SOUNDLIGHT
The DMX Company

OPERATING MANUAL

DMX Pocket Tester 3512A Mk2.0

RoHS compliant

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GENERAL

The DMX Pocket Tester 3512A is a diagnostic tool to check and visualize the data traffic on a DMX line. The DMX Pocket Tester is self-contained and features:

- **DMX Receive Test**
  Analyses up to 30 channels simultaneously as bargraphs, 10 channels simultaneously with numerical readout and displays a status page for protocol timing and protocol parameters;

- **DMX Send Test**
  Transmits 512 DMX channels and varies data values by fader or automatically

- **Cable Test**
  Checks standard DMX control cables for correct wiring and function

- **Illuminated LCD display**
  A background illuminated LCD display allows working in darkened environments

- **Menu driven**
  A simple menu structure simplifies operation of the instrument

UNPACKING

Please unpack all items and check for outer damages. The DMX Tester has left the factory in perfect condition; in case of any damage notify the carrier immediately. To enable us sending a replacement unit, we need a written and signed protocol from the carrier, otherwise no insurance regulation will be possible.

You should find these items packed:

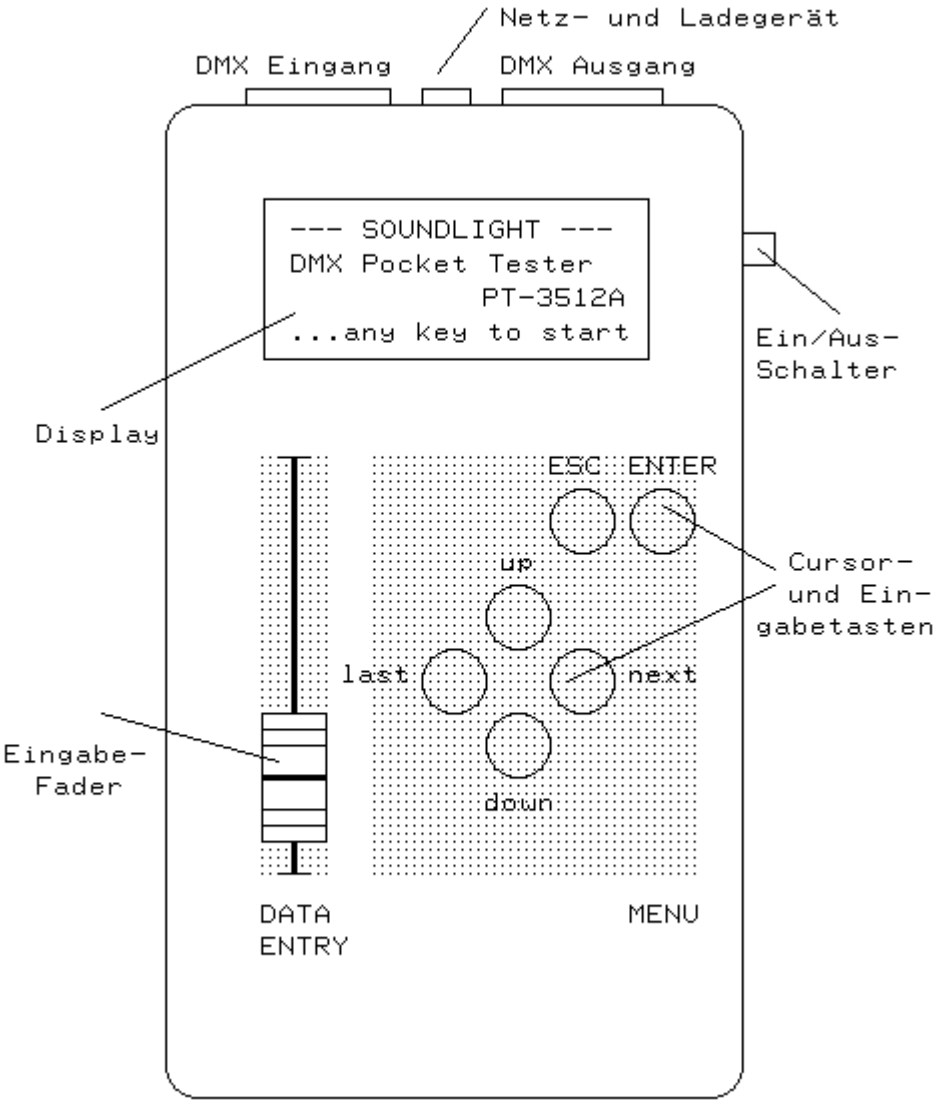
* the DMX-Tester 3512A
* a 230V Power supply unit/charger unit
* this manual

OPERATION

The DMX Tester 3512A is equipped with a pre-charged accumulator; you can set the device to work immediately. Switch off the instrument when the display intensity degrades and re-charge the accumulator. See chapter "CHARGING" for more details.

WARNING: USE THE SUPPLIED PSU/CHARGER UNIT ONLY WHEN OPERATING THE INSTRUMENT ON MAINS OR RE-CHARGING THE BATTERY. ***NEVER USE ANY OTHER PSU*** AS THIS MAY DAMAGE THE INSTRUMENT, THE PSU AND THE SLA BATTERY SUBSTANTIALLY.

To switch the instrument ON, move the switch at the right hand side of the DMX Tester. The display will come up with this message:




```
 --- SOUNDLIGHT ---
DMX-512 Tester Mk2.0
           PT-3512A
<ENTER> to start   >
```

Press <ENTER> to select the main menu. You may use the cursor keys to navigate through the following menus; please remember that <ENTER> or <next> will take you to the next level, while <ESC> or <last> will take you one step back. In serveral menus, <ENTER> is assigned to special functions while <last> will call help screens.

It may be necessary to adjust the screen contrast. Setting of the LCD contrast is only available in the greeting menu; hold <UP> or <DOWN> to select the contrast level. The contrast setting is valid until the Tester is switched off.

Pressing <ENTER> or <next> will take you to the main menu:

MAIN MENU

```
AUTOMATIK-TEST     >
DMX RECEIVE DATA   >
SEND DMX DATA      >
RUN DYNAMIC CUES   >
```

This menu offers the basic four test functions of the DMX Pocket Tester 3512A. Press <up> or <down> to select the function and then call this function by pressing <next> or <ENTER>(yes). If you are calling the main menu for the first time, the cursor will be positioned in line 1, so that pressing <next> will take you to the Automatic Test menu immediately.

A short explanation of the individual menus can be called by pressing <last>. This takes you to a short help screen with key commands or screen explanations. While in help screen, <next> takes you to the selected function directly.

AUTOMATIC TEST

The automatic DMX Receive Test checks for a DMX signal according to USITT DMX-512 standard; several protocol and timing parameters my be read out. Of course a valid signal has to be applied to get a readout; if no signal is applied or can be detected a message appears:

```
AUTOMATIK-TEST:
kein Signal erhalten

weiter mit ESC     >
```

As no further investigation of the signal is possible, you will be led back to the main menu.

If, however, a decodable signal is present, then the following message is displayed::

```
AUTOMATIK-TEST:
receive 132 Stopp: 2
Start:-OK- Sync:-OK-
Signal present     >
```

The data displayed contain the following information:

- Number of the channels received (in this example: 132)
- Value of the Start Byte is OK, (Standard Start Byte Value: 000)
- Duration of Synchronisation is OK, (should be >88 us)

So, if the level is within the "OK" range (see: level meter), you have a perfect DMX signal present. Eeverything should be perfect.

TIMING ANALYSIS

Press <next> again to enter a more detailed screen.

```
DMX DATA FORMAT    >
StartSync:  092 us
StartByte:  000 dez
Updates   :  026/sec
```

The Parameter StartSync displays the length of the frame synchronisation. The sync time should be at least two byte times (2* 44us = 88us) and can be read out from 70us to 190us with an accu-

racy of 2 us. Values exceeding 190us are displayed as ">192us".

The Startbyte value should always be 0 for the transmission of dimmer levels. Other start codes are reserved for special purposes such as 16-bit transmission, parameter transmission or DMX answerback schemes. The display can be set to HEX display using the <up> and <down> keys. The Updates parameter shows the repeat rate of the DMX transmitter. The higher the repeat rate, the faster the reaction of the receiver.

The <up> and <down> keys select decimal or hexadecimal display mode for the Start Sync value. The second screen is presented as follows:

```
DMX DATA FORMAT    >
StartSync:  092 us
StartByte:   00 hex
Data Time:   46 us
```

The DataTime parameter denotes the time between individual channel informations; at the fastest transmission rate its value is 44us.

LEVEL METER

Press <next> again to enter the level meter display.

```
EMPFANGSSIGNAL     >
        -gut--->
....
Pegel =   3,76 V
```

As long as the bargraph indicator does not leave the range marked "good" the the level of the received signal is more than sufficient for any receiver. Please note that perfect reception may also take place at much lower levels, but these are of course more sensitive to noise.

RECEIVE DATA

Press <ESC> to go back to the main menu, press <down> to go to to the next line and call the DMX RECEIVE menu by pressing <next> or <ENTER>. A screen with 30 bargraph meters will be presented. Without any signal this screen is empty and looks like this:

```
EMPFANG1: 000 Kan. >
001 :  xxxxx - xxxxx
011 :  xxxxx - xxxxx
021 :  xxxxx - xxxxx
```

The screen starts at channel 001 and ends at channel 030. The "x" denotes that no valid signal has been received for the displayed channels; the number of received channels is 000.

If a valid DMX signal is applied, the screen changes:

```
RECEIVE 1: 016 Ch. >
001 : ----- - ---
011 : -- - ----
021 : xxxxx - xxxxx
```

Please note that channels with a level assigned are displayed as small bargraphs, channels that are not received are displayed as "-". The number preceding each line is the channel number of the first channel displayed in that line. Press <up> or <down> to scroll through the channel range. Channels are incremented by 10 in this display window.

Press <next> again to change the screen to a numerical display:

```
EMPFANG2: 016 Ch. >
Start @ Channel: 001
240 255 255 210 186
255 255 200 224 255
```

The first 10 channels of the graphics screen (e.g. the first line) are displayed as numerical values (example: channel 1-10). The minimum value is 000, the maximum value is 255. Press <ENTER> to change the display to percentage values (0%-100%), and <ENTER> again to return to absolute numerical values.

CHANNEL JITTER

Receive screen 3 lets you evalute one channel with separate display of minimum and maximum level of the received signal. The channel is the first channel of the previous screeens and can be selected with the <up> and <down> keys.

```
RECEIVE 3: 016 Ch.
Channel min typ max
    001 128 130 131
0000451 acquired
```

This screen provides the following information:

min	the minimum data value received of the selected channel
typ	the actual data value of the selected channel
max	the maximum data value of the selected channel

When calling this screen, all indicators (min/max/typ) are reset and data acquisition starts. The number of acquired signals (DMX transmissions) is displayed in the bottom line; press <ENTER> to reset all indicators and the acquisition counter. Select the channel with the <up> and <down> keys, but be aware that changing the channel does not reset the acquision counter or level indicators. Thus a range of channels may be scanned.

Press <ESC> to get back to the main menu or <next> to get back to the graphics screen.

The third line of the main menu will take you to the DMX-512 send mode. The DMX output of the Pocket Tester repats the input signal and is only activated when you set the unit to send mode. This is the send sub menu:

```
DMX DATEN SENDEN
 80 Kanäle Cue     >
512 Kanäle Modify  >
512 Kanäle Einzeln >
```

Please select the appropriate send mode with the cursor and then press <next> or <ENTER> to start the send mode. While the "single" mode varies just only one channel (and sets all other channels to zero) the "Modify" mode allows to modify 128 channels individually. Thus the "Single" mode is ideal for tracing a channel or identifying a special function (e.g. colour wheel movement), while the "Modify" mode allows testing complete units (e.g. scanners: lamp, colour, mirror movement etc.)

SEND MODE 1: **512 CHANNEL MODIFY**

The menu allows for entry of the channel by keyborad and the value by fader.

```
SEND DMX DATA      >
Chan: 056 [up/down]
Mode:   Modify Mode
Data:    024 = 010%
```

Select the channel with the <up> and <down> keys and use the fader to set the output value. Please note, that the fader setting is only taken into the display with a minimum movement of the fader. If you do not move the fader, the display will show the previously set value. The dead zone is approx. +/-10%.

To clear a setting completely, press <ENTER> once. This will clear the complete memory. To leave the send menu, press <ESC>.

SEND MODE 2: 512 CHANNEL SINGLE

In send mode 2, again 512 channels are sent but only one channel is modified. There is no dead zone integrated, the fader acts immediately. You can enter data by fader or select automatic modi with the <next> resp. <last> key; when running automatic sequences the fader acts as speed fader.

```
SEND DMX DATA      >
Chan: 056 [up/down]
Mode:    Fader only
Data:    024 = 010%
```

There are four modi which can be selected with the <next> and <last> keys:

STOP	stops and freezes the actual fader value
FADER VALUE	channel value is derived directly from the fader
AUTO ON/OFF	switches the output channel automatically from 0% to 100% back and forth. The switching speed is determined by the fader setting.
AUTO RAMP	ramps up the output channel from 0% (000) to 100% (255). The ramp speed is determined by the fader setting. To leave the menu press <ESC>.

SEND MODE 3: CUE

This mode offers 6 cues. Each cue can comprise 80 data slots. To send a cue, simply select the desired cue using the <next> key. When no cues have been saved, no output will be generated. Pls refer to the „Save data“ chapter below.

```
 80 KANAL CUE SENDEN
Cue / Memory:  001
Startadresse:  001
<ESC> beendet
```

The send menu offers these options:

<next> selects next cue
<up>, <down> selects start address (001 - 512)

Notice: selecting a start address above 432 (512-80) will truncate the cue accordingly.

MENU PAGE 2

To enter the menu page 2, press <down> again. This will take you to the second menu screen:

```
SAVE RECEIVE DATA  >
       CABLE TEST  >
                   >
     SYSTEM SETUP  >
```

Do not use any of these menus until you are aware of the settings. Wrong settings may affect the functionality of your tester.

SAVE DATA

This menu allows to save the cues needed for cue testing. A cue can consits of 80 data slots (channels). Before a cue can be saved, it must be created.

CREATE CUE — Use the SEND MODIFY Mode to create a cue. Each DMX adress can be selected indivudually and set to the desired intensity. Since the cue is output simultaneously, you can check the actual settings visually anytime. When the scene is complete, press <ESC>.

SAVE CUE — Select menu SAVE RECEIVE DATA:

```
-- Save Cue Menu --
    Cue number: 001
Receive offset: 000
<ENTER> to save
```

Press <next> repeatedly to selectt the desired cue number, then press <En-

ter> to save the cue.
It does not matter how the scene has been created. Thus you can receive data using the RECEIVE menus, change to SAVE CUE and save the memorys contents as a cue. This way, cues created on a external light control desk can be saved.

Data slots 1..80 are saved as cue. When slots 11..90 are to be saved, select a offset of 10. We recommend to not use offsets greater as 48.

The menue offers these options:

<next>	selects next Cue
<up>, <down>	selects offset (000 - 063)

RECALL CUES Saved cues can be called manually or automatically. Select menu RUN DYNAMIC CUES to send cues. There are three sub-menus:

```
SEND 80 CHAN CUE
    Static cues   >
   Dynamic cues   >
      Exit menu   >
```

Select **STATIC CUES** to recall cues manually. Use <next> to step though the list of cues, and <up>,<down> to define the offset (start address for that cue).

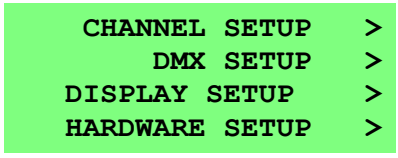
Select **DYNAMIC CUES** to call a automatic sequence. The sequence will automatically step through all cues in order.

```
80 CH AUTO CUE MODE
 Cue / Memory:  004
  max. Memory:  006
 <ESC> exit menu
```

The sequence will always start at cue 001 and will step up until the maximum cue number is reached. Set the maximum cue (**max. Memory**) using the <up>,<down> keys. Set the sequence speed using the fader.

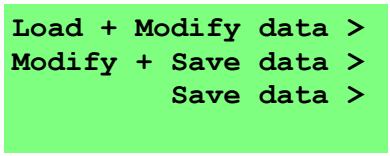
SYSTEM SETUP

All setup menus configure the setting ou your DMX tester 3512A. Do not change settings if you are not fully aware of the consequences, since wrong settings may affect functionality. Always press <enter> to save changes, press <esc> to quit without modifications.
The DMX Pocket Tester 3512A has been set to optimum settings when leaving the factory.

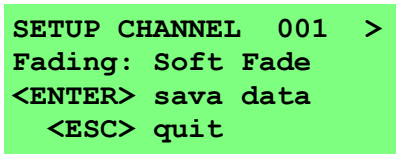


CHANNEL SETUP

The Channel Setup allows to define the slot (channel) behavour when running cues.



The standard working screen can be reached selecting the "Load and Modify“ option. This allows to recall a cue and change its properties.



<up>, <down>:	select slot number
<next>	change fade mode:
	-Soft Fade: continuous fade
	Switch START: switch to new value immediately
	Switch END: switch to new value after fade time
<ENTER>	save settings
<ESC>	quit menu

DMX SETUP

The first sent data byte within a DMX512 telegram is know as STARTBYTE. The start byte defines the use of the following payload (up to 512 data bytes). For dimmer control, teh start byte is defined as 000 - new protocol versions such as DMX512-A define other start byte values for other purposes (e.g. DMX RDM identification).

IMPORTANT: Using a start byte value other than 000 may render a telegram unreadable. On the other hand, your DMX tester will only accept telegrams matching the set start byte. The start byte value can be defined for received or for transmitted data telegrams. By default, all settings are „000“.

Any menu entry identified by ">" can be modified using the <next> key.

```
---  DMX-Setup  ---
Startbyte  RCV: 000>
Startbyte SEND: 000>
Display normal     >
```

The menu offers these options:

<next>	selects the next possible entry
<up>, <down>	selects the parameter to be modified
<ENTER>	save the current setting

Data Entry Der Fader can alternatively be used to set the data value.

Tipp: the standard value is „000“ for both start bytes. To easily set „000“, pull the fader up, then down. Press <down> to select the next entry and repeat. Press <ENTER> to save and <esc> to quit.

DISPLAY SETUP

DISPLAY SETUP defns the screen layout of the DMX tester. Some settings can be modified temporarily withing the SEND or RECEIVE menus, but settings defined here will always be taken as default.

```
---Display Setup---
Groups of 5 (30 Ch) >
Display: Decimal    >
English Messages    >
```

The menu offers these options:

<next>	selects the next possible entry
<up>, <down>	selects the parameter to be modified
<ENTER>	save the current setting

Groups of 5 / Groups of 6

Selects the display layout in RECEIVE 1 mode. Usually bargarphs are organized in groups of five, that is 10 data slots (DMX channels) per line. Thus slot numbers are easy to identify.

When working with dimmer packs, groups of six might be preferred. Then two blocks of 6 data slots will be displayed, which can easily be identified as two 6-channel dimmers or one 12-channel dimmer unit. Slot numbering will appear more complicated, but visual identification of data slots will be much easier then.

Display Decimal / Hexadecimal / Percent

The display in RECEIVE 2 mode, but also in SEND mode can be adjusted to display your preferred data format. Decimal data (000-255), Hexadecimal data (00-FF) or Percent data (0-99) can be selected. 100% will be displayed as „FF“.

German Messages / English Messages

All text messages and help screens can be displayed in either german or english language. You can make a selection using the DISPLAY SETUP menu or press the <up> key to select english messages Englisch) oder the <down> key to select german messages while the Copyright screen is displayed. To go to the copyright screen, switch on the tester and press <esc>.

HARDWARE SETUP

mit dem HARDWARE SETUP bestimmen Sie die Funktion der Hardware-Abfragen des DMX-Testers. Hier bieten sich Möglichkeiten zur Tasten- und Polaritätsvertauschung und anderes mehr.

```
---HardwareSetup---
Scroll graphic dnwd>
DMX input   NORMAL >
Cable test digital >
```

The menu offers these options:

<next>	selects next entry
<up>, <down>	change settings
<ENTER>	save settings.

Scroll Direction normal / reverse

Defines the scroll direction of the graphics screen. In fact, the <up> and <down> keys are reversed in graphics screen mode.

DMX Input normal / reverse

This will invert the DMX input signal and allows to check reversed pinning. Some intelligent light manufacturers have built equipment not conforming to USITT DMX-512/1990 or DIN DMX-512 56930-2 and feature reversed pinouts.
NOTE! Only use this setting when a receive signal is present. The tester may lock up if no signal is present (wrong idle level on the receive lines!)

Cable test analog / digital

The DMX Pocket Tester 3512A checks connected data lines for continuity, short circuits and disruptions by measuring the signal voltage at the individual pins. If the result does not meet the test conditions, a error will be reported.
With Digital Test selected, additional 50 data packets will be sent and checked for integrity on the receiving end. When both tests are passing successfully, „OK“ will be displayed. We recommend to enable digital testing.

OTHER FUNCTIONS

Some functions do not need a special menu.

Display Illumination

While in main menu, press <ESC> twice to switch display illumination on / off. Please note that continued use of display illumination will reduce the operating time of the tester substantially, since the display illumination draws much power from the battery.

Note: Blue displays need constant backlight; thus switching the backlight illumination is disabled with blue displays.

Setting Display Contrast

While in welcome screen, press <down> to decrease, or press <up> to increase display contrast. The setting will not be saved!. To save the new setting, call the setup menu, select any entry, but make no changes. Press <enter> to save.

OPERATING CONDITIONS

The DMX Tester 3512A is a delicate piece of electronics and has to be handled carefully. Protect the unit from dust and moisture and avoid electrostatic shock. Before connecting the unit to signal conducting lines, please make sure that no excessive voltage is present. The unit is equipped with standard 5-pin XLR connectors according to USITT DMX-512. Some manufacturers use 3-pin connectors on their equipment; please check for proper pin assignment when using adaptors.

WARNING: Never confuse speaker cables or phantom-powered microphone cables and DMX cables; the excessive voltage present on speaker and phantom-powered microphone cables may damage sensitive DMX receive circuitry.

SERVICE

There are no parts within the DMX Pocket Tester 3512A which require the user's attention. Should your unit require servicing, please send it to the factory, freight paid.

CHARGING

The DMX Tester 3512A is equipped with a standard sealed lead-acid battery 6V 1,2Ah. To run the unit on mains supply and to recharge the accumulator, the combined psu/charger must be used. ***USE OF OTHER CHARGERS OR POWER SUPPLIES IS PROHIBITED AND MAY DAMAGE YOUR EQUIPMENT.*** While operating the tester on mains, the battery is automatically recharged. The LED indicator on the psu/charger unit extinguishes, when the accumulator is nearly fully charged. Though the charger is equipped with an overcharge protection, do not leave it connected to mains or to the tester for longerperiods of time or when not used.

The SLA battery can be reycled; if replacing the battery please return the old one to your retailer or a battery collection point. Usually suppliers of new SLA batteries accept old materials in return.

DISTURBANCES

If a trouble-free operation cannot be guaranteed, disconnect the DMX Pocket Tester 3512A and secure it against unwanted operation. This is especially necessary, when
- the unit has visible damages;
- the unit does not operate;
- internal parts are loose;
- connection cables show visible damages.

LIMITED WARANTY

This instrument ist warranted against defects in metarials and workmanship for a period of 12 month, beginning with the date of purchase. The warranty is limited to repair or exchange of the hardware product; no further liability is assumed. SOUNDLIGHT is not responsible for damages or for loss of data, sales or profit which arise from usage or breakdown of the hardware product. In germany, SOUNDLIGHT will repair or replace established defcts in hardware, provided that the defective part is sent in, freight paid, through the responsible dealer along with warranty card and/or sales receipt prior to expiration of warranty.
Warranty is void:
- when modifying or trying to repair the unit without authorisation;
- modification of the circuitry;
- damages by interference of other persons;
- operation which is not in arccordance with the manual;
- connection to wrong voltage or current;
- misuse.

CE CONFORMITY

CE

This DMX device is microprocessor controlled and uses high frequency. The interface has been tested in our EMC lab to comply with EN55015 and IEC65/144.
Please make sure that shielded data cable is used and the shield is connected properly to the GND pin. Shield must never make contact to other signal lines.

FCC STATEMENT

This product has been tested and complies with the specifications 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 according to 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 is found 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 or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

FCC Caution: Any change or modification to the product not expressly approved by SLH could void the user's authority to operate the device.

END OF LIFETIME

When the useful lifetime of this product has been reached, it must be disposed of properly. Electronic devices must not be placed in domestic waste. Consult your local authorities to find the nearest collection point of used electric and electronic devices. SOUNDLIGHT is a WEEE registered company (Reg No. DE58883929).

INTERNET-HOTLINE

Please check our internet domain **http://www.soundlight.de** for new versions, updates etc. If you have any comments which may be worth considering, please send a message to ***support@soundlight.de***. We will check your message and reply accordingly.

Updated and foreign laguage manuals can be downloaded from www.manuals.soundlight.de

The Tester product page can be found at *www.soundlight.de/produkte/3512A*