'The Wife' DMX Tester

user manual

Measurements are in millimeters.

Table of Contents

INTRODUCTION

Quick start

Welcome to 'The Wife' DMX Tester manual. 'The Wife' DMX Tester is a sophisticated DMX512 and MIDI analyzer, but is remarkably simple to operate.

Users who are familiar with either DMX512 or MIDI should find that a scan of the Control Surface section is sufficient to get started.

'The Wife' DMX Tester features

'The Wife' DMX Tester provides the following features:

- Receives DMX512 & MIDI
- Display as bar chart, decimal, percentage or hexadecimal
- Display update rate, number of channels, Break and MaB time
- Display maximum, minimum and current value of a single channel
- Double and single ended cable test
- Generate DMX512 or re-transmit buffered DMX512 or MIDI
- Twelve full level memories with snapshot
- Automatic Moving Lamp test
- Auto-backup, transmits Memory if console fails.

THE CONTROL SURFACE

Overview

'The Wife' DMX Tester is operated by the six front panel buttons. The buttons function as follows:

Menu

The MENU key is used to select the operating mode of 'The Wife' DMX Tester. Pressing MENU once will display the currently selected mode. The LEFT and RIGHT cursor keys are then used to select a new operating mode. The process is completed by pressing MENU a second time.

The MENU Key is held down whilst power is switched on to access the Setup Menu

Toggle!

When 'The Wife' DMX Tester is in DISPLAY RECEIVED DMX512, the TOGGLE key is used to step through the different display formats (bar graph, percent, decimal etc.).

In TRANSMIT mode, the TOGGLE key is used to invert the level of the selected channel.

In TRANSMIT LAMP mode, the TOGGLE key selects each of the automated tests in sequence.

Left RIGHT

When 'The Wife' DMX Tester is in DISPLAY RECEIVED DMX512, the LEFT and RIGHT cursor keys are used to select a new base address.

In TRANSMIT DMX512 modes, the LEFT and RIGHT cursor keys are used to select a new transmit channel.

If 'The Wife' DMX Tester is displaying the menu, the LEFT and RIGHT cursor keys are used to select the next operating mode.

Up DOWN

The UP and DOWN cursor keys are used to increment or decrement the level of the displayed data.

Menus

Upon entering MENU mode, eighteen different operating modes may be selected (using the LEFT & RIGHT cursor keys). These are:

display RECEIVED dmx512 **1**	Displays the DMX512 signal from any console, in any of the six available formats.
display RECEIVED SIPS **2**	Displays received System Information Packets. The SIP is a new feature of DMX512-A.
DISPLAY RECEIVED START CODES **3**	Display a list of all received DMX512 Start Codes. The registered owner of the Start Code is also displayed.
SELECT START CODE **4**	Select a DMX512 start Code for both receive and transmit operations.
DISPLAY RECEIVED TEXT **5**	Displays received DMX Text information. DMX Text is a new feature of DMX512-A.
TRANSMIT RIG CHECK **6**	Transmit Rig Check. Only a single channel on at a level. This is the basic flash through rig mode.
TRANSMIT all CHANNELS **7**	Transmit All Channels. Transmits all 512 channels at a level. This provides a quick check that all lamps work.

TRANSMIT MEMORY **NUMBER: 15**　　　　**8**	Transmit and edit one of 15 Memories. Each Memory allows all 512 channels at individual levels.
TRANSMIT lamp **vari*lite vl6**　　　　**9**	Automatically test any automated luminaire from the library.
TRANSMIT DYNAMIC **dmx512**　　　　**10**	Transmit any range of channels at a level or continuously ramping.
TRANSMIT **TEXT**　　　　**11**	Transmit DMX Text Information. A number of predefined messages are available.
PLAYBACK **SEQUENCE**　　　　**12**	Allows the memories to be played back sequentially at a variable speed. A simple non-fade controller mode.
snapshot dmx to **MEMORY: 15**　　　　**13**	Copy received DMX to any of the 15 Memories. Used to create show backup or record test patterns.
FILL PRESET **WITH PATTERN**　　　　**14**	Fill one of the 15 Presets with a symmetrical pattern of channel levels.
double ended **cable test**　　　　**15**	Fully test all three pins of DMX512 or MIDI cables for shorts and open circuits.

SINGLE ENDED **CABLE TEST** **16**	Test the two signal pins of DMX512 or MIDI cables for shorts, when only the console cable end is available.
NETWORK **TEST** **17**	Transmits a special test packet. The data received is analyzed for errors with good / bad indication.
AUTOBACKUP IF **DMX FAILS** **18**	Allows 'The Wife' DMX Tester to connect in-line between desk and dimmers. Switches to a selected Preset if the desk fails.
BUFFER DMX MIDI **ENABLED** **19**	Switch between the DMX512 output of 'The Wife' DMX Tester and a regenerated version of the received signal.
DISPLAY RECEIVED **MIDI** **20**	Display MIDI data characters in hexadecimal form.

THE MENUS

Displaying received DMX512

In DISPLAY RECEIVED DMX512 mode the following keys are active:

LEFT   Decrement the current DMX512 start address
RIGHT Increment the current DMX512 start address
TOGGLE Select the display format

Received DMX512 data is displayed in one of seven formats. They are:

1. Bar Graph

2. Decimal

3. Percent

4. Hex

5. Binary

6. Max/Min & Flicker Hunt

7. Detail

Status

The first five display formats also include the following information:

1. DMX512 base address

2. Display mode

3. Data received indicator

4. Data error indicator

5. Loop-Through indicator

The diagram below shows 'The Wife' DMX Tester receiving DMX512 in bar graph mode.

1. DMX512

2. Display Mode

3. Data Received

4. Data Error   5. Loop Through
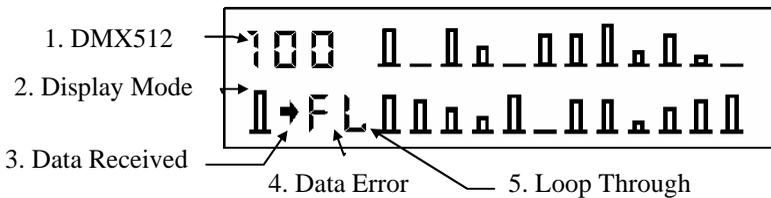
DMX base

The DMX base address is in the range 1 to 512 and defines the first channel displayed. This value is also used to set the TRIGGER OUTPUT.

Display mode

These characters show the currently selected display mode:

Ⅱ

Bar-graph mode displays twenty-four channels as a bar graph with a resolution of 12.5%. Whilst the resolution of this mode is limited, it is often the most useful when the DMX line is running show information. It is easy to pick out chases, which in other display modes could be mistaken for flickering data.

D

Decimal mode displays six channels as numbers in the range 0 to 255. This mode shows the entire resolution of each channel. It is most useful when dealing with moving lights and color changers.

%

Percent mode displays six channels as numbers in the range 0 to 100. This mode provides the most familiar numbering system.

$

Hexadecimal mode displays six channels as numbers in the range 00 to FF. This mode is most useful when working with DMX devices such as relay boxes and smoke machines, which use bit control. See Appendix for conversion tables.

B

Binary mode displays two channels as both binary and hexadecimal. This mode is most useful for electronic designers and engineers when solving complex electronic problems such as a damaged data bus.

The menus

Data received

This character cell displays a tilde to show that data is being received. The data is not necessarily valid DMX512.

Data error

This character cell is clear when good data is being received. If an error occurs, one of the following is displayed:

S

DMX512 is being received with a non-matching Start code. The Start Code is selected using menu 4 – "Select Start Code".

F

Data is being received with **F**raming errors. This can be caused by noise pick-up and also occurs when the phase pins of the connector are reversed.

O

Data is being received with **O**verrun errors. This can be caused by noise pick-up and also occurs when a phase pin is disconnected.

T

The received data is outside the DMX512 **T**iming specification. This display occurs when either the number of channels per frame exceeds 512, or the Break time is less than 88uS, or the MaB time is less than 4uS.

Loop through

This character cell displays 'L' when 'The Wife' DMX Tester's output is providing a clean and buffered version of the incoming DMX512. When the character cell is clear, 'The Wife' DMX Tester's DMX512 generator is connected to the output.

MAX/MIN mode

Max/Min mode is the "Flicker Finder". A single DMX512 channel is displayed as the current value, minimum value and maximum value. All three numbers are decimal 0 to 255.This mode will capture any fluctuations in the level of a channel.

```
    001        CUR 154


    MIN 153    MAX  155
```

To clear the Max and Min values, press the MENU key twice. When data is not received on the selected channels, the Max value is set to 0, and the Min value to 255.

Flicker hunt

The UP & DOWN cursor keys are used to start the automatic 'Flicker Hunt' mode. In this mode 'The Wife' DMX Tester analyses the level of each channel in thirty consecutive frames of DMX512. Any level that has varied outside the flicker band causes the hunt to stop and the display reverts to MAX/MIN mode, displaying the erroneous channel data. The DOWN cursor key cycles though the range of flicker band values between 0x01 and 0x3f. When the flicker band is set to 0x01, a single bit fluctuation in the level of a single channel will cause the display to revert to MAX/MIN mode.

```
    flicker hunt $01

    current chan: 012
```

Hexadecimal

'The Wife' DMX Tester offers both decimal and hexadecimal display. Hexadecimal numbers are shown by a preceding '$' symbol. This is interchangeable with the more common '0x' prefix for hexadecimal. The following numbers are identical: 0xAA, $AA, H'AA, AA16.'The Wife' DMX Tester uses the '$' symbol for the simple reason that it uses the least display area.

Timing mode

Detail mode provides four further pieces of information about the DMX signal. The Period "P" is the time between received Breaks on the DMX512 signal.

The reciprocal (that is the '1/x' button on your calculator) of this number gives the refresh rate.

```
P=023ms    Bk=150us

      C=512      MAB=012us
```

The second number is the Break time "Bk". This is the length of the synchronizing code used to restart a new DMX frame. The specification requires this value to be 88uS or greater. If this is not the case, the timing error icon "T" will be displayed in the main receive window.

The third number "C" represents the number of dimmer channels received in the last DMX packet. This number should be constant, although the value may be less than 512, depending on the type of console used.

The fourth number is the Mark after Break time "MaB". This is the delay between the end of a Break and transmission of the start code. The specification requires a MaB of 4us or greater. If this is not the case, the timing error icon "T" will be displayed in the main receive window. (The MaB limit was increased to 8uS in the DMX512 1990 Revision).

Checksum mode

Checksum mode displays the calculated checksum for the last packet received.

Both the 8 bit and 16 bit versions of the checksum are calculated. This provides a useful check of data integrity.

```
CHECK 8 = $05

CHECK16 = $0105
```

 If the transmitting device (console) is sending non-changing data, the checksums should show a constant value. In this scenario, if the checksum is seen to change, data corruption of the DMX signal is occurring. The checksum is displayed in hexadecimal format.

The checksum displayed relates to last packet received with a zero start code. i.e. the Start Code selected in the setup menu is not used in this display. NB. The DMX512-A checksum implementation has not yet been ratified by ESTA.

Trigger output

The spare two pins of the DMX512 output are used to provide a TTL (5V) oscilloscope trigger output. This signal can be used to synchronies the oscilloscope to either the falling edge of the break or the DMX base address.
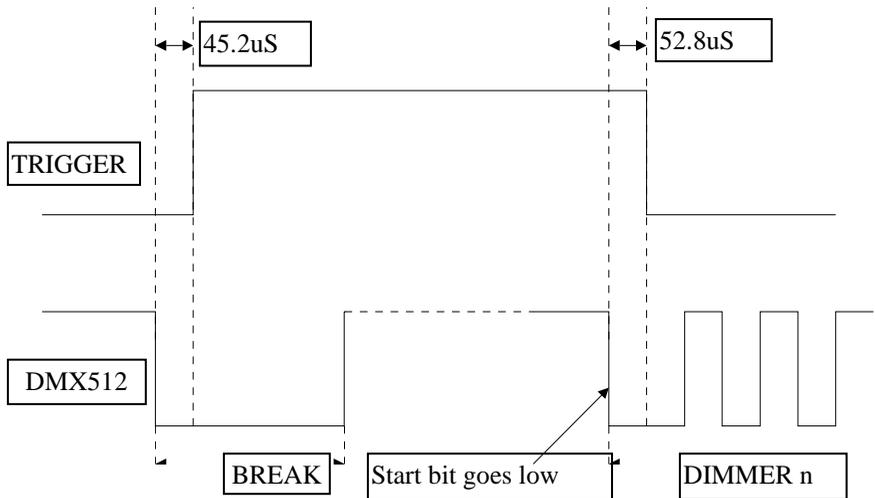
Display received SIP's

The DISPLAY RECEIVED SIP's menu provides a line-by-line analysis of the last received System Information Packet.

```
     DISPLAY RECEIVED

          SIP's
```

The following keys are active:

LEFT	Go to previous data line in SIP
RIGHT	Go to next line in SIP
UP	No Function
DOWN	No Function
TOGGLE	No Function

SIP SUB display

The menu key is pressed to display detailed SIP information.

```
   1     BYTE CCUNT

 00011000   $18    024
```
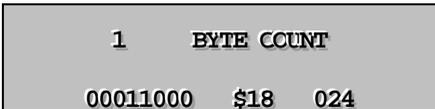
Each line of the table below is displayed in a separate screen.

The 8 bit fields are displayed with data in binary, hexadecimal and decimal formats. The number displayed in the top left indicates the entry in the SIP packet. The '$' symbol is used to indicate hexadecimal notation.

The 16 bit fields of Manufacturer ID are displayed in hexadecimal and ASCII. The ASCII codes are assigned to indicate where possible the initials of the manufacturer. The example shown is the ID code for Artistic Licence "AL".

```
   13/14    MANUF ID1

    $414c    "AL"
```
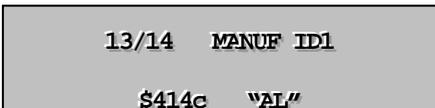
Checksum analysis

The final two display fields provide analysis of checksum information.

A checksum is a method designed to ensure data integrity. This is a new feature of DMX512-A. The checksum simply adds together all of the data in a packet and sends this total along with the data to the receiver. The receiver can then recalculate the checksum by adding together all of the received data. If this number matches the checksum sent by the transmitter, the data is known to be good.

If the numbers do not match, it is assumed that data corruption has occurred and that the frame of DMX should be discarded.

There are two distinct types of checksum:

SIP Checksum. The SIP checksum is used to confirm that the data within a single SIP is correct.

Packet Checksum. The Packet checksum is used to confirm that the preceding DMX packet contains good data.

SIP Checksum

The SIP checksum is used to confirm that the data within a single SIP is correct. The checksum is calculated by adding together the first 23 data slots of the SIP plus the start code. The SIP contains the transmitter's version of this calculation at the end of the packet.

The actual slot that contains this information is defined by the Byte Counter field. This is done in order to allow the size of the SIP to be increased in future versions.

'The Wife' DMX Tester is designed to analyze the standard 24 byte SIP.

The SIP Analysis display indicates three modes:

Too Complex. This indicates that the SIP is longer than the standard 24-byte packet. In most instances this can be assumed to mean that the transmitter is sending corrupt data.

```
      SIP ANALYSIS

    --too complex--
```
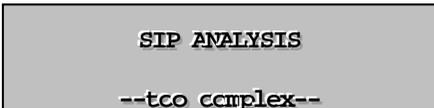
Good Checksum. This indicates that the SIP contains valid error checked data. Note that this does not confirm that the data is meaningful; simply that it has arrived without error. Two hexadecimal numbers are displayed. The first is the checksum that 'The Wife' DMX Tester calculates from the packet contents. The second number is the checksum retrieved from data slot 24 of the SIP.

```
      sip ANALYSIS

   $DF - $DF = GOOD
```

Bad Checksum. This indicates that there has been a data reception error in this SIP packet.

```
      sip analysis

   $3D - $ 34 = PAD
```

Packet checksum

The Packet checksum is used to confirm that the preceding DMX packet contains good data. The level of confidence that this check provides depends upon the frequency at which SIP's are transmitted. Maximum confidence in the data integrity is achieved by transmitting a SIP after each zero start code (lighting data) packet. In this situation, the integrity of all lighting data can be checked. This is a realistic proposition as the SIP is only 24 bytes in length. This scenario would only reduce lighting data bandwidth (or refresh rate) by 5%.

The decision on the frequency of the SIP transmission is a decision that is left to the manufacturer of the transmitting equipment subject to the provision that if SIP's are transmitted, they must be sent at least once in 15 seconds.

Packet checksums are available in two types; 8 bit and 16 bit. The 16 bit version provides a greater degree of confidence. However, it requires slightly more processing power to calculate at both the transmitter and receiver.

'The Wife' DMX Tester is able to decode and test both types of checksum.

The Packet Checksum display can show six distinct checksum states:

No Checksum. This shows that the Control Bits field of the SIP indicates that no checksum has been sent by the transmitter. It is not an error condition; but simply confirms the manufacturer of the transmitting equipment choose not to implement this feature.

```
     PACKET ANALYSIS

    --NO CHECKSUM--
```

Invalid Ctrl Bit. This indicates that the Control Bits field is invalid and that the checksum if it exists cannot be checked. This is an error condition.

```
         PACKET ANALYSIS

      --INVALID CTRL BIT--
```

Good 8 bit Checksum. 'The Wife' DMX Tester has confirmed that 8 bit checksums are in use and that the checksum data is valid. Two 8 bit hexadecimal numbers are displayed. The first is the checksum that 'The Wife' DMX Tester calculates from the preceding packet. The second number is the checksum retrieved from the SIP.

```
         PACKET ANALYSIS

       $04 - $04 = GCCD
```

Bad 8 bit Checksum. 'The Wife' DMX Tester has confirmed that 8 bit checksums are in use, but that the checksum did not match the preceding DMX packet. This is an error condition. Two 8 bit hexadecimal numbers are displayed. The first is the checksum that 'The Wife' DMX Tester calculates from the preceding packet. The second number is the checksum retrieved from the SIP.

```
         PACKET ANALYSIS

       $04 - $45 = PAD
```

Good 16 bit Checksum. 'The Wife' DMX Tester has confirmed that 16 bit checksums are in use and that the checksum data is valid. Two 16 bit hexadecimal numbers are displayed. The first is the checksum that 'The Wife' DMX Tester calculates from the preceding packet. The second number is the checksum retrieved from the SIP.

```
         PACKET ANALYSIS

     $1234 - $1234 = GCCD
```

Bad 16 bit Checksum. 'The Wife' DMX Tester has confirmed that 16 bit checksums are in use, but that the checksum did not match the preceding DMX packet. This is an error condition. Two 16 bit hexadecimal numbers are displayed. The first is the checksum that 'The Wife' DMX Tester calculates from the preceding packet. The second number is the checksum retrieved from the SIP.

```
        PACKET ANALYSIS


     $1234 - $2345 = PAD
```

SIP data structure

The following table shows the structure of the System Information Packet. Each line of the table represents a separate display screen on 'The Wife' DMX Tester.

NB. The DMX512-A SIP implementation has not yet been ratified by ESTA.

Slot	Name	Description
1	Byte Counter	This field represents the number of bytes within the SIP (SIPs are variable length). Valid values are in the range 24 to 255. The value is displayed in decimal.
2	Control Bit Field	The control bit field contains flags that show whether the SIP contains checksum information. The value is displayed in binary. Field values are as follows:

Bit	Description
7	Set if MSB of Checksum exists
6	Set if LSB of Checksum exists
5	Reserved and zeroed
4	Reserved and zeroed
3	Reserved and zeroed
2	Reserved and zeroed
1	Reserved and zeroed
0	Set to indicate that the receiver should await packet checksum information prior to using zero start code information.

Slot	Name	Description
3	MSB16 Checksum	The most significant byte of the 16 bit checksum of the previous packet. SIP's can include an 8 bit, a 16 bit or no checksum. This field is only used if the SIP includes a 16 bit checksum. The checksum is calculated by adding together all 513 slot values in the previous packet (i.e. include the start code). If this field is in use, bit 7 & bit 6 of the control bit field will be set.
4	LSB or 8 bit Checksum	This field is either the least significant byte of the 16 bit checksum or the 8 bit checksum. The checksum is calculated by adding together all 513 slot values in the previous packet (i.e. include the start code). The type of checksum can be determined by the Control Bit Field:

Control Bit 7	Control Bit 6	Checksum Type
0	0	No Checksum

Slot	Name	Description		
		0	1	8 bit Checksum
		1	0	Non allowed state
		1	1	16 bit Checksum
5	SIP Sequence Number	This field contains an 8 bit counter that increments for each SIP packet. The purpose of the field is to allow equipment to check that SIP's are arriving in sequence without loss of data. This field is displayed in decimal.		
6	DMX512 Universe Number	This field contains the number of the original universe output of the lighting console. In installations where the lighting console outputs a large number of universes, this field provides a simple method to identify cables in the patch bay. The valid range is 1 to 255. A value of zero indicates that the field is unused. The number is displayed in decimal.		
7	DMX512 Processing Level	All consoles and originating devices send this field as zero. Any inline processing devices such as merges and Ethernet transcoders can increment this value when the SIP is regenerated. This provides an indication of the number of times that the data has been post processed. This field is useful in very large installations where the data may have been processed several times. The number is displayed in decimal.		
8	Software Version	This is the software version of the device that generated the SIP. The valid range is 1 to 255. A value of zero indicates that the field is unused. The number is displayed in decimal.		
9/10	Packet Length	This field shows the number of data slots transmitted in standard zero start code frames. The value is 16 bit and is displayed in hexadecimal. The values are shown below:		

Value	Meaning
0x0000	The packet length has not been declared.
0x0001– 0x0200	Fixed length packet in the range 1 to 512
0x0201- 0x7fff	Unused values
0x8000	The packet length is variable.
0x8001- 0x8200	The packet length is variable and the last packet was of a length in the range 1 to 512. (subtract 0x8000).
0x8201-0xffff	Unused values

Slot	Name	Description
11/12	Number of Interval Packets	This field shows the number of packets transmitted by the originating device since the last SIP. The value is 16 bit and is displayed in hexadecimal. This number excludes the two SIP packets (at the start and end) but includes all other packets irrelevant of the start code.

Slot	Name	Description
13/14	Originator's Manufacturer ID	This is a 16 bit manufacturer identification number. It is always the number assigned by the device that originally generated the DMX and is not altered by any post processing devices. The number is displayed in hexadecimal. A value of 0x0000 indicates that the manufacturer does not have a code allocated. A value of 0xffff is a temporary code indicating that the manufacturer has applied for a number. Where possible the number is assigned as two ASCII characters that represent the company initials.
15/16	2nd Device ID	The second device to process the DMX (which is the first to post-process) inserts it's manufacturer ID in this field.
17/18	3rd Device ID	The third device to process the DMX inserts it's manufacturer ID in this field.
19/20	4th Device ID	The fourth device to process the DMX inserts it's manufacturer ID in this field.
21/22	5th Device ID	The fifth device to process the DMX inserts it's manufacturer ID in this field. Any further post processing is not logged in the SIP
23	Spare	Sent as zero
nn	SIP Checksum	The SIP checksum is calculated by adding the start code to the first 23 data slots of SIP data.

Display received start codes

The DISPLAY RECEIVED START CODES menu is designed to search received DMX512 for all packets using alternate Start Codes (i.e. non-zero start codes).

```
DISPLAY RECEIVED

    START CODES
```

DMX512-A uses a number of ASC's and it is often useful to identify these.

The following keys are active:

LEFT	Display Previous Alternate Start Code
RIGHT	Display Next Alternate Start Code
UP	No Function
DOWN	No Function
TOGGLE	Clear List and Start New Search

Alternate start codes are displayed in the order in which they were detected.

Some start codes are transmitted very infrequently. For this reason it is worth leaving this mode active for up to 30 seconds. The list automatically updates as new start codes are detected.

'The Wife' DMX Tester will attempt to display a text description to identify the start code for well known codes.

```
ASC 001/003 = 024

    ARTISTIC SYNC
```
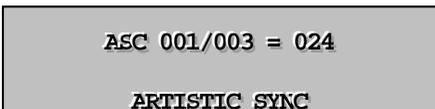
The following table lists the registered start codes as at 1/1/2001. Start codes that form part of DMX512-A are shown in bold

Start Code		Registered	Description
Decimal	Hexadecimal	By	
000	**0x00**	**ESTA**	**Standard Lighting Data**
002	0x02	T-Recursive	Packet contains 256 x 16 bit levels in lo-hi order.
003	0x03	R A Gray	Proprietary format.
004	0x04	T-Recursive	Checksum message.
005	0x05	T-Recursive	Answerback query.
006	0x06	T-Recursive	LSB of double precision transmission.
007	0x07	T-Recursive	Compressed data.
008	0x08	T-Recursive	Compressed 16 bit data.
009	0x09	Rosco ET	Proprietary format.
016	0x10	ADB	Proprietary format.
017	0x11	Tokyo Broadcast Systems Inc	Proprietary format.
023	**0x17**	**Artistic Licence** ESTA	**Text Packet.**
024	0x18	Artistic Licence	Proprietary format.
038	0x26	High End	Proprietary format.
060	0x3c	Avab	Internal configuration.
061	0x3d	Avab	Smart 16 bit format.
065	0x41	Microlite	Proprietary format.
079	0x4f	Oscar	Proprietary backup.
085	**0x55**	**ESTA**	**Installation Test Packet.**
112	0x70	ETC	Proprietary format.
113	0x71	ETC	Proprietary format.
114	0x72	ETC	Proprietary format.
115	0x73	ETC	Proprietary format.
116	0x74	ETC	Proprietary format.
117	0x75	ETC	Proprietary format.
118	0x76	ETC	Proprietary format.
119	0x77	ETC	Proprietary format.
120	0x78	ETC	Proprietary format.
121	0x79	ETC	Proprietary format.
122	0x7a	ETC	Proprietary format.
123	0x7b	ETC	Proprietary format.
124	0x7c	ETC	Proprietary format.
125	0x7d	ETC	Proprietary format.
126	0x7e	ETC	Proprietary format.
127	0x7f	ETC	Proprietary format.
128	0x80	Leviton	Curve select.
129	0x81	Leviton	LSB 16 bit data.
130	0x82	Leviton	Patch.

Start Code		Registered By	Description
Decimal	Hexadecimal		
131	0x83	Leviton	Dim/non dim.
144	**0x90**	**ESTA**	**Reserved for expansion.**
145	**0x91**	**ESTA**	**First two slots contain manufacturer ID. Remaining data is proprietary.**
146-169	**0x92-0xa9**	**ESTA**	**Reserved for expansion.**
170	0xaa	Sun	Proprietary format.
171-205	**0xab-0xcd**	**ESTA**	**Reserved for expansion.**
207	**0xcf**	**ESTA**	**System Information Packet.**
223	0xdf	Doug Fleenor	Proprietary format.
224	0xe0	NSI Colortran	ENR mode control.
225	0xe1	NSI Colortran	.
237	0xed	EDI	Dimmer download.
240-247	**0xf0-0xf7**	**ESTA**	**Prototyping equipment use.**
255	0xff	Avolites	Dimmer curve select.

Select DMX start code

The START CODE menu is used to select non-zero DMX512 start codes. The Start Code was not widely used in DMX512. However, DMX512-A makes significant use of this feature.

```
        START ccde 000

        {STANDARD DATA}
```

The Start Code value is reset to zero when 'The Wife' DMX Tester is switched on.

The:

- Display Received Start Codes menu provides an alternative method of editing the start code. The Start Code affects both receive and transmit DMX512.

- UP and DOWN keys are used to select any one of the 256 possible values. The same value is used for both receive and transmit DMX512.

- Toggle key selects "Don't Care" mode that is displayed as "xxx". In this mode a value of zero is used for the transmit start code.

However, received DMX512 will be displayed as good data whatever the start code. The bottom line of the display shows registered start code owners.

Display received text

The DISPLAY RECEIVED TEST menu is used to display DMX Text.

```
┌────────────────────────────────────┐
│                                    │
│        DISPLAY  RECEIVED           │
│                                    │
│               TEXT                 │
│                                    │
└────────────────────────────────────┘
```

DMX Text is a new feature of DMX512-A. It allows products that do not have a display to output diagnostic and configuration data via DMX512.

DMX Text allows a total of 509 characters of ASCII text to be sent. This menu displays a window of 32 characters from the text data. The following keys are active:

LEFT   Decrement the character address of the window.
RIGHT   Increment the character address of the window.
UP   Decrement the character address by 16.
DOWN   Increment the character address by 16.
TOGGLE   Display text from the start of the text packet.

The entire display is used for Text display. Character position unused in the text packet are displayed as '?'.

Transmit rig check

The TRANSMIT RIG CHECK menu allows any single dimmer channel to be switched on at a level.

```
    CHAN: 001 @ 100%


        RIG CHECK
```

The following keys are active:

LEFT	Decrement the dimmer channel
RIGHT	Increment the dimmer channel
UP	Increment the dimmer level
DOWN	Decrement the dimmer level
TOGGLE	Invert dimmer level

The display shows the current dimmer channel, followed by its level as a percentage.

The DMX512 output continues when 'The Wife' DMX Tester is in Receive mode.

Transmit all channels

The TRANSMIT ALL CHANNELS menu allows all 512 channels to be output at a level. This is a simple bulb check function.

```
            TRANSMIT ALL

              CHANNELS
```

The following keys are active:

LEFT	Decrement all levels by 5
RIGHT	Increment all levels by 5
UP	Increment all levels by 1
DOWN	Decrement all levels by 1
TOGGLE	Invert dimmer level

The display shows the current level of all channels.

As a safety measure, the level is always set to 10 decimal when this mode is started. This is to avoid accidentally flashing the entire rig to full.

Transmit memory

The TRANSMIT MEMORY menu allows any one of the twelve Memories to be transmitted to the dimmers and edited. Each Memory contains individual level settings for all 512 channels and is held in non-volatile memory. The Memory to be transmitted and edited is selected by the UP and DOWN keys when the menu display is active. Press the MENU key to enter edit mode.
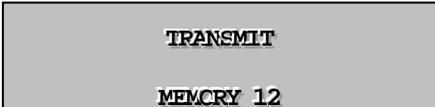
```
          TRANSMIT

          MEMORY 12
```

The following keys are active:

LEFT	Decrement the dimmer channel
RIGHT	Increment the dimmer channel
UP	Increment the dimmer level
DOWN	Decrement the dimmer level
TOGGLE	Invert dimmer level

The DMX512 output continues when 'The Wife' DMX Tester is in Receive mode.

The SNAPSHOT and FILL menus are alternative methods of programming the Memories.

Two separate modes of display are available within this function. The display mode is selected from within Setup Menu 5.

Numeric display

In Numeric Display mode, the display shows the current dimmer channel, followed by its level in percent, binary, hexadecimal and decimal. This feature also doubles as a decimal, hexadecimal, binary converter.

```
       CHANNEL 390 @ 100%

       11111111  $FF    255
```

Lamp display

In Lamp Display mode, the display shows the current dimmer channel, followed by its function and decimal level.

```
    CH 390 RED  @ 255

    COLCUR-FILL M6
```

The lower line of the display shows the moving lamp of which this channel forms a part.

The patch entered in Wife UPdater defines the moving lamp name and channel function.

Transmit lamp

The TRANSMIT LAMP menu is the most powerful method of testing automated luminaires.

```
    TRANSMIT LAMP

    VARI*LITE VL7
```

'The Wife' DMX Tester contains a library of nearly 200 lamp definitions which can be used to automatically test lamps.

When the menu is active, the UP & DOWN cursor keys are used to select the required lamp from the library.

```
    LAMP 001-007  CN

    VARI*LITE VL7
```

To accept the lamp selection press MENU. The display changes to show the start address of the lamp, the current test and the selected lamp.

At this point the DMX output will command the selected lamp to point to its center position with the beam on at full white and no gobos.

The following keys are active:

LEFT	Decrement the start channel to the previous lamp
RIGHT	Increment the start channel to the next lamp
UP	Increment by one the start channel
DOWN	Decrement by one the start channel
TOGGLE	Select the next automatic test

The automatic tests consist of ramping the levels up then down between defined values for the channels that relate to each lamp attribute. The Speed at which the ramp operates can be defined in Wife UPdater.

The automatic tests function as follows:

Name	Function
On	Point lamp at center of Pan & Tilt range with a full power white beam.
Int	Ramp up and down the lamp intensity. If a dimmer exists in the lamp it is used, otherwise the mechanical shutter is used.
Pan	Pan the beam from one extent to the other
Tilt	Tilt the beam from one extent to the other.
P&T	Pan & Tilt the beam from one extent, diagonally to the other.
<PT>	Pan & Tilt are controlled by the cursor keys. This is particularly useful for manually focusing a moving lamp.
COL 1-7	Exercise the colors available. This tests up to seven color attribute channels of the lamp. Depending on the lamp type, the order will be either: RED BLUE GREEN COLOUR-WHEEL 1-4 or YELLOW MAGENTA CYAN COLOUR-WHEEL 1-4
GOB 1-7	Run through all the available gobos.
STRB	Test the Strobe effects.
ZOOM	Test the Zoom.
FOCS	Test the Focus.
IRIS	Test the Iris.
PRIS	Test the Prism.
EFFX	Test the Effects.
AUX 1-7	Test a further seven attributes as defined in the lamp library.
ALL	Run all of the tests listed above in sequence. When the ALL test is running, the display alternates between 'ALL' and the current attribute.

The DMX512 output continues when 'The Wife' DMX Tester is in Receive mode. You can order a Wife PC connectional cable (P/N 91613027) from your Martin dealer and download a copy of Wife UPdater software from the Martin Professional web site (http://www.martin.com) to inspect the detailed channel allocations for each moving lamp.

Transmit dynamic DMX512

The   TRANSMIT DYNAMIC DMX512 selection allows any range of dimmer channels to be switched on at a level, or ramp continuously.

```
    CHAN: 001 - 512

         @100%
```
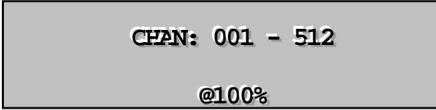
The following keys are active:

LEFT	Decrement the end dimmer channel
RIGHT	Increment the end dimmer channel
UP	Increment the start dimmer channel
DOWN	Decrement the start dimmer channel
TOGGLE	Stop or Start the channels ramping

Any range of dimmers can be controlled. The display shows the start and end dimmer channel, followed by the current percentage level.

The level ramp requires ten seconds to increment from zero to full and then decrement back to zero.

If the end channel is set to a lower value than the start channel, all output channels are set to zero.

The DMX512 output continues when 'The Wife' DMX Tester is in Receive mode.

Transmit text

The TRANSMIT TEXT menu provides support for the new DMX Text feature of DMX512-A.

```
        TRANSMIT TEXT

     MSG 1: THE LAZY
```
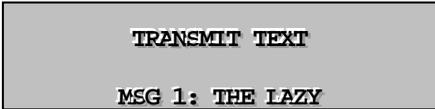
DMX Text is a useful function that allows equipment that lacks a screen display, to send diagnostic and status information via DMX512.

This menu provides the option to send one of four preset text messages in order to check text reception on other equipment.

When Transmit Text is selected, the text DMX frame is sent once every 64 packets of standard (start code zero) DMX512.

It is therefore possible to leave this menu with text mode still active. If this is not desired, set the message to None before exiting the menu.

The Up and DOWN buttons force an immediate text packet transmission.

The following keys are active:

LEFT	Previous menu item
RIGHT	Next menu item
UP	Previous text message
DOWN	Next text message

The available text messages are shown in the chart below. The field marked xxx is a three-digit number that counts the number of text frames sent. This number rolls over to zero at 255.

All text messages are sent with both control fields set to zero. The strings are null terminated.

Messages 1& 2 use all letters of the alphabet. Message 3 is formatted for display by 'The Wife' DMX Tester.

Message	Contents
1	Disabled
2	the quick brown fox jumps over the lazy dog 1234567890 xxx
3	THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 1234567890 xxx
4	<<>>DMX512-A<<>>TEXT MESSAGE: xxx

Transmit sequence

The TRANSMIT SEQUENCE menu allows memories to be sequentially played back. This allows 'The Wife' DMX Tester to function as a simple show controller.

```
         TRANSMIT

         SEQUENCE
```
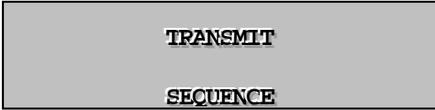
The following keys are active:

LEFT	Reduce number of sequence steps
RIGHT	Increase number of sequence steps
UP	Increase step time
DOWN	Decrease step time
TOGGLER	un / Pause

The sequence can play back up to twelve memories. Memory 1 is always included in the sequence. The Left and Right keys control the last memory in the sequence.

```
      SEQ Speed 03.1 s

      MEM 001 to 012  ->
```
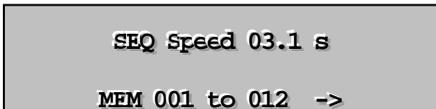
The time delay between each step may be varied from 0.1s to 25.5s.

Snapshot DMX to memory

The SNAPSHOT menu allows any one of the twelve memories to be filled with data captured from the DMX512 input. The Memory to be used is selected by the UP and DOWN keys when the menu display is active. Press the MENU key to take the snapshot. The process requires eight consecutive frames of DMX512 to capture the data. The snapshot can be aborted (for example if the DMX512 input fails) by pressing the TOGGLE button.

```
      SNAPSHOT DMX IO

         MEMORY: 15
```
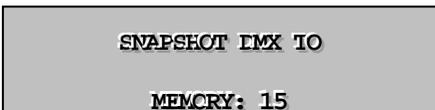
When the data has been successfully captured, the display shows:

```
    DMX RECORDED TO


       MEMORY: 15
```

Fill memory with pattern

The FILL menu allows any one of the twelve Memories to be filled with a symmetrical pattern of channel levels.

```
      FILL PRESET


     WITH PATTERN
```

The following keys are active:

LEFT	Select one of the pre-defined patterns
RIGHT	Select one of the pre-defined patterns
UP	Increment the Preset number
DOWN	Decrement the Preset number
TOGGLE	Execute the Fill

Fill patterns are selected from the following list:

Name	Function
ALL CHAN OFF	Clear the Preset
ALL CHAN HALF	Set all channels to 50%
ALL CHAN ON	Set all channels to 100%
ODD CHAN ON	Set all odd channels (1,3,5..511) to 100%
EVEN CHAN ON	Set all even channels (2,4,6..512) to 100%
RAMP UP	Set incrementing ramp from channel 1 to 256 and 257 to 512
RAMP DOWN	RAMP DOWN Set decrementing ramp from channel 1 to 256 and 257 to 512

Testing cables

'The Wife' DMX Tester offers three methods of testing DMX512 cables and DMX512 networks.

The DOUBLE ENDED TEST is used when both ends of the cable are available. 'The Wife' DMX Tester can test for short circuits and open circuits on any of the three active pins of the DMX512 cable.

The SINGLE ENDED TEST is used when only the console cable end is accessible. 'The Wife' DMX Tester can test for a short circuit between the two signal pins.

The NETWORK TEST is used to transmit real test data over an installed network.

Double ended cable test

The DOUBLE ENDED TEST display shows the connectivity of each of the three active pins of the DMX512 or MIDI cable. An OPEN CIRCUIT is shown by a period, and a SHORT CIRCUIT is shown by the pin number. The diagram below shows a correct DMX512 cable.

```
 DOUBLE  END   1.. =1..

  .2.=.2. GOOD  ..3=..3
```

The diagram below shows a DMX512 cable with pins 2 & 3 swapped.

```
 DOUBLE  END   1.. =1..

 .2.=..3        ..3=.2.
```
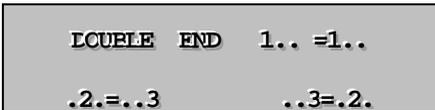
Single ended cable test

The SINGLE ENDED TEST display shows the short circuit status of pins 2 and 3 of the DMX512 output connector. The display will show the following when there is a connection between pins 2 & 3.

```
        SINGLE END

    2 & 3 SHORT/TERM
```

This test can be used to test for short circuit in the cable or to confirm that the cable is properly terminated.

Network test

The NETWORK TEST provides a more sophisticated test for installed DMX512 networks. This test is capable of confirming that both data distribution amplifiers and cables are working correctly.

```
      NETWORK TEST

     NETWORK IS GOOD
```
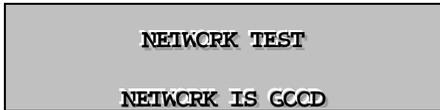
The test makes use of a new feature of DMX512-A, the Test Packet. This is a specific DMX512 packet, with an alternate start code, that is designed to exercise the DMX512 network in a worst-case scenario.

The worst-case data is generated by ensuring that every bit position includes a transition.

Whilst this menu is active, 'The Wife' DMX Tester transmits the test data and searches for received test data.

The 'The Wife' DMX Tester output is then connected in place of the lighting console. Each DMX512 outlet can then be tested for good data. If the lighting console has the ability to transmit test data, this can be used instead of the 'The Wife' DMX Tester output.

The display gives a simple Good / Bad indication.

```
      NETWORK TEST

    BAD DATA  -FAIL-
```
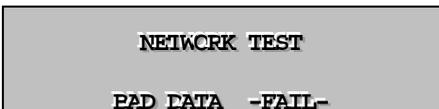
Auto backup if DMX fails

The AUTO-BACKUP menu allows 'The Wife' DMX Tester to be connected in-line between a lighting desk and dimmers. 'The Wife' DMX Tester monitors the received DMX512 and should the signal fail, switches one of the twelve Presets to the output.

```
        AUTO-BACKUP IF

           DMX FAILS
```

This mode provides a useful backup, which forces a known look on stage, should the console fail. When the backup mode is triggered, the user can snap between the presets.

When the menu is entered, the following   display   is shown and received DMX512 is looped to the output. The UP and DOWN keys are used to select the Preset that will be output should the received DMX512 fail.

```
        AUTO-BACKUP: 15

        WAIT-DMX IS GOOD
```

If the DMX fails, the following display is shown and the selected Preset is output to the dimmers. When the problem with the received DMX512 has been corrected, simply press MENU twice to reset AUTO-BACKUP mode.

```
        AUTO-BACKUP: 15

        ACTIVE-DMX FAIL
```

When AUTO-BACKUP is active, the UP and DOWN keys are used to snap between consecutive Presets.

Loop through

The BUFFER DMX/MIDI option is used to select between 'The Wife' DMX Tester's Generator output and a buffered copy   of the incoming DMX512 signal.

```
BUFFER DMX MIDI

      DISABLED
```

The Loop Through mode is selected by pressing the TOGGLE key when the menu is displayed. The BUFFER mode of operation allows 'The Wife' DMX Tester to be used as a signal booster for long DMX512 or MIDI cables.

BUFFER mode is switched off when the Generator Menu is next selected. When BUFFER mode is active, "L" is shown in the receive window to denote "Loop Through".

Displaying received MIDI

DISPLAY RECEIVED MIDI shows six MIDI characters in hexadecimal format. The external MIDI adapter cables are required to use this mode. The TOGGLE key is used to freeze the data display. The following diagram shows the screen layout.

Most recent character

```
MIDI  7F  OF  91
$→FL  O5  BI  OO
```

Hexadecimal Mode →

Data Received

Data Error

Loop Through

Least recent character
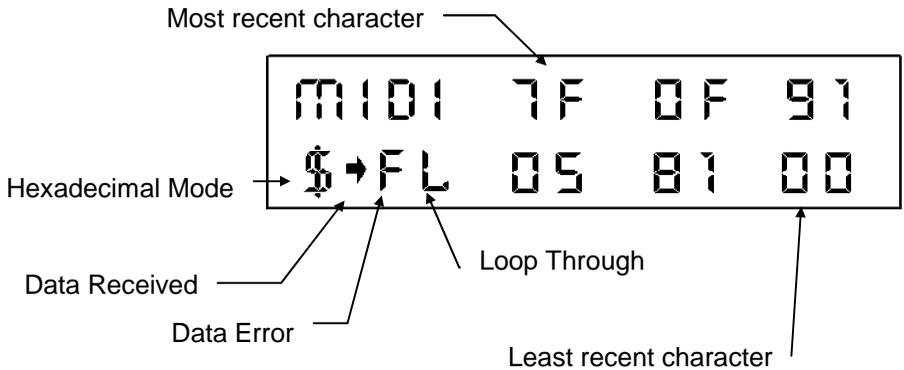
Loop Through may also be used with MIDI. The output circuitry used by 'The Wife' DMX Tester is RS485 compatible. Whilst this is correct for DMX512, MIDI specifies a simpler and less expensive set of circuitry. However, the two sets of circuitry are compatible and the circuitry used by 'The Wife' DMX Tester overcomes the very short cable limitation usually encountered with MIDI.

The MIDI input of 'The Wife' DMX Tester is opto-isolated.

THE SETUP MENUS

Setup menu

The Setup Menu is entered by powering on 'The Wife' DMX Tester whilst holding down the MENU key, eight different operating modes may be selected. These are:

BACKLIGHT IS S1 **ENABLED**	Allows the LCD backlight to be enabled or disabled.
POWER SAVING **DISABLED** S2	Power Save option can be disabled to ensure that 'The Wife' DMX Tester always transmits DMX512.
MENU MODE **POWER USER** S3	Select which set of main menus should be active.
SELECT PARK **LEVEL:000** S4	Set the level of transmitted DMX channels that are at zero. This is the lamp preheat function.
MEMORY DISPLAY **LAMP** S5	Defines whether Transmit Memory displays numeric or lamp information.
TRANSMIT SIP **ENABLED** S6	When enabled, System Information Packets are transmitted every 256 packets.

```
     TALK TO

WIFE UPDATER/MIC-EDIT    S7
```

Starts communication with the PC program Wife UPdater.

Enable backlight (S1)

The BACKLIGHT menu is used to enable or disable the display backlight.

```
     PACKLIGHT IS

        ENABLED
```

The Backlight operates as follows:

DISABLE   The backlight is off giving the longest possible battery life.
ENABLE: When external power is connected the backlight is on in all modes.

When operating on battery power the backlight is normally on, but powers down after one minute of inactivity. The next key press will re-enable the backlight.

The TOGGLE key is used to enable or disable the backlight selection.

Power saving (S2)

The POWER SAVING menu is used to enable or disable the power save features of 'The Wife' DMX Tester.

```
     POWER SAVING IS

        DISABLED
```

The power saving operates as follows:

DISABLE   'The Wife' DMX Tester will not enter power saving mode. This feature is most important when 'The Wife' DMX Tester is used as a signal booster or left in a remote location as a DMX512 transmitter.
ENABLE: 'The Wife' DMX Tester will enter power save mode after about two minutes of inaction. This will only occur if there is no external power and no DMX512 input.

The TOGGLE key is used to enable or disable the selection.

Menu mode (S3)

The MENU MODE is used to select which subset of main menu options is active.

```
        MENU MODE

        POWER USER
```

This allows infrequently used menus to be disabled.

Six options exist; their functionality is detailed in the table below.

The Wife UPdater software package has the ability to further customize these options.

Menu	Default	Power User	Moving Lamp	Conven tional	Show- Control	Simple
Display Received DMX	✔	✔	✔	✔		✔
Display Received SIP's		✔				
Display Received Start Codes		✔				
Set Start Code		✔				
Display Received Text		✔				
Transmit Rig Check	✔	✔		✔		✔
Transmit All Channels	✔	✔		✔		
Transmit Memory	✔	✔	✔	✔	✔	
Transmit Lamp	✔	✔	✔			
Transmit Dynamic	✔	✔		✔		
Transmit Text		✔				
Transmit Sequence	✔	✔	✔	✔	✔	
Snapshot DMX512	✔	✔	✔	✔	✔	
Fill Memory with Pattern	✔	✔		✔	✔	
Double Ended Cable Test	✔	✔	✔	✔		✔
Single Ended Cable Test	✔	✔	✔	✔		
Test Network	✔	✔	✔	✔		
Auto Backup	✔	✔				
Buffer DMX	✔	✔				✔
Receive MIDI		✔				

Dark channel (S4)

The DARK CHANNEL menu is used to set the level to be transmitted in place of zero (dark) channels when operating in either Rig Check or Transmit Dynamic Mode.

```
      SELECT DARK CHAN

    LEVEL: 000            .
```

This is effectively a preheat feature and can significantly improve lamp life.

The UP DOWN keys are used to increment or decrement the level.

Memory display mode (S5)

The MEMORY DISPLAY menu is used to select between the two possible display modes of the TRANSMIT MEMORY function.

```
      MEMORY DISPLAY

            LAMP
```

When LAMP mode is selected, channels are displayed in terms of their associated moving lamp attribute.

In Numeric mode, channels are displayed with levels shown in decimal, binary, hexadecimal and percent.

Transmit SIP (S6)

The TRANSMIT SIP menu is used to enable the transmission of System Information Packets.

```
        TRANSMIT SIP

          ENABLED
```

When enabled, a single SIP packet is sent for every 64 standard packets.

If Text DMX is enabled (Menu 10), the SIP packet is sent every 65 packets.

The structure of this SIP is shown below:

Slot	Name	Value (Decimal, 0x = Hex)
1	Byte Counter	24
2	Control Bit Field	64
3	MSB16 Checksum	0
4	LSB or 8 bit Checksum	Calculated from last packet
5	SIP Sequence Number	Increments by one for each packet.
6	DMX512 Universe Number	01
7	DMX512 Processing Level	00
8	Software Version	70 (This is V7.0. It will change as 'The Wife' DMX Tester firmware upgrades are released).
9/10	Packet Length	0x0200
11/12	Number of Interval Packets	0x0040 (Text DMX disabled) 0x0041 (Text DMX enabled)
13/14	Originator's Manufacturer ID	0x414c ('AL')
15/16	2nd Device ID	0x0000
17/18	3rd Device ID	0x0000
19/20	4th Device ID	0x0000
21/22	5th Device ID	0x0000
23	Spare	0
24	SIP Checksum	Calculated for each packet

Talk to Wife Updater/MIC-EDIT (S7)

The TALK menu is used to start communication with the optional Wife UPdater software (see the following chapter). Enter this mode prior to pressing the Download button on Wife UPdater. 'The Wife' DMX Tester displays:

```
       TALK TO

   WIFE UPDATER/MIC-EDIT
```

Note that in earlier products the Wife Updater may be referred to as MIC-EDIT.

When the Wife UPdater Download button is pressed, 'The Wife' DMX Tester displays:

```
      WAITING FOR

   WIFE UPDATER TO TALK
```

When the transfer starts, 'The Wife' DMX Tester displays:

```
       WIFE UPDATER

       IS THINKING
```

Followed by:

```
        RECEIVING

       DATA BLOCK
```

When Wife UPdater has finished sending data, the following message is displayed:

```
     TRANSFER DONE

      PRESS MENU
```

THE WIFE UPDATER

Overview

The Wife Updater consists of a special cable and a Windows-based software application. The software is used for a number of functions, as detailed below, which can then be uploaded directly to your "Wife":

- An on-line DMX512 editor that allows live programming and control of moving lamps.

- An off-line editor allowing all "The Wife" Memories and configuration data to be programmed in a console style format.

- A lamp personality editor (up to 100 personalities)

- 200 pre-programmed personalities and 12 editable memories

- Generate custom test patterns

- Setup parameters such as Start Code, Power Save

- Customize power up screen, menus and bar graph fonts

The Wife UPdater software is downloadable from the Internet (see the following installation section), but you will need to order an interface cable to connect "The Wife" to your PC. This cable (P/N 91613027) can be ordered from your Martin dealer.

Getting started

You need a PC with a connection to the internet to download The Wife UPdater.

Software requirements

The Wife UPdater is compatible with Windows 95, 98, ME, NT5, 2000 & XP.

Hardware requirements

The Wife UPdater requires the following minimum specification to run:

1. Pentium at 133MHz or higher PC Compatible.

2. Windows 95/98/ME/2000/XP operating system.

3. Mouse.

4. VGA 640 x 480 or better.

5. 2 MB Hard disc space.

6. 16 MB ram

Installation

To install the software:

1. Download and open the following file on your PC -
   http://www.martin.dk/product/TheWifeUPdater.exe

2. Extract the setup files to a temporary folder on your PC.

3. Select the Start Menu and then the Run Command.

4. Press the Browse button.

5. Locate the program SETUP.EXE that you extracted in step 2.

6. Execute the program.

7. The Install Shield program will start.

8. Click Next.
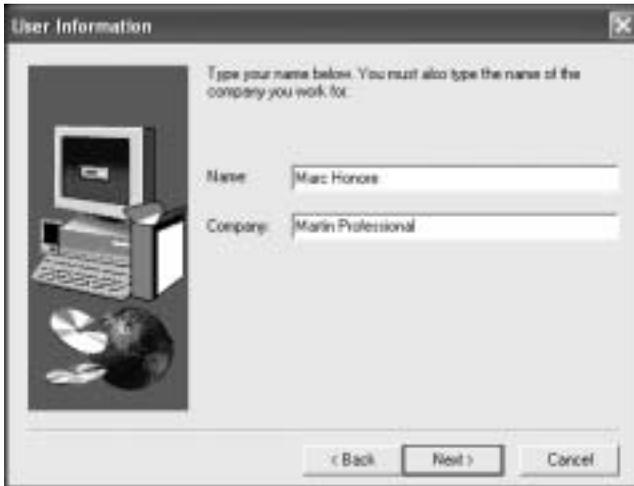
9. Fill in your name and company (if appropriate) and click Next.

10. Select a destination directory, or accept the default, and click Next.

11. Select the location of the program on the start menu, or accept the default, and click Next.

12. Confirm that the installation details are correct and click Next.

13. Click Finish to complete the installation.

Connecting "The Wife" to your PC

The Wife UPdater communicates with the "The Wife" via the RS232 interface of the PC. The Wife UPdater can access either COM1 or COM2.

An XLR5F to 9 pin DB cable is provided with The Wife UPdater. The cable contains the RS232 to RS485 conversion electronics required for communications between the PC and "The Wife".

1. Connect one end of the cable to the DMX512 connector on "The Wife" and the other end to the COM port on your PC.

2. Start the Wife UPdater program.
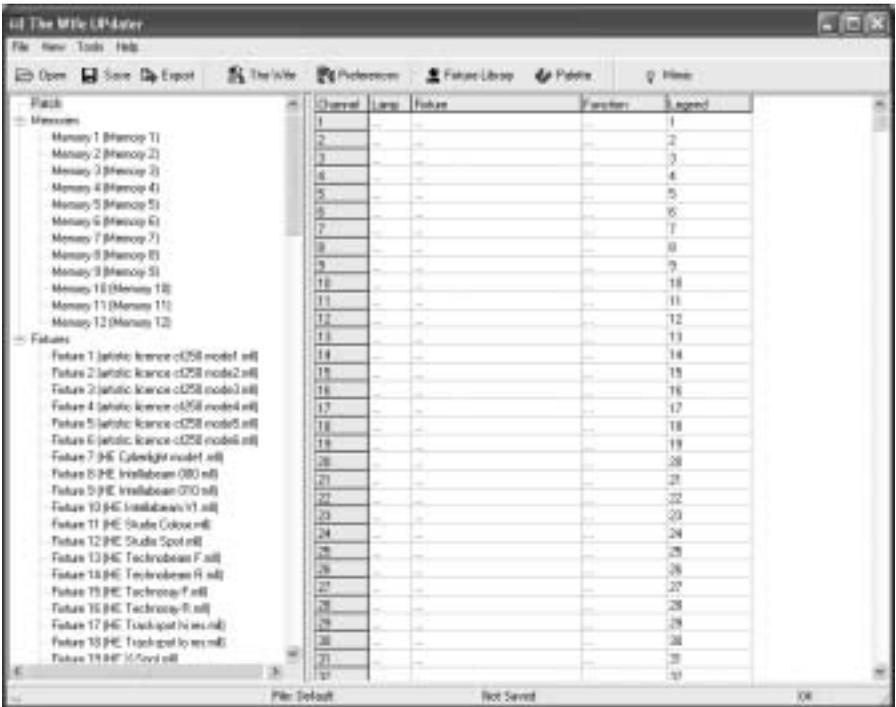
3. Select Tools Preferences.

4. Select the Com port that the "The Wife" is connected to and click OK.

5. Activate communications from "The Wife" by holding down the MENU key while powering "The Wife" on and then selecting TALK TO WIFE UPDATER (S7). *Note: On older versions of "The Wife" this may appear as TALK TO MIC_EDIT. Always enter this mode prior to pressing the Export button in the Wife Updater.*

Main screen

The Wife UPdater displays the following screen when started.

The left panel of the screen displays the information store. This lists all the data that will be downloaded to The Wife. This is referred to as the Show Panel.

The right panel is used to display the spreadsheet or fader style information for editing presets and lamp personalities. This is referred to as the Edit Panel.
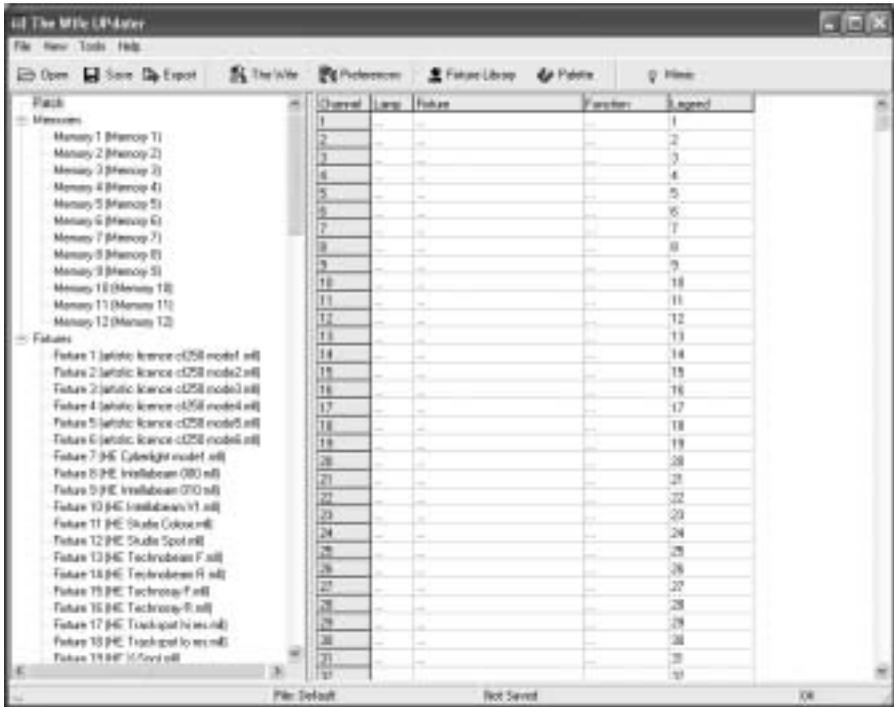
Setting the patch

The patch is used to select the DMX512 channel allocation that is used in the 'Transmit Memory' menu.

When the 'Patch' option is selected in the Show Panel, the patch spreadsheet is then displayed in the Edit Panel.

Click the Fixture Library button at the top of the screen. The palette of available fixtures is then displayed:

All available Fixtures

- Adlite Intel Pro.mll
- Adlite Intell'1.mll
- Adlite Intell'2.mll
- Adlite Light Bounce 2.mll
- Amptown PML II.mll
- Amptown PML.mll
- Amptown PosiSpot.mll
- Amptown Washlite HP.m
- Amptown Washlite.mll
- Amptown WinDesign.mll
- Artistic Licence CF250 m
- Artistic Licence CF250 m
- Artistic Licence CF250 m
- Artistic Licence CF250 m
- Artistic Licence CF250 m
- Artistic Licence CF250 m
- B+K Varytec.mll
- Cam Telescan mk1.mll
- Celco M9 Video.mll

Select the required lamp from the palette and drag in onto the required start channel of the patch.

A dialogue is displayed which confirms the start channel and the number of lamps to be patched.

Patch Fixture to Channel

Patch Fixture: Martin Mac500 mode4.mll

Start at channel 4 and repeat: 2

✓ OK   ✗ Cancel
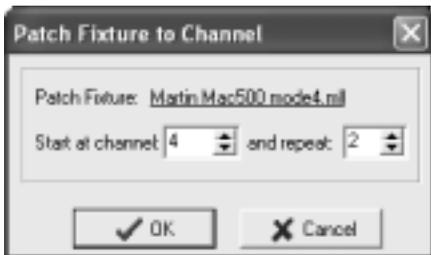
The example shown will patch two Martin Mac 500s starting at channel 4. The resulting patch is shown below:
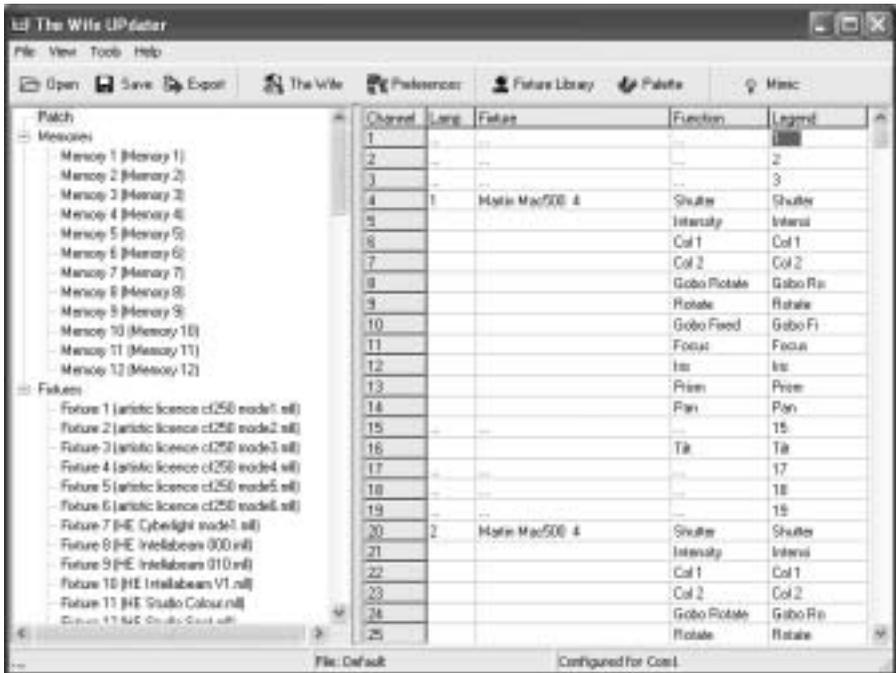
Patch columns

The columns of the Patch display provide the following information:

Column	Name	Purpose
1	Channel	Lists the DMX512 channel number from 1 to 512.
2	Lamp	The number of the moving lamp. The Wife UPdater generates this automatically, numbering lamp 1 as the lowest DMX channel value.
3	Fixture	The text name of the moving lamp. This corresponds to the name in the Fixture Library Palette.
4	Function	Describes the lamp function controlled by this channel.
5	Legend	This is a seven character description of the lamp channel function. This text is displayed in the 'Transmit Memory' menu. When a lamp is patched, this field is automatically updated from the lamp function. This field can be edited to override the default behavior.

Deleting a lamp

To delete a lamp from the patch, simply right click on the lamp. A popup menu is displayed offering this option.

Editing memories

Depending upon the setting in the **Tools→Preferences** menu, the Edit Panel will display either a spreadsheet or an array of faders.
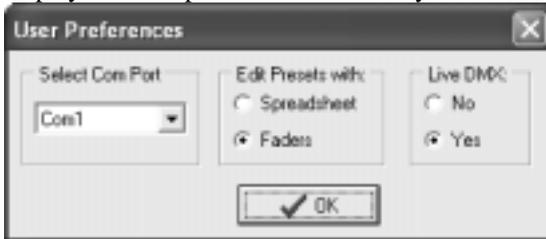
To edit a Memory, select the required Memory in the Show Panel.

Editing memories by spreadsheet

When editing memories in spreadsheet mode, the Edit Panel displays as shown below:
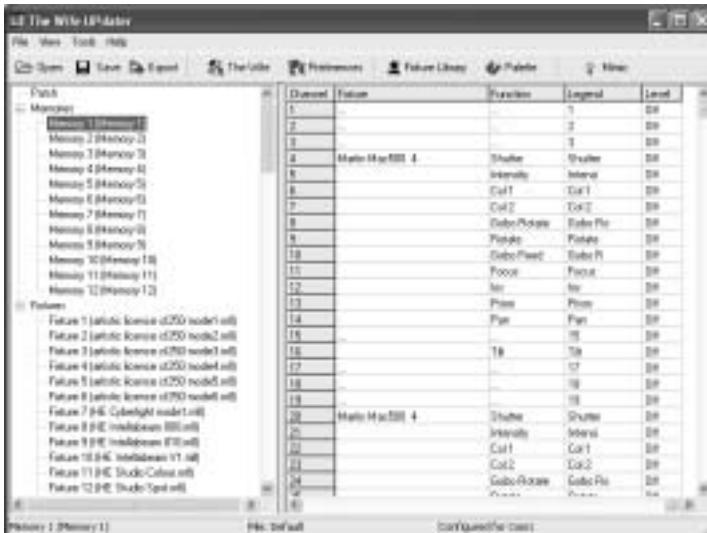
Memory columns

The columns of the Memory spreadsheet are identical to those displayed in Patch mode, with the exception of column 6.

Column	Name	Purpose
1	Channel	Lists the DMX512 channel number from 1 to 60
2	Lamp	The number of the moving lamp. Show-Edit generates this automatically, numbering lamp 1 as the lowest DMX channel value.
3	Fixture	The text name of the moving lamp. This corresponds to the name in the Fixture Library Palette.
4	Function	Describes the lamp function controlled by this channel.
5	Legend	This is a seven character description of the lamp channel function. This text is displayed in the 'Transmit Memory' menu. When a lamp is patched, this field is automatically updated from the lamp function. This field can be edited to override the default behavior.
6	Level	The level of this channel in this Memory. The level can range from 0 to 255. Off is identical to zero level.

Editing memories by fader

When editing memories in fader mode, the Edit Panel displays as shown below:
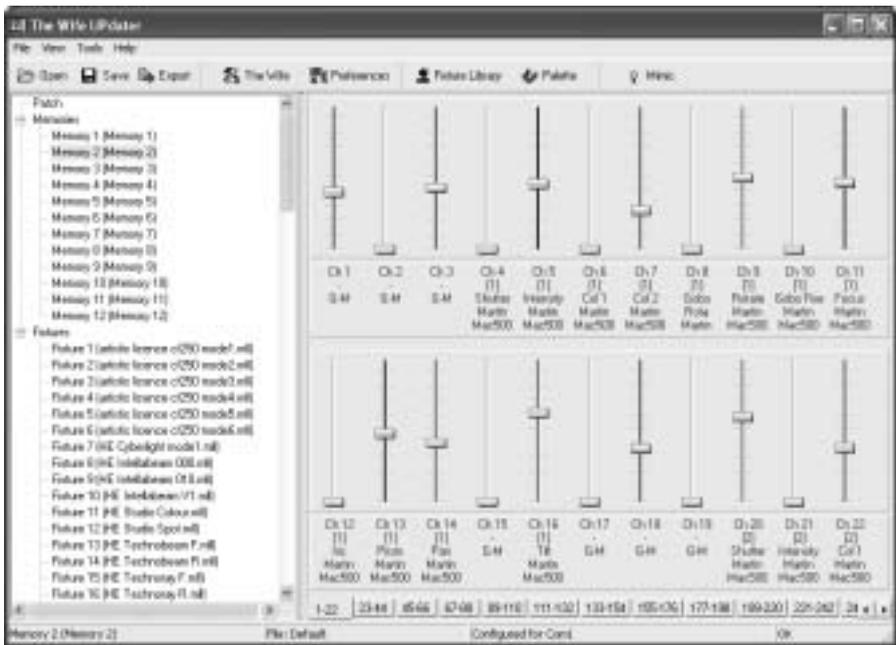
Fader rows

Each channel of each moving lamp or dimmer is displayed as a fader. Below each fader, a 5 line text display describes the function:

Row	Name	Purpose
1	Channel	The Channel number ranging from 1 to 512.
2	Lamp	The Lamp Number ranging from 1 to 512. Channels that are not patched do not have a lamp number but can still be programmed.
3	Function	A text description of the lamp attribute controlled by this fader.
4/5	Name	The name of the moving lamp.

Setting levels

Dragging the fader knob with the mouse sets fader levels. When the level of a fader is set to any value above zero, tick marks are displayed next to the fader track. The absence of tick marks indicates that the channel is at zero.

Editing levels

Right clicking on any fader produces a popup menu. The popup menu provides numerous Memory editing functions as detailed in the table below.

The fader that is right clicked is described as the selected channel in the table below.

Entry	Name	Purpose
1	Exclude channel from this Memory	Selected channel is set to zero in this Memory
2	Exclude fixture from this Memory	If the selected channel is part of a moving lamp, all channels in the lamp are set to zero in this Memory.
3	Exclude INTENSITY channels of this fixture	If the selected channel is part of a moving lamp and it is an intensity (dimmer) channel, all intensity channels of the lamp are set to zero in this Memory.
4	Exclude POSITION channels of this fixture	If the selected channel is part of a moving lamp and it is a position (pan or tilt) channel, all position channels of the lamp are set to zero in this Memory.
5	Exclude COLOUR channels of this fixture	If the selected channel is part of a moving lamp and it is a color channel, all color channels of the lamp are set to zero in this Memory.
6	Exclude BEAM channels of this fixture	If the selected channel is part of a moving lamp and it is a beam (iris, gobo, prism) channel, all beam channels of the lamp are set to zero in this Memory.
7	Exclude CONTROL channels of this fixture	If the selected channel is part of a moving lamp and it is a control (lamp strike etc.) channel, all control channels of the lamp are set to zero in this Memory.

8	Exclude all INTENSITY channels from Memory	If the selected channel is part of a moving lamp and it is an intensity channel, all intensity channels in this Memory are set to zero.
9	Exclude all POSITION channels from Memory	If the selected channel is part of a moving lamp and it is a position channel, all position channels in this Memory are set to zero.
10	Exclude all COLOUR channels from Memory	If the selected channel is part of a moving lamp and it is a color channel, all color channels in this Memory are set to zero.
11	Exclude all BEAM channels from Memory	If the selected channel is part of a moving lamp and it is a beam channel, all beam channels in this Memory are set to zero.
12	Exclude all CONTROL channels from Memory	If the selected channel is part of a moving lamp and it is a control channel, all control channels in this Memory are set to zero.
13	Clear Memory to zero	Sets all channels to zero level.
14	Clear Memory to off	Sets all channels to zero level.
15	Remove fixture from patch	Removes this fixture from the patch.

Using palettes

To display the palette, click on the Palette button at the top of the screen. The Palette contains 50 entries that contain settings for every attribute of every fixture.

These values are defined in the Fixture Editor.

For ease of use, the palette entries are coded by color, but they are equally valid for use with position and beam attributes.

The palette can be used in both spreadsheet and fader view of a Memory.

Simply drag the required palette entry and drop it on the required fixture. The cursor changes to a hand icon with a small moving lamp icon.

The entire fixture changes to represent the levels contained in the palette. This drag and drop function can be further modified by combination of the Shift, Ctrl and Alt keys as detailed in the table below.

Hold Key	Cursor	Dropping on Channel Type	Result
None	Moving Lamp Icon	All	Entire fixture is set to the level contained in the palette.
Shift	Fader Icon	All	Only the channel that is dropped upon will change to the palette value.
Ctrl	Light Bulb	Intensity	All intensity channels within the fixture change to the levels contained within the palette.
	Arrows	Position	All intensity channels within the fixture change to the levels contained within the palette.
	Color Wheel	Color	All intensity channels within the fixture change to the levels contained within the palette.

Ctrl cont	Diamond Gobo	Beam	All intensity channels within the fixture change to the levels contained within the palette.
	Hammer	Control	All intensity channels within the fixture change to the levels contained within the palette.
Alt	Multiple Lamps	All	Sets all patched fixtures to the levels contained in the palette.

Editing memory legends

The name or legend of each Memory can be changed by right clicking on the required Memory and selecting **Edit name** from the pop-up menu.
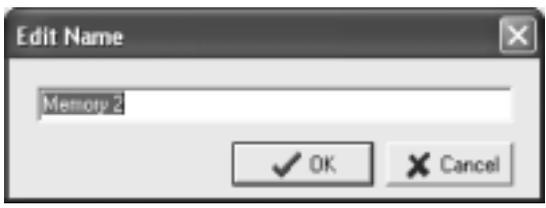
Editing fixtures

To edit a fixture personality, double click on a fixture entry in the Fixture Palette.

The following dialogue is displayed (this example is the Martin Mac 500 mode 4).
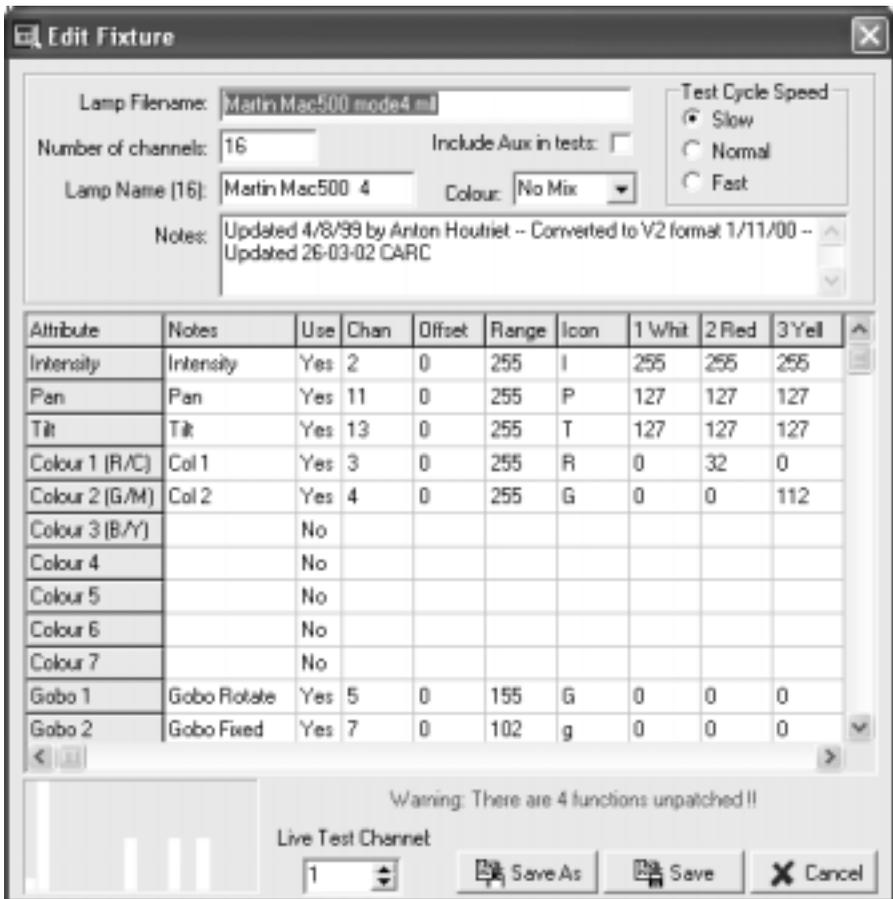
Spreadsheet

The spreadsheet displayed allows each of the possible fixture attributes to be controlled. Each attribute (pan, tilt etc.) contains the settings detailed below:

Column	Name	Function Result
1	Attribute	Defines the fixture channel type.
2	Notes	This field is simply for your information; it is not downloaded to "The Wife" DMX Tester.
3	Use	Set to Yes if this channel function is active.

4	Chan	This is the channel address for this lamp attribute. Numbering is in the range 1 to 38.
5	Offset	This is the minimum value of data that is valid for this attribute. Normally this is zero, however some fixtures (the MadScan for example) mix attributes on a single channel. If intensity is controlled over the range 128 to 255, you must enter a value of 128 in this field.
6	Range	This is the range of values of data that is valid for this attribute. Normally this is 255, however some lamps (the MadScan for example) mix attributes on a single channel. If intensity is controlled over the range 128 to 255, you must enter a value of 127 in this field.
7	Icon	This field is for file compatibility with Show-Control. The following are the default abbreviations:

Abbreviation	Attribute
P	Pan
T	Tilt
R	Red
G	Green
B	Blue
C	Color
g	Gobo
I	Intensity
i	Iris
p	Prism

8-58	Palette	This is the default data value for each attribute of each palette.

Header

The header to the spreadsheet allows overall configuration of the fixture:

Field	Function
Lamp Filename	The name of the file that contains this fixture personality.
Number of Channels	Used to enter the total number of channels required by this fixture.
Lamp Name	This is the 16 character name of the fixture.
Color	Defines whether the fixture uses red, green, blue or cyan, magenta, yellow color mixing.
Include Aux In Test	If this box is ticked, Micro-Scope will include all the Aux attributes in the automatic tests. Generally you will not select this as the Aux attributes are used for controls needed to make the entire lamp operate.
Test Cycle Speed	Three options of speed for the automatic test ramp are provided. Generally you would use Slow to Normal for moving heads and Normal to Fast for moving mirrors.
Notes	This field is provided to document revisions to the personality.

Footer

The footer to the spreadsheet provides two additional controls:

Field	Function
Graph	The graph shows the level of each consecutive fixture channel for the selected palette. It also changes color to reflect the color assigned to the palette.
Live Test Channel	This defines the DMX512 channel to use for live testing the fixture data. If a fixture is available, this greatly simplifies the task of data entry.
Warning Display	The Warning Display provides help with entry of complex lamps. Show-Edit analyses the data as you enter it, and checks for any possible problems. The display options are:
	Error: Channel x is duplicated: This means that you have entered identical channel numbers for two or more lamp functions.

	Error: There are x channels over patched: This means that you have entered a channel number that exceeds the number in 'Number of Channels'.
	Error: There are x functions over patched: This means that you have entered more lamp functions than the number in 'Number of Channels'.
	Warning: There are x functions unpatched: This means that you have entered less lamp functions than the number in 'Number of Channels'. Unpatched functions transmit with a zero channel level. This is therefore a warning not an error. On complex lamps, you will regularly see this message.
	OK: X channels patched: This message simply confirms that all is well.

Finishing editing

To finish the editing there are three options:

Save As: Allows the edited personality to be saved as a new personality. This is useful when entering a new mode for a fixture as only the differences need be entered.

Save: Simply saves the edited personality.

Cancel: Drops any changes made during the editing session.

Editing "The Wife" DMX Tester configuration

"The Wife" DMX Tester configuration dialogue is displayed by clicking **The Wife** button at the top of the screen.

The dialogue displayed, allows access to all The Wife configuration items.

The Wife Configuration

User Name

Enable: ☐

System

Enable Backlight: ☑   Disable Power Save: ☐

Startup Default

◉ Receive Menu   ○ Transmit Sequence
○ Transmit Memory   ○ Buffer DMX/MIDI

Transmit DMX512-A Text Packets

Disabled ▾

Sequence

Memories: Mem 1 -> 5 ▾
Speed: 1.1 s ▾

Bar Graph

- - - ▲ ▲ ▮ ▮ ▾

Dark Channel

0

Transmit SIPs

Enabled: ☐

Enable Menu Options:

☑ Display Received DMX512
☐ Display Received SIP's
☐ Analyse Received Start Code
☐ Set Start Code
☐ Display Received Text
☑ Transmit Rig Check
☑ Transmit All Channels
☑ Transmit Memory
☑ Transmit Lamp
☑ Transmit Dynamic
☐ Transmit Text
☑ Playback Sequence
☑ Snapshot DMX to Memory
☑ Fill Memory with Pattern
☑ Double Ended Cable Test
☑ Single Ended Cable Test
☑ Network Test
☑ Auto-Backup if DMX Fails
☑ Buffer DMX/MIDI
☐ Display Received MIDI

Power User

Default

Moving Lamps

Conventional's

Show Control

Simple

✓ OK   ✗ Cancel

Field	Function
User Name	When the enable box is ticked, the 32 character user name will be displayed when The Wife is switched on. The user name is also displayed when The Wife enters power saving mode.
Enable Backlight	When ticked, the backlight is enabled. On battery power, the backlight switches of after a period of inactivity. On mains power, the backlight is continuously on.
Disable Power Saving	When ticked, The Wife will not enter power saving mode.
Startup Default	This is used to select one of four possible start menus. The selected menu is used when The Wife is switched on or exits from power saving.

Transmit DMX512-A Text	This option is used to select one of four preset text messages in order to check text reception on other equipment.
	When Transmit Text is selected, the text DMX frame is sent once every 64 packets of standard (start code zero) DMX512.
	If this is not desired, set the message to None before exiting the menu.
Sequence	The two controls are used to select the range of memories and the inter step delay for sequence playback.
Bar Graph	The control allows one of eight position bar graph fonts to be selected. The selected font is used in the Receive DMX512 menu.
Dark Channel	The Dark Channel control is used to set the level to be transmitted in place of zero (dark) channels when operating in either Rig Check or Transmit Dynamic Mode.
Transmit SIPs	The Transmit SIPs option is used to enable the transmission of System Information Packets.
	When enabled, a single SIP packet is sent for every 64 standard packets.
	If Text DMX is enabled (Menu 10), the SIP packet is sent every 65 packets.
Menu Options	The Menu Options section is used to enable or disable individual menus within The Wife. When the box is ticked, the relevant menu is enabled. The six buttons are simply shortcuts to select menu lists that may be useful.

Menu

The main menu functions can also be accessed from the button panel at the top of the screen. The main functions are:

Open	Used to load a file from disc into The Wife UPdater.
Save	Used to save a file from The Wife UPdater to disc.
Import	Used to read an USITT ASCII text format file.
Export	Used to send data from The Wife UPdater to The Wife.

Configuration   Used to set The Wife UPdater configuration options.

Export

Export sends data from The Wife UPdater to The Wife DMX Tester. Not all data is sent to "The Wife" DMX Tester, so you should save your show to disc as well as exporting.

Ensure that The Wife is switched on, connected to the PC com port and displaying *'Waiting for The Wife UPdater to talk'.*

Once the Export key is pressed, the following is displayed:
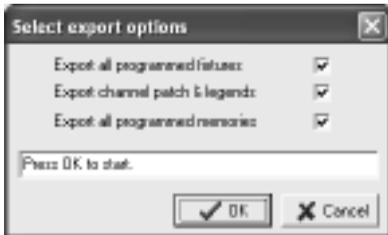
The Export Dialogue allows the user to select which of the three types of data should be exported. The configuration data is always exported, even when all three boxes are un-ticked.

Select the relevant types and then click the OK key.

The Wife UPdater will then export the data. The export process may take up to two minutes. When the Export process finishes, press "The Wife" DMX Tester MENU key to return to the Setup Menu. Should "The Wife" DMX Tester display an error at any point, cancel the Export and start the process again.

Live editing

The Wife UPdater is able to send live DMX512 data via "The Wife" DMX Tester when editing.

This allows the show to be programmed visually with the aid of the actual lighting rig.

To use this feature, ensure that "The Wife" DMX Tester is in 'Talk to The Wife UPdater/MIC-Edit' mode.

The Setting dialogue allows this feature to be enabled and also the PC com port to be selected:
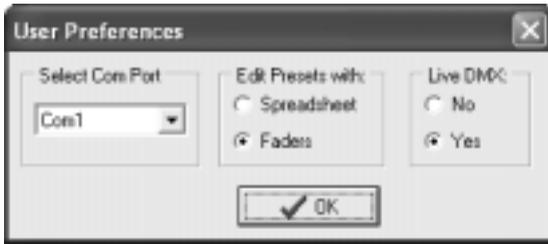
USITT ASCII import

The Wife UPdater allows the import of USITT ASCII text files. This is an international standard designed to allow lighting data to be transferred between differing manufacturers.

The Wife UPdater implements the following subset of commands:

- CLEAR ALL: All memories will be cleared to zero channel levels. If this command is removed, the import will effectively merge data into the existing show.

- CUE: Cue numbers are not used, the data is simply loaded to the next consecutive Memory number. The cue is automatically assigned to the next available sequence step.

- TEXT: The text field is loaded into the Memory's legend.

EXTERNAL CONNECTIONS

Power supply

'The Wife' DMX Tester has an internal Ni-Cd rechargeable battery that provides a life of about 25 hours between recharges (this is reduced to 15 hours when the backlight is used continuously). The external 9 Volt DC power supply is used to power and recharge Show-Control.

As with all Ni-Cd battery products, the best battery life is obtained by completely discharging 'The Wife' DMX Tester prior to recharging. The power switch is used to switch off 'The Wife' DMX Tester, battery charging will continue if the power connector is plugged in.

'The Wife' DMX Tester contains a sophisticated battery manager, which regulates battery charging. A full charge is obtained in three hours, after which the external power supply is used solely to power 'The Wife' DMX Tester.

Connector

Pin	Function
Centre	+9VDC 350mA
Skirt	Ground

Receive DMX

The DMX receive input connects via the male 5 pin XLR. The pin allocation is as follows:

Pin	Function
Pin 1	Screen
Pin 2	DMX Receive Signal-
Pin 3	DMX Receive Signal+
Pin 4	MIDI Receive Anode
Pin 5	MIDI Receive Cathode

The MIDI receive feature of 'The Wife' DMX Tester uses pins 4 & 5 which are undefined by the DMX512 protocol. These pins may be disconnected internally should this conflict with your DMX512 implementation.

MIDI adapter wiring

A MIDI adapter cable is available from Artistic Licence or can be simply constructed from the following wiring plan:

Female 5 pin XLR	Female 5 pin DIN
Pin 1 connect to screen	No connection
Pin 4	Pin 4
Pin 5	Pin 5

Transmit DMX

The DMX transmit output connects via the female 5 pin XLR. The pin allocation is as follows:

Pin	Function
Pin 1	Screen
Pin 2	DMX Transmit Signal-
Pin 3	DMX Transmit Signal+
Pin 4	Scope Trigger Output
Pin 5	Scope Trigger Ground

The Trigger feature of 'The Wife' DMX Tester uses pins 4 & 5 which are undefined by the DMX512 protocol. These pins may be disconnected internally should this conflict with your DMX512 implementation.

CONVERSION TABLES

Dec	Hex	Binary
0	00	0000 0000
1	01	0000 0001
2	02	0000 0010
3	03	0000 0011
4	04	0000 0100
5	05	0000 0101
6	06	0000 0110
7	07	0000 0111
8	08	0000 1000
9	09	0000 1001
10	0A	0000 1010
11	0B	0000 1011
12	0C	0000 1100
13	0D	0000 1101
14	0E	0000 1110
15	0F	0000 1111
16	10	0001 0000
17	11	0001 0001
18	12	0001 0010
19	13	0001 0011
20	14	0001 0100
21	15	0001 0101
22	16	0001 0110
23	17	0001 0111
24	18	0001 1000
25	19	0001 1001
26	1A	0001 1010
27	1B	0001 1011
28	1C	0001 1100
29	1D	0001 1101
30	1E	0001 1110
31	1F	0001 1111
32	20	0010 0000
33	21	0010 0001
34	22	0010 0010
35	23	0010 0011
36	24	0010 0100
37	25	0010 0101
38	26	0010 0110
39	27	0010 0111
40	28	0010 1000

Dec	Hex	Binary
41	29	0010 1001
42	2A	0010 1010
43	2B	0010 1011
44	2C	0010 1100
45	2D	0010 1101
46	2E	0010 1110
47	2F	0010 1111
48	30	0011 0000
49	31	0011 0001
50	32	0011 0010
51	33	0011 0011
52	34	0011 0100
53	35	0011 0101
54	36	0011 0110
55	37	0011 0111
56	38	0011 1000
57	39	0011 1001
58	3A	0011 1010
59	3B	0011 1011
60	3C	0011 1100
61	3D	0011 1101
62	3E	0011 1110
63	3F	0011 1111
64	40	0100 0000
65	41	0100 0001
66	42	0100 0010
67	43	0100 0011
68	44	0100 0100
69	45	0100 0101
70	46	0100 0110
71	47	0100 0111
72	48	0100 1000
73	49	0100 1001
74	4°	0100 1010
75	4B	0100 1011
76	4C	0100 1100
77	4D	0100 1101
78	4E	0100 1110
79	4F	0100 1111
80	50	0101 0000
81	51	0101 0001

Dec	Hex	Binary	Dec	Hex	Binary
82	52	0101 0010	130	82	1000 0010
83	53	0101 0011	131	83	1000 0011
84	54	0101 0100	132	84	1000 0100
85	55	0101 0101	133	85	1000 0101
86	56	0101 0110	134	86	1000 0110
87	57	0101 0111	135	87	1000 0111
88	58	0101 1000	136	88	1000 1000
89	59	0101 1001	137	89	1000 1001
90	5A	0101 1010	138	8°	1000 1010
91	5B	0101 1011	139	8B	1000 1011
92	5C	0101 1100	140	8C	1000 1100
93	5D	0101 1101	141	8D	1000 1101
94	5E	0101 1110	142	8E	1000 1110
95	5F	0101 1111	143	8F	1000 1111
96	60	0110 0000	144	90	1001 0000
97	61	0110 0001	145	91	1001 0001
98	62	0110 0010	146	92	1001 0010
99	63	0110 0011	147	93	1001 0011
100	64	0110 0100	148	94	1001 0100
101	65	0110 0101	149	95	1001 0101
102	66	0110 0110	150	96	1001 0110
103	67	0110 0111	151	97	1001 0111
104	68	0110 1000	152	98	1001 1000
105	69	0110 1001	153	99	1001 1001
106	6A	0110 1010	154	9°	1001 1010
107	6B	0110 1011	155	9B	1001 1011
108	6C	0110 1100	156	9C	1001 1100
109	6D	0110 1101	157	9D	1001 1101
110	6E	0110 1110	158	9E	1001 1110
111	6F	0110 1111	159	9F	1001 1111
112	70	0111 0000	160	A0	1010 0000
113	71	0111 0001	161	A1	1010 0001
114	72	0111 0010	162	A2	1010 0010
115	73	0111 0011	163	A3	1010 0011
116	74	0111 0100	164	A4	1010 0100
117	75	0111 0101	165	A5	1010 0101
118	76	0111 0110	166	A6	1010 0110
118	77	0111 0111	167	A7	1010 0111
119	78	0111 1000	168	A8	1010 1000
120	79	0111 1001	169	A9	1010 1001
121	7°	0111 1010	170	AA	1010 1010
122	7B	0111 1011	171	AB	1010 1011
123	7C	0111 1100	172	AC	1010 1100
124	7D	0111 1101	173	AD	1010 1101
125	7E	0111 1110	174	AE	1010 1110
126	7F	0111 1111	175	AF	1010 1111
128	80	1000 0000	176	B0	1011 0000
129	81	1000 0001	177	B1	1011 0001

Dec	Hex	Binary		Dec	Hex	Binary
178	B2	1011 0010		226	E2	1110 0010
179	B3	1011 0011		227	E3	1110 0011
180	B4	1011 0100		228	E4	1110 0100
181	B5	1011 0101		229	E5	1110 0101
182	B6	1011 0110		230	E6	1110 0110
183	B7	1011 0111		231	E7	1110 0111
184	B8	1011 1000		232	E8	1110 1000
185	B9	1011 1001		233	E9	1110 1001
186	BA	1011 1010		234	EA	1110 1010
187	BB	1011 1011		235	EB	1110 1011
188	BC	1011 1100		216	D8	1101 1000
189	BD	1011 1101		217	D9	1101 1001
190	BE	1011 1110		218	DA	1101 1010
191	BF	1011 1111		219	DB	1101 1011
192	C0	1100 0000		220	DC	1101 1100
193	C1	1100 0001		221	DD	1101 1101
194	C2	1100 0010		222	DE	1101 1110
195	C3	1100 0011		223	DF	1101 1111
196	C4	1100 0100		224	E0	1110 0000
197	C5	1100 0101		225	E1	1110 0001
198	C6	1100 0110		226	E2	1110 0010
199	C7	1100 0111		227	E3	1110 0011
200	C8	1100 1000		228	E4	1110 0100
201	C9	1100 1001		229	E5	1110 0101
202	CA	1100 1010		230	E6	1110 0110
203	CB	1100 1011		231	E7	1110 0111
204	CC	1100 1100		232	E8	1110 1000
205	CD	1100 1101		233	E9	1110 1001
206	CE	1100 1110		234	EA	1110 1010
207	CF	1100 1111		235	EB	1110 1011
208	D0	1101 0000				
209	D1	1101 0001				
210	D2	1101 0010				
211	D3	1101 0011				
212	D4	1101 0100				
213	D5	1101 0101				
214	D6	1101 0110				
215	D7	1101 0111				
216	D8	1101 1000				
217	D9	1101 1001				
218	DA	1101 1010				
219	DB	1101 1011				
220	DC	1101 1100				
221	DD	1101 1101				
222	DE	1101 1110				
223	DF	1101 1111				
224	E0	1110 0000				
225	E1	1110 0001				

MANUFACTURED ID NUMBERS

ASCII Code	Hex Code	Manufacturer
A L	0x414c	Artistic Licence (UK) Ltd
L P	0x4c50	Light Processor
P C	0x5043	Pathway Connectivity

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