECTION

Read the restore default code, then read the interface selection code for your application:

RESTORE DEFAULT

WEDGE INTERFACE

IBM AT or PS/2 PCs

IBM XT

PC Notebook

IBM SURE1

IBM Terminal 3153

WEDGE INTERFACE (CONTINUED)

IBM Terminals 31xx, 32xx, 34xx, 37xx:

To select the interface for these IBM Terminals, read the correct key transmission code. Select the keyboard type if necessary (default = advanced keyboard).

KEY TRANSMISSION MODE

make-only keyboard

make-break keyboard

KEYBOARD TYPE

advanced keyboard

typewriter keyboard

ALT MODE

The following interface selection allows barcodes sent to the PC to be interpreted correctly independently from the Keyboard Nationality used. **You do not need to make a Keyboard Nationality selection.**

(default = Num Lock Unchanged)

Make sure the Num Lock key on your keyboard is ON.

IBM AT - ALT mode

PC Notebook - ALT mode

WEDGE INTERFACE (CONTINUED)

WYSE TERMINALS

ANSI Keyboard

PC Keyboard

ASCII Keyboard

VT220 style Keyboard

DIGITAL TERMINALS

VT2xx/VT3xx/VT4xx

WEDGE KEYBOARD NATIONALITY

If you selected the Wedge interface, you should also read among the following codes the one that matches your Keyboard Nationality:

Belge

Deutsch

English

Español

Français

Italiano

Svenskt

USA

The following Keyboard Nationality selection is only valid for IBM AT compatible PCs:

Japanese

DEFAULT VALUES

USB DEFAULT SETTINGS

DATA FORMAT: code identifier disabled, no field adjustment, code length not transmitted, character replacement disabled.

USB KEYBOARD: USA keyboard, inter-character and inter-code delays disabled, control character emulation = ctrl+shift+key.

USB COM: no handshaking, delay disabled, rx timeout 5 sec., ack/nack disabled, serial decode control = disabled, serial sleep control = disabled.

Default Headers and Terminators for each USB mode:

- USB-KBD: no header, terminator = ENTER
- USB-KBD APPLE: no header, terminator = ENTER
- USB-KBD-ALT-MODE: no header, terminator = CR
- USB-COM: no header, terminator = CR-LF
- USB-IBM-TABLE TOP: not applicable
- USB-IBM-HAND HELD: not applicable

RS232 Standard DEFAULT SETTINGS

9600 baud, no parity, 8 data bits, 1 stop bit, no handshaking, delay disabled, rx timeout 5 sec., ack/nack disabled, serial decode control = disabled, serial sleep control = disabled.

DATA FORMAT: code identifier disabled, no field adjustment, code length not transmitted, *no header*, *terminator* = *CR-LF*, character replacement disabled.

RS232 Nixdorf DEFAULT SETTINGS

9600 baud, parity odd, 8 data bits, 1 stop bit, handshaking hardware (RTS/CTS), delay disabled, rx timeout 9.9 sec., ack/nack disabled, serial decode control = disabled, serial sleep control = disabled.

DATA FORMAT: code identifier enabled, no field adjustment, code length not transmitted, *no header*, *terminator* = *CR*, character replacement disabled.

RS232 Fujitsu DEFAULT SETTINGS

9600 baud, no parity, 8 data bits, 1 stop bit, no handshaking, delay disabled, rx timeout 2 sec., ack/nack disabled, serial decode control = disabled, serial sleep control = disabled.

DATA FORMAT: code identifier enabled, no field adjustment, code length not transmitted, *no header*, *terminator* = *CR*, character replacement disabled.

RS232 ICL DEFAULT SETTINGS

9600 baud, parity even, 8 data bits, 1 stop bit, handshaking RTS always on, delay disabled, rx timeout 9.9 sec., ack/nack disabled, serial decode control = disabled, serial sleep control = disabled.

DATA FORMAT: code identifier enabled, no field adjustment, code length not transmitted, *no header*, *terminator* = *CR*, character replacement disabled.

WEDGE DEFAULT SETTINGS

USA keyboard, caps lock off, caps lock auto-recognition enabled, num lock unchanged, inter-character and inter-code delays disabled, control character emulation = ctrl+shift+key.

DATA FORMAT: code identifier disabled, no field adjustment, code length not transmitted, *no header*, *terminator* = *ENTER*, character replacement disabled.

POWER SAVE

stand by state enabled; enter stand by timeout 5 min.; sleep state enabled, sleep state timeout 60 min.

READING PARAMETERS

Timeout between same code consecutive readings 0.3 sec, beeper intensity high, tone 2, beeper type monotone, beeper length short, single line decoding duration = 5 sec., timeout OFF before raster = 2 sec.

DECODING PARAMETERS

ink spread disabled, overflow control enabled, interdigit control enabled, decoding safety = one read; code 39 stitching enabled, code 128 stitching enabled.

CODE SELECTION

Enabled codes

- EAN 8/EAN 13 / UPC A/UPC E without ADD ON
  check digit transmitted, no conversions, autodiscriminate decoding safety = 15 reads
- Interleaved 2/5
  check digit control and transmission, variable length code; 6-99 characters
- Standard Code 39
  no check digit control, variable length code; 4-99 characters
- Code 128
  variable length code; 1-99 characters

Disabled codes

EAN 128, ISBT128, Code 93, Codabar, MSI, Plessey, RSS

ADVANCED FORMATTING PARAMETERS

concatenation disabled, no advanced formats defined.

OPERATING TEST

Read the TEST codes below.

EAN-8

EAN-13

Code 39 (Normal)

Code 128

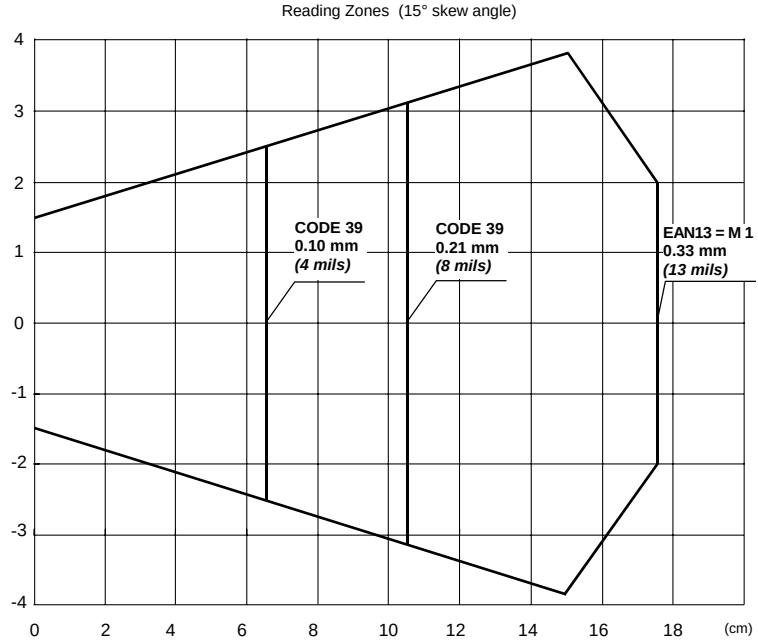
Interleaved 2 of 5

YOUR SCANNER IS NOW READY TO READ CODES.
To change the defaults refer to the "Presentation Scanners Software Configuration Manual" or to the Datalogic Aladdin™ Configuration program, both downloadable from the website.

TECHNICAL FEATURES

Electrical Features	
Power Supply	+5 Vdc ± 5%
Consumption	390 mA @ 5V
Interfaces	RS232, USB, Keyboard Wedge
Reading Indicators	Red and Green LEDs, Beeper
Optical Features	
Light Source	Visible laser diode (in the range 630 ~ 680 nm)
Reading Field	See reading diagram
Max Resolution	0.10 mm (4 mils)
PCS	Min. 20% (Datalogic Test Chart)
Scan Pattern	4 directions, 16 lines
Scan Rate	1200 scans/seconds
Environmental Features	
Operating Temperature	0° to + 40 °C (32° to 104 °F)
Storage Temperature	-20° to +70 °C (-4° to 158 °F)
Humidity	0% to 90% RH (non-condensing)
Drop Resistance	IEC 68-2-32 Test ED 0,8 m
ESD Protection	16 KV
Protection Class	IP20
Mechanical Features	
Weight (without cable)	about 280 g (10 oz)
Dimensions	100 x 80 x 60 mm / 3.9 x 3.1 x 2.4 in

READING DIAGRAM



SCANNER DATA ENTRY

H = high tone **L** = low tone

Beeper	LED	Meaning
one beep[2]	**Green** constant	correct read of a code in normal mode. it remains constant once the decoding process has been successfully completed and the scanner is in *Timeout between same code readings*.
	Red constant	it is constant in normal mode while the Laser is ON and the scanner is ready to read a new code (not in *Timeout between same code readings*).
LH[1]	**Red** constant	No read in single line mode after *Single Line Decoding Duration* timeout.
	Red blinking fast	it blinks fast when the scanner is in *Stand-by* mode.
	Red blinking slow	it blinks slower when the scanner is in *Sleep* mode.
	Green/Red blinking alternatively	they turn on alternatively during serial configuration.

1 only the Beeper Intensity command can modify these signals.

2 the data entry good read tone is user-configurable with all the Beeper commands in the Reading Parameter section.

WARRANTY

Datalogic warranties this product against defects in workmanship and materials, for a period of 24 months from the date of shipment, provided that the product is operated under normal and proper conditions.

Datalogic has the faculty to repair or replace the product; these provisions do not prolong the original warranty term.

The warranty does not apply to any product that has been subject to misuse, accidental damage, unauthorized repair or tampering.

PATENTS

This product is covered by one or more of the following patents:

U.S. Patents 5,689,102; 5,992,740; 6,196,462 B1; 6,202,928 B1; 6,260,764 B1; 6,305,606 B1; and 6,834,806 B2

European Patents 858,636 B1; 895,175 B1; 926,620 B1; and 1,112,546 B1

Dutch Patent 1,001,510; 1,008,260; 1,009,156; 1,009,332; 1,010,088; and 1,012,189

Additional patents pending.

SERVICES AND SUPPORT

Datalogic provides several services as well as technical support through its website. Log on to **www.scanning.datalogic.com** and click on the links indicated for further information including:

- **PRODUCTS**

  Search through the links to arrive at your product page where you can download specific **Manuals** and **Software & Utilities** including:

  - **Datalogic Aladdin™** a multi-platform utility program, which allows device configuration using a PC. It provides RS232/USB-COM interface configuration as well as configuration barcode printing.

- **SERVICES & SUPPORT**

  - **Datalogic Services** - Warranty Extensions and Maintenance Agreements
  - **Authorised Repair Centres**

- **CONTACT US**

  E-mail form and listing of Datalogic Subsidiaries

COMPLIANCE

FCC COMPLIANCE

Modifications or changes to this equipment without the expressed written approval of Datalogic could void the authority to use the equipment.

This device complies with PART 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference which may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

POWER SUPPLY

This device is intended to be connected to a UL Listed/CSA Certified computer which supplies power directly to the reader or else be supplied by a UL Listed/CSA Certified Power Unit marked “Class 2” or LPS power source rated 5 V, minimum 390mA, which supplies power directly to the reader via the power connector of the cable.

WEEE COMPLIANCE

Datalogic Scanning, Inc.
959 Terry Street
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declares that the
déclare que le
bescheinigt, daß das Gerät
declare que el

DIAMOND Dxxx

e tutti i suoi modelli
and all its models
et tous ses modèles
und seine Modelle
y todos sus modelos

sono conformi alle Direttive del Consiglio Europeo sottoelencate:
are in conformity with the requirements of the European Council Directives listed below:
sont conformes aux spécifications des Directives de l'Union Européenne ci-dessous:
den nachstehenden angeführten Direktiven des Europäischen Rats:
cumple con los requisitos de las Directivas del Consejo Europeo, según la lista siguiente:

89/336/EEC EMC Directive	e and et und y	**92/31/EEC, 93/68/EEC**	emendamenti successivi further amendments ses successifs amendements späteren Abänderungen succesivas enmiendas

Basate sulle legislazioni degli Stati membri in relazione alla compatibilità elettromagnetica ed alla sicurezza dei prodotti.
On the approximation of the laws of Member States relating to electromagnetic compatibility and product safety.
Basée sur la législation des Etats membres relative à la compatibilité électromagnétique et à la sécurité des produits.
Über die Annäherung der Gesetze der Mitgliedsstaaten in bezug auf elektromagnetische Verträglichkeit und Produktsicherheit entsprechen.
Basado en la aproximación de las leyes de los Países Miembros respecto a la compatibilidad electromagnética y las Medidas de seguridad relativas al producto.

Questa dichiarazione è basata sulla conformità dei prodotti alle norme seguenti:
This declaration is based upon compliance of the products to the following standards:
Cette déclaration repose sur la conformité des produits aux normes suivantes:
Diese Erklärung basiert darauf, daß das Produkt den folgenden Normen entspricht:
Esta declaración se basa en el cumplimiento de los productos con las siguientes normas:

EN 55022 (CLASS B ITE),: AUGUST 1994: **AMENDMENT A1 (CLASS B ITE), OCTOBER 2000:**	LIMITS AND METHODS OF MEASUREMENTS OF RADIO DISTURBANCE CHARACTERISTICS OF INFORMATION TECHNOLOGY EQUIPMENTS
EN 55024, SEPTEMBER 1998:	INFORMATION TECHNOLOGY EQUIPMENT IMMUNITY CHARACTERISTICS LIMITS AND METHODS OF MEASUREMENT

March 1st, 2007

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