

Resource Identifier: 100306

Revision 1.7



Communicate
Without
Compromise

Eclipse User Guide



Commercial in Confidence

0. Preface

0.1 About this Document

This document contains relevant information required to identify, install, and control the equipment or system.

Since the available functions can be licensed and depend on the specific implementation, not all the functions and or applications contained in this document may be relevant or applicable to the system you will be working with.

The actual presentation may differ from those in this document due to hardware or software changes.

0.2 Notice about this Publication

While DTC makes every attempt to maintain the accuracy of the information contained in its product manuals, the information is subject to change without notice.

Performance specifications included in this manual are included for guidance. Information is provided by DTC in good faith, actual performance may vary.

0.3 Copyright

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0.4 Document History

This is a controlled document, written and produced by the DTC Technical Publications team.

Revision	Date	Author	Summary of Changes
1.0	29/03/2021	IR	First release.
1.1	06/07/2021	IR	Updates for v6.3.2.
1.2	29/04/2022	IR	Minor correction on CC ODU pinout. Updates for v6.3.3. Added dual band variant.
1.3	16/08/2022	IR	Updates for v6.3.5.
1.4	30/08/2022	IR	Updates for v6.3.6.
1.5	26/01/2023	IR	Updates for v6.3.9.
1.6	24/04/2023	IR	Updates for v6.3.10.
1.7	23/11/2023	IR	Updates for v8.0.3.1

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1. Overview

1.1 Related Documents

The following documents may also need to be referred to when configuring the device. All DTC documents can be downloaded from WatchDox, see *Section 10.1*.

- PRORXD Receiver HEVC Decoder User Guide
- Sapphire-RXD4 Setup Guide

1.2 Description

Based around DTC's industry leading "Single Frame Latency" HEVC H.265 encoding technology, the Eclipse is a compact yet fully featured outside broadcast transmitter.

Operating in DVB-T mode with Dual-Pedestal capability and 200mW output power, the Eclipse offers robust transmission in the most demanding of environments.

The Eclipse can transmit single 12G-SDI UHD video or four 3G-SDI HD video with embedded audio. It also offers dual high performance stereo analogue audio inputs with phantom power as well as the option of integrated UHF camera control.

1.3 Basic Specifications

DC Input	9.2V to 17.8V reverse polarity protected
Power consumption	Less than 25W @100mW RF power with 4K video
Temperature range	-10°C to +50°C
Dimensions	L 181mm (165mm excluding connectors) W 110mm D 46mm (without battery plates) or D 85mm (with V-Lock plates) or D 77mm (with Anton Bauer plates)
Dimensions (dual band variant)	L 193mm (177mm excluding connectors) W 115mm D 46mm (without battery plates) or D 85mm (with V-Lock plates) or D 77mm (with Anton Bauer plates)
Weight	1.4kg (approx.)

Note: Detailed technical specifications are given in the product datasheet. Please see <http://www.domotactical.com/>.

1.4 Approval Notices

1.4.1 EMC/Safety and CE Marking

The equipment has been designed to meet and has been tested against harmonized EMC and safety standards. The CE mark is indicated on all product labels.

The CE Declaration of Conformity as well as the technical file are available on request.

2. Product Package

2.1 Overview

Carefully open the packaging and verify that all the parts have been included, as ordered. Retain the packing materials for storage.

The part numbers are useful for identification and if you need to order a new part. The part number codes mean:

- CA – cable assembly
- SA – sub assembly
- AP – assembly part

Note: If you do not have all the parts or are not happy with the condition of your delivered product, please call DTC and we will get this sorted for you. See *Section 10.2*.

2.2 Variants

The part number will identify the product; it is also on the label.

2.2.1 Product Code

Note: xxxyyy denotes frequency, see *Frequency Options* below.

Part Number	Description
ECLIPSE-xxxxyy	Eclipse transmitter, no battery plates
ECLIPSE-AB-xxxxyy	Eclipse transmitter, AB mount battery
ECLIPSE-V-xxxxyy	Eclipse transmitter, V mount battery
ECLIPSE-CCCAM-xxxxyy	Eclipse transmitter with camera control, no battery plates
ECLIPSE-AB-CCCAM-xxxxyy	Eclipse transmitter with camera control, AB mount battery
ECLIPSE-V-CCCAM-xxxxyy	Eclipse transmitter with camera control, V mount battery

2.2.2 Frequency Options

Code	Frequency
114150	1.14-1.50GHz
167235	1.67-2.35GHz
198270	1.98-2.70GHz
440500	4.40-5.00GHz
550600	5.50-6.00GHz
198750D	Dual band 1.98-2.70GHz and 6.40-7.50GHz

2.3 Parts List

These items will be in the package.

2.3.1 Base Product

Part Number	Description
Eclipse unit	Eclipse HEVC Outside Broadcast Transmitter (part number is dependent on the variant, see <i>Section 2.2</i>)
CA0579	Audio 5-way circular to XLR cable
SA4615	Eclipse USB support stick

2.3.2 CCCAM Product

Note: CCCAM products also include control software and interface cable, see *Section 2.5*.

Part Number	Description
Eclipse Camera Control unit	Eclipse HEVC Outside Broadcast Transmitter with Camera Control (part number is dependent on the variant, see <i>Section 2.2</i>)
AP008822	Telemetry antenna SMA, 433MHz
CA0579	Audio 5-way circular to XLR cable
CA3919	CCCAM Ethernet cable
SA4615	Eclipse USB support stick

2.4 Accessory Options

If you have purchased any of these items, they will also be in the package.

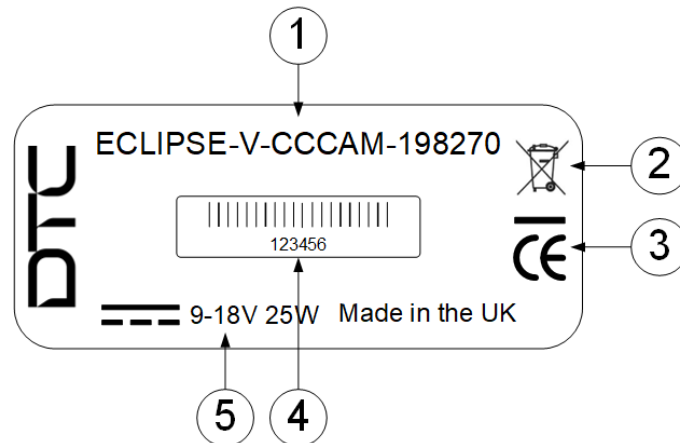
Part Number	Description
Antennas	N-type omni antenna dependent on frequency
CA0340	Data 4-way circular to 9-way D-sub cable
CA0579	Additional audio 5-way circular to XLR cable
CA3421	Power 4-way circular cable to 15V 90W PSU
CA3348	HD-BNC right-angle to BNC cable
CA3552	HD-BNC straight to BNC cable
ECLIPSE-KIT-AB	AB mount camera and battery plate kit
ECLIPSE-KIT-V	V mount camera and battery plate kit

2.5 Camera Control Options

Camera control units can be integrated into the Eclipse assembly at DTC on order.

Part Number	Description
ECLIPSE-VS-CCCAM-ARRI-UP	Arri control software with cable
ECLIPSE-VS-CCCAM-GVLDX-UP	Grass Valley control software with LDX cable
ECLIPSE-VS-CCCAM-GVLDXC-UP	Grass Valley control software with LDX compact cable
ECLIPSE-VS-CCCAM-HIT-UP	Hitachi control software with cable
ECLIPSE-VS-CCCAM-IKE-UP	Ikegami control software with cable
ECLIPSE-VS-CCCAM-PAN-UP	Panasonic control software with cable
ECLIPSE-VS-CCCAM-SON-UP	Sony control software with cable

2.6 Product Label



No.	Description
1	Part number: the variant explained above, <i>Section 2.2</i> .
2	This symbol indicates that the unit should be disposed of in accordance with the WEEE Directive.
3	The CE mark certifies that a product has met EU consumer safety, health, and environmental requirements.
4	A barcoded, six-digit serial number to identify the enclosure. This may be required during a support call.
5	Power requirements.

2.7 Licensing Options

Some product functions are enabled by licenses. Licenses can be viewed in the control software.

Part Number	Description
Silver (base license)	DVB-T Modulation, UML Modulation, Streaming, HD-H.264 and HD H.265 Encoder
ECLIPSE-GOLD	Silver plus 4K UHD Encoder and 4 x HD Video Services
LIC-DP-TX	Dual Pedestal Modulation

3. Connections, Controls, and Indicators

3.1 Introduction

This chapter will help identify all the connections and interfaces needed to install, control, and monitor the Eclipse transmitter.

CAUTION: Precautions may need to be taken to avoid burns when operating the Eclipse in high ambient temperatures due to excessive heat from the unit metalwork.

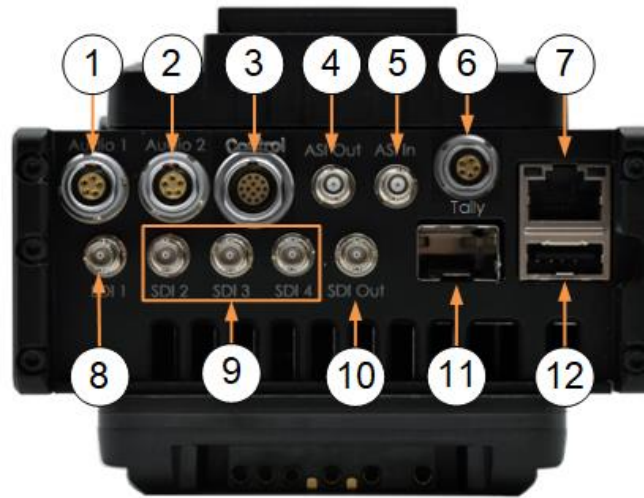
3.2 Antenna Panel



Figure 3-1: Eclipse Single Band (left) and Dual Band (right) Variants

No.	Item	Connection
1	N-type jack (f)	RF antenna B connector. Note: 1.98-2.70GHz for dual band variant.
2	N-type jack (f)	RF antenna A connector. Note: 1.98-2.70GHz for dual band variant.
3	LED	Red = power applied; RF power off. Green = RF power on.
4	SMA jack (f)	CCCAM telemetry antenna connector. Connect AP008822 433MHz antenna supplied with CCCAM option.
5	N-type jack (f)	RF antenna C connector – 6.40-7.50GHz. Note: Dual band variant only.

3.3 Interface Panel



Note: Pinout where relevant is provided in *Section 3.8*.

No.	Item	Connection
1	5-way circular (f)	Channel 1 balanced left and right audio input with switchable 12V/48V phantom power.
2	5-way circular (f)	Channel 2 balanced left and right audio input with switchable 12V/48V phantom power.
3	14-way circular (f)	Camera control data/Ethernet connection. Connect to the camera using the camera specific data cable or connect CA3919 Ethernet cable to a PC for WUI control. Note: This is a component of the optional camera control module, this will not be fitted if it has not been purchased.
4	High density BNC (f)	ASI video output.
5	High density BNC (f)	ASI video input (not enabled).
6	5-way circular (f)	Tally light connection. Note: This is a component of the optional camera control module, this will not be fitted if it has not been purchased.
7	RJ45 jack	Ethernet connection for WUI control and IP streaming.
8	High density BNC (f)	SDI input 1. 12G-SDI, 6G-SDI, 3G-SDI or 1.5G-SDI video.
9	High density BNC (f)	SDI input 2-4. 3G-SDI or 1.5G-SDI video.
10	High density BNC (f)	SDI monitor output (not enabled).
11	SFP+ cage	3G-SDI or 1.5G-SDI video (not enabled).
12	USB type A jack	The USB port can be used for firmware upgrades and configuration upload/download via a USB stick. It also allows 4G dongles, see below.

Supported 4G Dongles

- Verizon MiFi USB620L 4G (USA)
- E3372s-153 (pid 157d)
- E3372h-153 (pid 1f01)
- E3372-320

3.4 OLED Display Panel



Note: For details of operation and button functions refer to *Chapter 6*.

No.	Item	Connection
1	Push pad buttons	Six control buttons for navigation and selection of the OLED display functions.
2	OLED display	A sunlight readable display covering all major functions.

3.5 Power and Data Panel



Note: Pinout is provided in *Section 3.8*.

Note: The connectors are keyway protected to prevent incorrect mating.

No.	Item	Connection
1	4-way circular (f)	RS-232 data interface.
2	4-way circular (f)	DC power input – 10V to 18V.

3.6 Battery Plate

The battery plate mates the battery to the Eclipse to provide power.

The Eclipse may be supplied with AB or V mount battery fitting. Battery/camera plate kits are available to change the battery fitting, see options in *Section 2.4*.

The battery release is indicated by the orange circle in the illustration below.



Figure 3-2: Eclipse with V Mount Battery Plate

Note Please read *Section 4.3* if switching to an external power source.

3.7 Camera Plate

The camera plate mates the Eclipse to the camera to provide power to the camera via the Eclipse.

The Eclipse may be supplied with AB or V mount camera fitting. Battery/camera plate kits are available to change the camera fitting, see options in *Section 2.4*.



Figure 3-3: Eclipse with V Mount Camera Plate

3.8 Pinout

3.8.1 Power

4-way circular – Lemo EEG.0B.304.CLL or ODU GK0L0C_P04LFG0-0000

Pin	Function
1	VIN
2	VIN
3	GND
4	GND

3.8.2 Data

4-way circular – Lemo EEA.0B.304.CLL

Pin	Function
1	RS232 DATA TX
2	RS232 DATA RX
3	EXT PWR (battery voltage)
4	GND

3.8.3 Audio 1 and Audio 2

5-way circular – Lemo EEA.0B.305.CLL or ODU GK0LAC_P05LFG0-0000

Pin	Function
1	AUD_IN_L+
2	AUD_IN_L-
3	GND
4	AUD_IN_R+
5	AUD_IN_R-

3.8.4 Camera Control (CCCAM option)

14-way circular– ODU GK1L0C-P14LCC0-0000

Pin	Function
1	ETH TX+
2	ETH TX-
3	ETH RX+
4	ETH RX-
5	RS422/RS485 RX+
6	RS422/RS485 RX-
7	RS422/RS485 TX+
8	RS422/RS485 TX-
9	GND
10	RS232 TX
11	RS232 RX
12	GND
13	N/C
14	N/C

3.8.5 Tally (CCCAM option)

5-way circular – Lemo EGG.0B.305.CLL

Pin	Function
1	GND
2	VBATT Out
3	RED
4	GREEN
5	N/C

4. Getting Started

4.1 Introduction

This chapter will help the user power up and communicate with the Eclipse HEVC Outside Broadcast Transmitter. It will explain software installation instructions for any relevant applications and provide a basic set up guide.

4.2 USB Support Stick

The supplied USB support stick contents will provide you with all the user guides and applications needed to operate an Eclipse.

1. Plug the USB stick into the USB port of your PC.
2. The USB stick device drivers will load the first time you plug it in to your PC. Wait for the drivers to load successfully, you should see the progress in the bottom right of your PC screen.
3. Once they have loaded, a USB drive will have been created. Open Windows Explorer and you will be able to view the USB stick contents.

4.3 Power

The Eclipse will boot up the moment the power supply is connected. Power can be supplied in two ways:

- Via a battery – AB or V mount depending on the device battery plate
- Via 9.2–17.8VDC input to the 4-way circular power connector on the bottom panel

Note: Power will not switch reliably between the DC supply and battery or vice versa. It is recommended that a reboot of the device is carried out if switching power sources.

CAUTION: Precautions may need to be taken to avoid burns when operating the Eclipse in high ambient temperatures due to excessive heat from the unit metalwork.

4.4 Node Finder Application

4.4.1 Introduction

Our devices are shipped to you with the IP address DHCP setting enabled. This means that if the product is connected to a network that is administered by a DHCP server, the IP address will be automatically assigned.

Node Finder can be used to identify all DTC device IP addresses connected on a network and make changes to IP settings if not connected to a DHCP server.

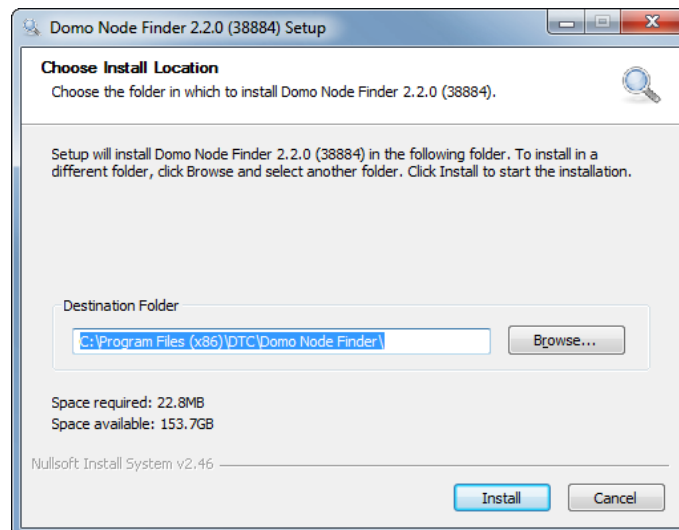
Node Finder can be found on the supplied USB stick or downloaded from DTC's WatchDox facility, see *Section 10.1* for details.

Note: If you are using a standalone PC or laptop, you will also need to set the IP address of the PC. Refer to *Section 9.1* to find out how to do this.

If the DTC device is connected to a network which does **not** have a DHCP server, contact your Network Administrator for an IP address you can use.

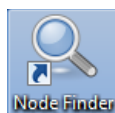
4.4.2 Install Node Finder

Double click the **Node Finder.exe** installer. The Node Finder setup window will open.



Browse to the location where you wish to install the software or leave the **Destination Folder** at default (recommended). Click the **Install** button.

On completion, **Close** the installer. A Node Finder icon will have been placed on your PC desktop.

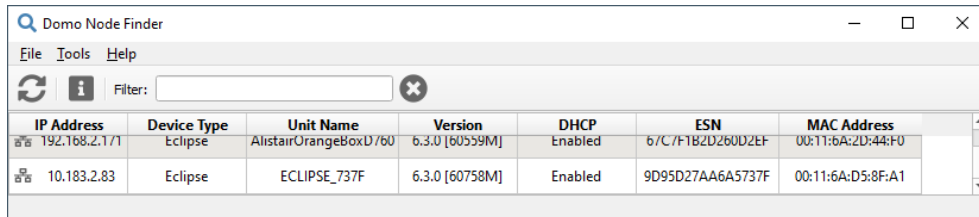


4.5 Establish the Eclipse IP Address

4.5.1 Using Node Finder

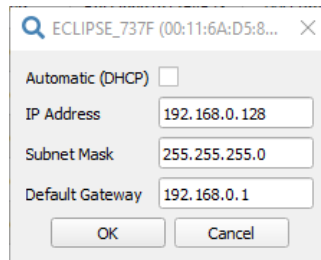
1. Power up the Eclipse and ensure there is an Ethernet connection to a network or PC.
2. Double-click the Node Finder icon from the PC desktop.
3. Find the IP address for your device from the Node Finder list. The device type will be Eclipse.

Note: If the device is not connected to a network with a DHCP server, the IP address may appear as 0.0.0.0.



IP Address	Device Type	Unit Name	Version	DHCP	ESN	MAC Address
192.168.2.1/1	Eclipse	AlistairOrangeBoxD760	6.3.0 [60559M]	Enabled	67C7F1B2D260D2EF	00:11:6A:2D:44:F0
10.183.2.83	Eclipse	ECLIPSE_737F	6.3.0 [60758M]	Enabled	9D95D27AA6A5737F	00:11:6A:D5:8F:A1

4. Right click on the IP address to reconfigure, if required:



ECLIPSE_737F (00:11:6A:D5:8...)

Automatic (DHCP)

IP Address

Subnet Mask

Default Gateway

OK Cancel

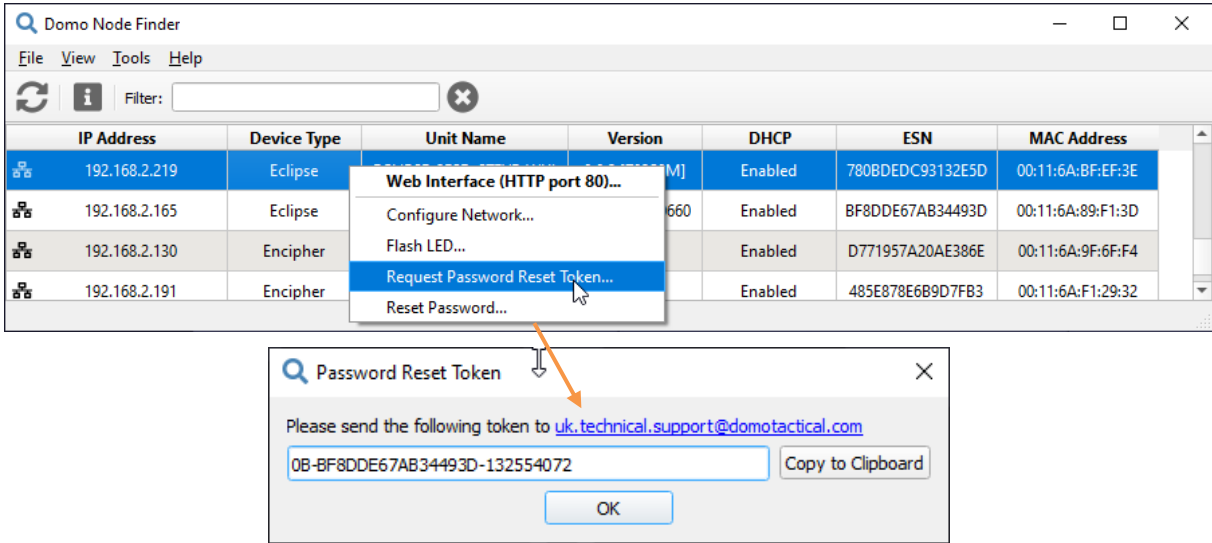
4.5.2 Using the OLED Display

It is also possible to discover the Eclipse IP address using the OLED display status in the Overview screen. See [Section 6.3](#).

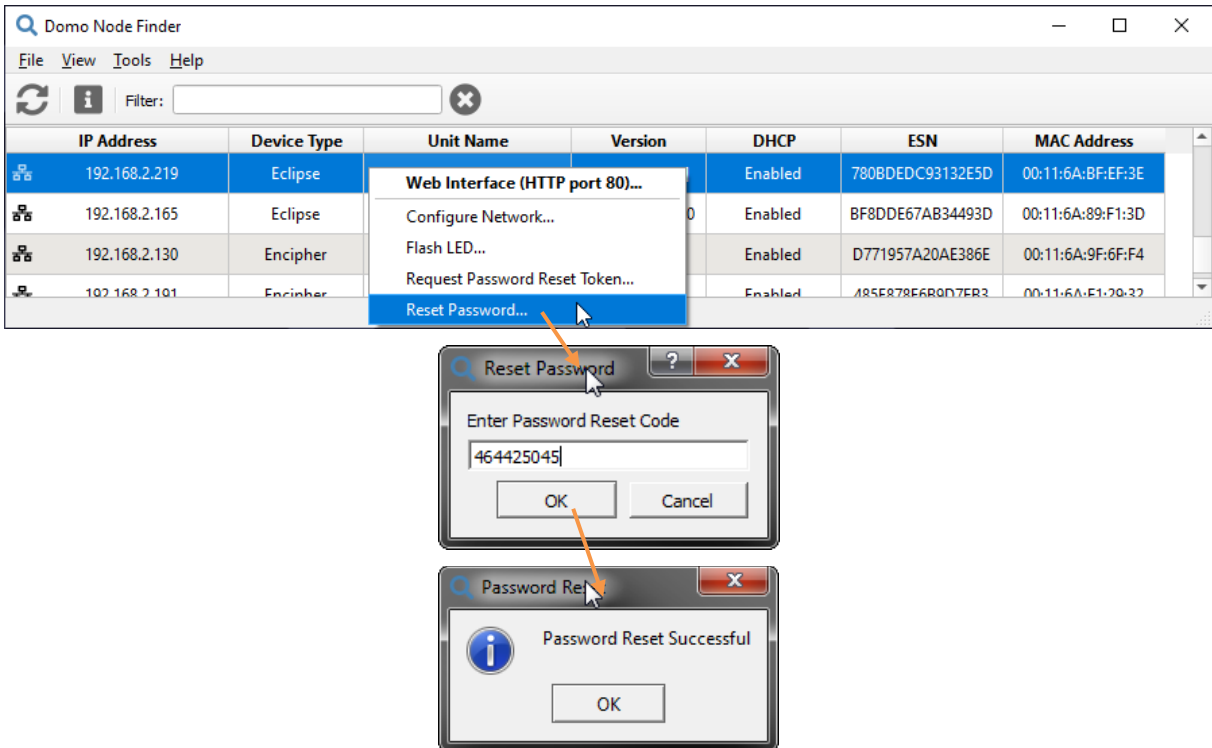
4.6 Password Reset

Users may set a password for web browser access security. If the password is forgotten and the user is locked out, Node Finder provides a means to reset the password.

Right-click on the Eclipse in Node Finder and select **Request Password Reset Token**.



If you click the link a pre-filled email will be generated to send to Technical Support. A code will be returned which needs to be entered in Node Finder **Reset Password** dialogue box.



On successful reset, the web browser application will be unlocked to the default password (**dtcweb**).

Note: You can only enter an incorrect reset code five times before a new token will need to be generated.

4.7 Web Browser Control

When the IP address is established, a web browser application will allow you to configure and monitor the Eclipse prior to deployment.

1. Open a web browser and enter the IP address of the Eclipse in the address bar.
2. An authentication dialogue box will open (appearance will depend on web browser).

A dark-themed authentication dialog box with a blue header. It contains two input fields: 'Username' and 'Password'. A blue 'Login' button is positioned at the bottom right.

3. Leave the Username blank and enter the Password as **dtcweb**.
4. Click Sign In (or OK), the web browser control application will open.

The screenshot shows a web browser window with the address bar displaying '192.168.2.218'. The page title is 'Eclipse Transmitter' and the DTC logo is in the top right. The interface has three tabs: 'Unit Status', 'Configuration', and 'Engineering'. The 'Unit Status' tab is active, showing an 'Overview' section with several data panels:

- SDI:** A table with columns 'Mode', 'Locked', and 'Cable Length'.

SDI	Mode	Locked	Cable Length
SDI 1	3G	■	Short
SDI 2	3G	■	Short
SDI 3	3G	■	Short
SDI 4	3G	■	Short
- Video:** A table with columns 'Mode', 'Locked', and 'VPID'.

Video	Mode	Locked	VPID
Video 1	1080p60	■	8A 4B 20 01
Video 2	1080p60	■	8A 4B 20 01
Video 3	1080p60	■	8A 4B 20 01
Video 4	1080p60	■	8A 4B 20 01
- RF:** A list of parameters:
 - Frequency: 2000 MHz
 - Bandwidth: 8 MHz
 - Constellation: 16-QAM
 - FEC: 1/2
 - Guard Interval: 1/32
 - Modulation Enabled: ■
- Audio:** A table with columns 'Source' and 'Pair'.

Audio	Source	Pair
Audio 1	SDI 1	G1-P1
Audio 2	SDI 1	G1-P1
Audio 3	SDI 2	G1-P1
Audio 4	SDI 2	G1-P1
Audio 5	SDI 3	G1-P1
Audio 6	SDI 3	G1-P1
Audio 7	SDI 3	G1-P1
Audio 8	SDI 3	G1-P1
- Streaming:** A text field for 'URL' containing 'udp://237.116.73.60:10000'.
- Config:** A 'Status' section showing 'Config' as ■ and 'OK'.

Note: Refer to *Chapter 5* for detailed web browser operation.

4.8 OLED Display

An integrated OLED display and control buttons are provided on the Eclipse assembly to provide field control and monitoring.

Note: Refer to *Chapter 6* for detailed OLED operation.



4.9 Quick Start

4.9.1 Overview

The following instructions are the basic web browser settings required to transmit video and audio over a COFDM RF transmission.

In this example, the Eclipse has a single channel 12G-SDI video source in the video 1 channel input and an analogue audio source connected to the audio channel 1 input.

Ensure there is web browser communications with the Eclipse.

4.9.2 Encoder Quick Start Settings

Go to the **Configuration>Encoder** tab and set Video 1 **Resolution** to **2160** and select **Enable**.

Select the Audio **Source** to match the input and set the required **Codec** and **Bitrate**. Set the Analog Audio settings to supply **Phantom Power**, if required.

Click **Apply** to activate the settings.

The screenshot displays the Eclipse Transmitter web interface for the ECLIPSE_2E5D - 2340MHz unit. The 'Encoder' tab is selected, showing settings for four video channels (Video 1-4) and eight audio channels (Audio 1-8). The 'Misc' section includes Mux Bitrate, Phantom Power, and Camera Control settings. The 'Analog Audio 1' and 'Analog Audio 2' sections show Phantom Power Enable and Analog Gain settings. The 'Apply' button is circled in red.

Channel	Enable	Resolution	Codec	Sampling	Latency	SDI Loss	HDR Mode	Bitrate	Advanced	Video PID	PCR PID	Service Name	Refresh Mode	Refresh Period
Video 1	<input checked="" type="checkbox"/>	2160p60	H.265	4:2:2 10 bit	Normal	Black	Auto	11.09 Mbps	<input type="checkbox"/>	302	8180	Cfg#1 SDI#1	Auto	120 Frames
Video 2	<input type="checkbox"/>	1080p50	H.265	4:2:2 10 bit	Normal	Black	Auto	0.00 Mbps	<input type="checkbox"/>	303	8181	Cfg#1 SDI#2	Auto	120 Frames
Video 3	<input type="checkbox"/>	1080p50	H.265	4:2:2 10 bit	Normal	Black	Auto	0.00 Mbps	<input type="checkbox"/>	304	8182	Cfg#1 SDI#3	Auto	120 Frames
Video 4	<input type="checkbox"/>	1080p50	H.265	4:2:2 10 bit	Normal	Black	Auto	0.00 Mbps	<input type="checkbox"/>	305	8183	Cfg#1 SDI#4	Auto	120 Frames

Channel	Source	Source Pair	Audio PID	Codec	Bitrate (bps)
Audio 1	Analog 1	G1-P1	200	MPEG Layer I	256000
Audio 2	Off	G1-P1	201	MPEG Layer I	256000
Audio 3	Off	G1-P1	202	MPEG Layer I	256000
Audio 4	Off	G1-P1	203	MPEG Layer I	256000
Audio 5	Off	G1-P1	204	MPEG Layer I	256000
Audio 6	Off	G1-P1	205	MPEG Layer I	256000
Audio 7	Off	G1-P1	206	MPEG Layer I	256000
Audio 8	Off	G1-P1	207	MPEG Layer I	256000

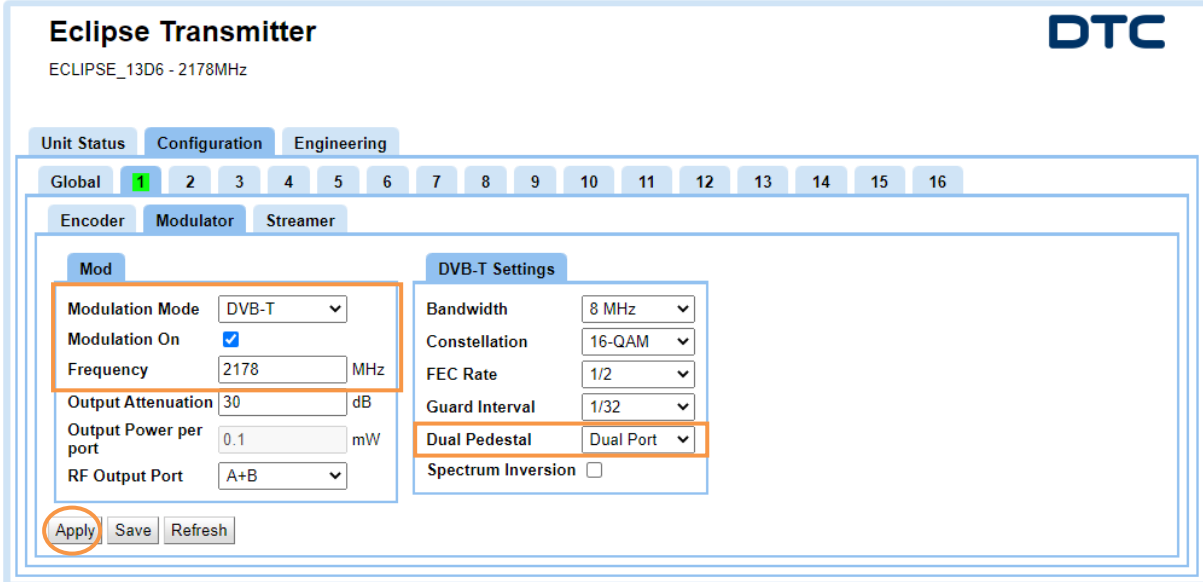
Section	Parameter	Value
Misc	Mux Bitrate	12.06 Mbps
	Phantom Power	12V
	Camera Control PID	250
Analog Audio 1	Phantom Power Enable	<input checked="" type="checkbox"/> Left, <input checked="" type="checkbox"/> Right
	Analog Gain	0 dB (Left), 0 dB (Right)
Analog Audio 2	Phantom Power Enable	<input type="checkbox"/> Left, <input type="checkbox"/> Right
	Analog Gain	0 dB (Left), 0 dB (Right)

4.9.3 Modulator Quick Start Settings

Go to the **Configuration>Modulator** tab and select the required **Modulation Mode**, the **Frequency** to the transmit frequency in MHz and set **Modulation On**.

For sufficient bandwidth to transmit full 4K video, the **Dual Pedestal** setting must be set to **Dual Port**.

Click **Apply** to activate the settings.



Note: The Modulation settings will have to be precisely matched in the receiver demodulator to achieve RF lock.

5. Web Browser Operation

5.1 Introduction

A web browser application can be used to set up pre-deployment configurations, monitor status, and provide information on software and licensing.

This chapter explains web browser operation covering each parameter. It will help you understand how to operate the Eclipse and to optimise performance.

5.2 Unit Status>Overview Tab

The **Overview** tab provides status information. The displayed information will depend on what functions have been configured.


Where URLs are given, they can be copied into a media player. A triple mouse-click will quickly select the URL.

The VPID (Video Payload ID) conforms to SMPTE ST352.

When a firmware upgrade is performed, a restore to defaults must be carried out. The Config status will indicate red if this has not been done.

Eclipse Transmitter

ECLIPSE_493D - 2000MHz



Unit Status
Configuration
Engineering

Overview

SDI

	Mode	Locked	Cable Length
SDI 1	3G	■	Short
SDI 2	3G	■	Short
SDI 3	3G	■	Short
SDI 4	3G	■	Short

Video

	Mode	Locked	VPID
Video 1	1080p60	■	8A 4B 20 01
Video 2	1080p60	■	8A 4B 20 01
Video 3	1080p60	■	8A 4B 20 01
Video 4	1080p60	■	8A 4B 20 01

RF

Frequency	2000 MHz
Bandwidth	8 MHz
Constellation	16-QAM
FEC	1/2
Guard Interval	1/32
Modulation Enabled	■

Streaming

URL	udp://237.116.73.60:10000
-----	---------------------------

Config

Status	
Config	■ OK

Audio



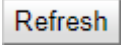
	Source	Pair
Audio 1	SDI 1	G1-P1
Audio 2	SDI 1	G1-P1
Audio 3	SDI 2	G1-P1
Audio 4	SDI 2	G1-P1
Audio 5	SDI 3	G1-P1
Audio 6	SDI 3	G1-P1
Audio 7	SDI 3	G1-P1
Audio 8	SDI 3	G1-P1

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Commercial in Confidence

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5.3 Apply, Save and Refresh Buttons

The Configuration tabs will allow you to make changes to settings.

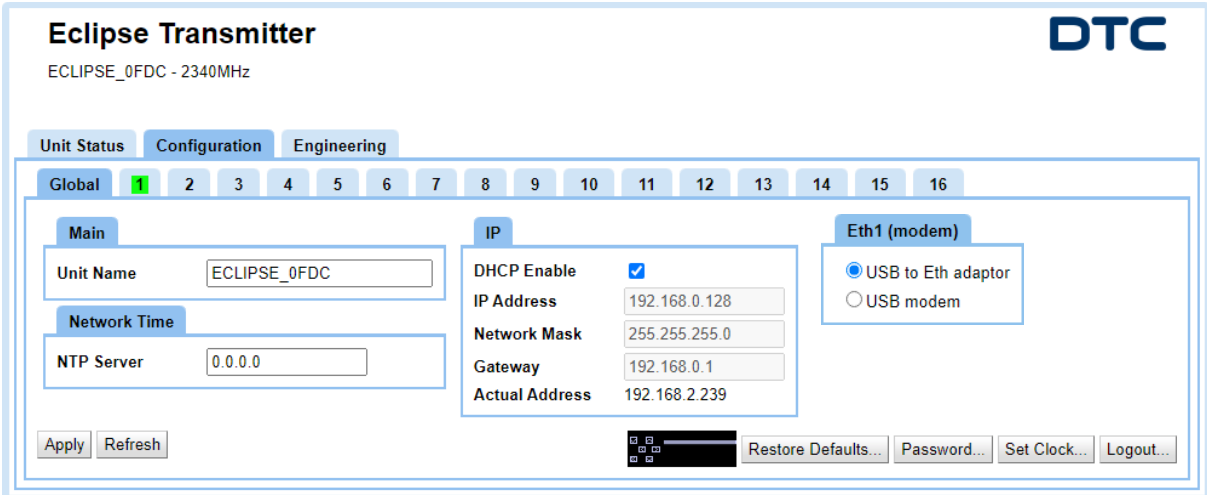
Item	Description
	The Apply button will save changes and make the selected preset configuration active (you will notice the number highlighted green).
	The Save button will save changes but not make the preset active.
	The Refresh button will update the browser settings to their current status.

5.4 Configuration>Global Tab

Global settings are applied to the device and for all preset configurations.

When changes are made, you must click **Apply** to make the settings active.

Note: The **Eth1 (modem)** window will only appear when a USB dongle has been attached. Eclipse supports Wi-Fi dongles, 4G dongles and USB to Ethernet adaptors.



Eclipse Transmitter
ECLIPSE_0FDC - 2340MHz

Unit Status Configuration Engineering

Global 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Main

Unit Name

Network Time

NTP Server

IP

DHCP Enable

IP Address


Network Mask

Gateway

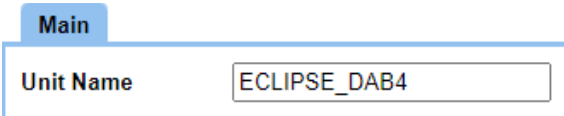
Actual Address

Eth1 (modem)

USB to Eth adaptor
 USB modem

Apply Refresh  Restore Defaults... Password... Set Clock... Logout...

5.4.1 Main

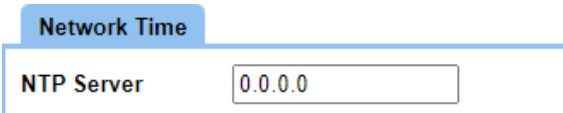


Main

Unit Name

The Unit Name is a user defined name to identify the Eclipse. This will help identify the device on Node Finder.

5.4.2 Network Time



Network Time

NTP Server

Enter an NTP (Network Time Protocol) server IP address for clock synchronization to UTC time. The time can be verified in the **Engineering>Information** tab.

The default address is 0.0.0.0, in this condition there is no NTP server synchronization, and the clock will align to the PC time.

5.4.3 IP

IP

DHCP Enable	<input checked="" type="checkbox"/>
IP Address	<input type="text" value="192.168.0.128"/>
Network Mask	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text" value="192.168.0.1"/>
Actual Address	192.168.2.223

Parameter	Description
DHCP Enable	If selected, a DHCP server on the network will allocate the Eclipse its IP address. If not selected, the remaining IP settings will need to be configured.
IP Address	If the Eclipse is not automatically acquiring its IP address through a DHCP server then a fixed IP address needs to be assigned to the unit.
Network Mask	The network mask divides a network into smaller subnets.
Gateway	A gateway is a device that facilitates connections between networks. This can be set when an IP packet's destination address lies outside the local subnet.
Actual Address	Information only. This is the IP address that has been set for the Eclipse.

5.4.4 Eth (modem)

Eth1 (modem)

	<input type="radio"/> USB to Eth adaptor <input checked="" type="radio"/> USB modem
Stream on Eth1	<input type="checkbox"/>
Local IP Address	<input type="text" value="192.168.8.2"/>
Local Network Mask	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text" value="192.168.8.1"/>

When dongles are inserted into the USB port, an **Eth (modem)** pane will appear in the **Global** tab. The radio buttons let you select the device type.

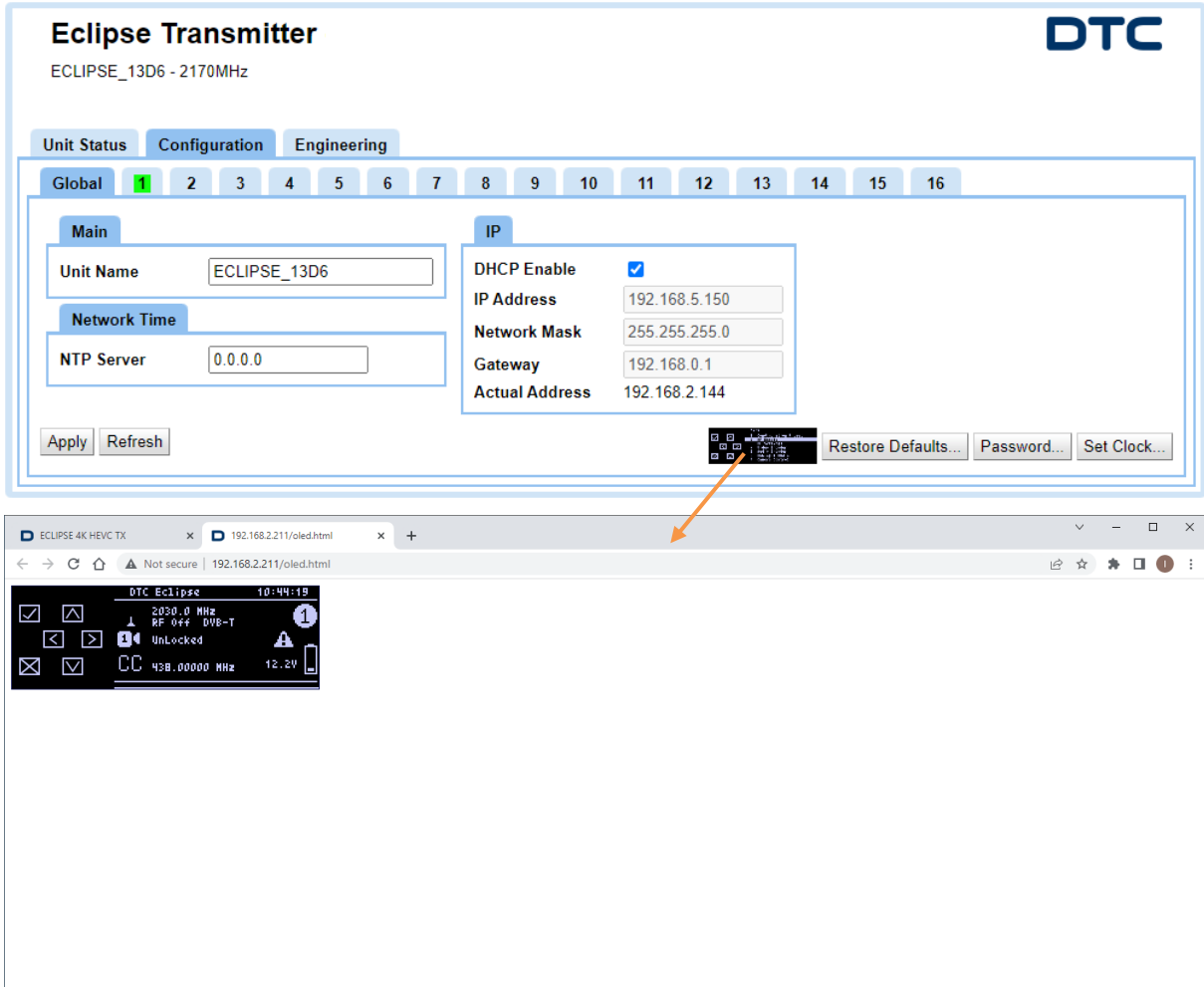
When 4G dongles are inserted, select **USB modem**. 4G dongles that are currently supported are described in *Section 3.3*.

Parameter	Description
Stream on Eth1	When this is set, this will allow you to stream over a 4G network.
Local IP Address	This is the IP address of the 4G dongle.
Local Network Mask	This is the network mask of the 4G dongle.
Gateway	This is the gateway address for the 4G dongle.

5.4.5 OLED Display Emulator

If you click on the OLED emulator, a new web browser tab will open to allow control of the Eclipse using an OLED display emulator control.

This feature may be particularly useful for access to Camera Control settings which otherwise would require an additional cable and web interface, see *Section 7.3*.



The emulator buttons will function as for the OLED display, see *Section 6.2*. They can be operated in the following ways:

- The **enter** button can be activated by a mouse click on the tick (✓) or Enter on a keyboard
- The **cancel** button can be activated by a mouse click on the cross (x) or Esc on a keyboard
- The **arrow** keys can be activated by a mouse click on the arrows (↑↓<>) or the arrows on a keyboard

5.4.6 Restore Defaults

Restore Defaults...

When you click on the **Restore Defaults** button, a dialogue box opens.



The dialog box titled "Restore Defaults" contains the following buttons:

- Restore Configs
- Restore Globals
- Restore Configs and Globals
- Restore IP, Configs and Globals
- Cancel

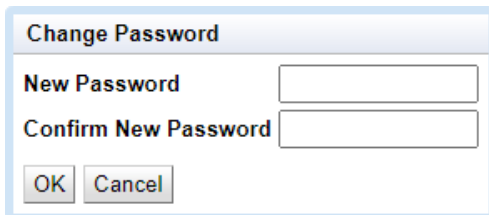
Item	Description
Restore Configs	Restores all preset configurations to default conditions. The Global settings, IP settings and unit name will be retained.
Restore Globals	Restores the Global settings to default conditions. The presets, IP settings and unit name will be retained.
Restore Configs and Globals	Restores Global settings and all preset configurations to default conditions. The IP settings and unit name will be retained.
Restore IP, Configs and Globals	Restores all Eclipse settings to factory default conditions.

5.4.7 Password

Password...

You can change the login password for the Eclipse. The default is **dtcweb**.

Note: If the password is forgotten and the user is locked out, see *Section 4.6* for a reset process.



The dialog box titled "Change Password" contains the following fields and buttons:

- New Password:
- Confirm New Password:
- OK
- Cancel

5.4.8 Set Clock

Set Clock...

Sets the internal clock reference to UTC time.

5.4.9 Logout

Logout...

The logout button will end the WUI session and return to the login page.

5.5 Configuration>Encoder Tab

There are up to sixteen different preset configurations that can be setup. The active preset is highlighted with a green background to denote that it is active.

Eclipse Transmitter
ECLIPSE_2E5D - 2340MHz

Unit Status | **Configuration** | Engineering

Global | **1** | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

Encoder | Modulator | Streamer

Video 1

Enable
Resolution 2160p60
Codec H.265
Sampling 4:2:2 10 bit
Latency Normal
SDI Loss Black
HDR Mode Auto
Bitrate 11.09 Mbps
Advanced
Video PID 302
PCR PID 8180
Service Name Cfg#1 SDI#1
Refresh Mode Auto
Refresh Period 120 Frames

Video 2

Enable
Resolution 1080p50
Codec H.265
Sampling 4:2:2 10 bit
Latency Normal
SDI Loss Black
HDR Mode Auto
Bitrate 0.00 Mbps
Advanced
Video PID 303
PCR PID 8181
Service Name Cfg#1 SDI#2
Refresh Mode Auto
Refresh Period 120 Frames

Video 3

Enable
Resolution 1080p50
Codec H.265
Sampling 4:2:2 10 bit
Latency Normal
SDI Loss Black
HDR Mode Auto
Bitrate 0.00 Mbps
Advanced
Video PID 304
PCR PID 8182
Service Name Cfg#1 SDI#3
Refresh Mode Auto
Refresh Period 120 Frames

Video 4

Enable
Resolution 1080p50
Codec H.265
Sampling 4:2:2 10 bit
Latency Normal
SDI Loss Black
HDR Mode Auto
Bitrate 0.00 Mbps
Advanced
Video PID 305
PCR PID 8183
Service Name Cfg#1 SDI#4
Refresh Mode Auto
Refresh Period 120 Frames

Audio 1

Source SDI 1
Source Pair G1-P1
Audio PID 200
Codec MPEG Layer I
Bitrate (bps) 256000

Audio 2

Source Off
Source Pair G1-P1
Audio PID 201
Codec MPEG Layer I
Bitrate (bps) 256000

Audio 3

Source Off
Source Pair G1-P1
Audio PID 202
Codec MPEG Layer I
Bitrate (bps) 256000

Audio 4

Source Off
Source Pair G1-P1
Audio PID 203
Codec MPEG Layer I
Bitrate (bps) 256000

Audio 5

Source Off
Source Pair G1-P1
Audio PID 204
Codec MPEG Layer I
Bitrate (bps) 256000

Audio 6

Source Off
Source Pair G1-P1
Audio PID 205
Codec MPEG Layer I
Bitrate (bps) 256000

Audio 7

Source Off
Source Pair G1-P1
Audio PID 206
Codec MPEG Layer I
Bitrate (bps) 256000

Audio 8

Source Off
Source Pair G1-P1
Audio PID 207
Codec MPEG Layer I
Bitrate (bps) 256000

Misc

Mux Bitrate 12.06 Mbps
Phantom Power 12V
Camera Control PID 250
Camera Control Enable

Analog Audio 1

Phantom Power Enable Left Right
Analog Gain Left 0 dB Right 0 dB

Analog Audio 2

Phantom Power Enable Left Right
Analog Gain Left 0 dB Right 0 dB

Apply Save Refresh

5.5.1 Video

Four video inputs can be configured.

Video 1

Enable	<input checked="" type="checkbox"/>
Resolution	<input type="text" value="2160p60"/>
Codec	<input type="text" value="H.265"/>
Sampling	<input type="text" value="4:2:2 10 bit"/>
Latency	<input type="text" value="Normal"/>
SDI Loss	<input type="text" value="Black"/>
HDR Mode	<input type="text" value="Auto"/>
Bitrate	<input type="text" value="11.09"/> Mbps
Advanced	<input checked="" type="checkbox"/>
Video PID	<input type="text" value="302"/>
PCR PID	<input type="text" value="8180"/>
Service Name	<input type="text" value="Cfg#1 SDI#1"/>
Refresh Mode	<input type="text" value="Auto"/>
Refresh Period	<input type="text" value="120"/> Frames

Property	Description
Enable	Set this to enable the video content in the COFDM transmission.
Resolution	<p>SDI video resolutions are defined in <i>Section 9.3</i>.</p> <p>Video 1 supports resolutions for 12G/6G/3G/1.5G-SDI.</p> <p>Video 2-4 supports resolutions for 3G/1.5G-SDI.</p> <p>Video 2 supports deinterlacing for H.264 encoding.</p> <p>Video 4 supports 1080psf resolutions.</p> <p>Square Division (SQD) formats require four 3G-SDI or 1.5G-SDI inputs (1-4) containing one quarter of the original image.</p> <p>2 Sample Interleave (2SI) formats require four 3G-SDI or 1.5G-SDI inputs (1-4) containing a full image at 1/4 resolution.</p>
Codec	<p>H.265 and H.264 video compression codecs.</p> <p>Please ensure receiver compatibility.</p>
Sampling	<p>4:2:2 10 bit and 8-bit sampling are currently supported.</p> <p>Please ensure receiver compatibility.</p>
Latency	<p>High prioritises higher picture quality at the expense of latency.</p> <p>Low prioritises low latency at the expense of picture quality.</p>
SDI Loss	Select what is displayed on the screen when the video input fails.
HDR Mode	<p>This allows High Dynamic Range (HDR) video sources to be processed by the transmitter.</p> <p>Specific HDR modes may be selected if Auto fails to detect the source correctly; currently supported modes are REC 2020, HLG and PQ. This can be monitored on a compatible receiver.</p>

Property	Description
Bitrate	The bitrate is set automatically. This is the bitrate allocation for the video content.
Advanced	Select this box to allow the advanced settings below to be edited.
Video PID	The packet ID for the video content in the transport stream service information.
PCR PID	The packet ID for the PCR in the transport stream service information. The PCR (Program Clock Reference) is used to sync the audio and video.
Service Name	A name to identify the service in the transport stream.
Refresh Mode	Auto, Vertical or Horizontal . If Disabled , the picture may not recover if the RF or video signal is lost.
Refresh Period	The video refresh period in frames; minimum of 5. Note: Picture quality may be adversely for low refresh periods.

5.5.2 Audio

Up to eight audio inputs can be added to the transport stream.

Audio 1

Source

Source Pair

Audio PID

Codec

Bitrate (kbps)

Property	Description
Source	If an Analog input is selected, the gain and phantom power settings may need to be entered, see <i>Section 5.5.4</i> . Embedded digital audio is included in the SDI video input.
Source Pair	SDI provides for 16 channels (8 pairs) of embedded audio in 4 groups (G1-G4) of 2 pairs (P1/P2).
Audio PID	The packet id for the audio content in the transport stream service information. It is recommended that this is left at the default value unless an advanced user.
Codec	Select a codec to suit operating and bandwidth requirements. MPEG is compressed audio and will allow you to choose how much bitrate is used for encoding. LPCM audio is uncompressed.
Bitrate (kbps)	MPEG audio allows you to select the amount of bitrate for audio encoding.

5.5.3 Misc

Misc

Mux Bitrate	<input type="text" value="12.06"/>	Mbps
Phantom Power	<input type="text" value="12V"/>	▼
Camera Control PID	<input type="text" value="250"/>	
Camera Control Enable	<input type="checkbox"/>	

Note: The Camera Control module is an optional feature.

Property	Description
Mux Bitrate	The Mux Bitrate is the total bitrate for the multiplexed transport stream. This can also be viewed in the Unit Status>Overview tab.
Phantom Power	Select from 12V or 48V. Phantom power is used to supply power to the audio source, if required.
Camera Control PID	The packet id for the camera control content in the transport stream service information. It is recommended that this is left at the default value unless an advanced user.
Camera Control Enable	Set this to allow bi-directional data communications with the camera.

5.5.4 Analog Audio

Analog Audio 1

	Left	Right
Phantom Power Enable	<input type="checkbox"/>	<input type="checkbox"/>
Analog Gain	<input type="text" value="0"/> dB	<input type="text" value="0"/> dB

Property	Description
Phantom Power Enable	Set this to supply phantom power to the audio source. The voltage level is set in the Misc settings.
Analog gain	Gain can be applied to each channel to boost low input levels.

5.6 Configuration>Modulator Tab

There are up to sixteen different preset configurations that can be setup. The active preset is highlighted with a green background to denote that it is active.

The screenshot shows the Eclipse Transmitter configuration interface. At the top, it says "Eclipse Transmitter" and "ECLIPSE_2E5D - 2170MHz" with the DTC logo. Below this are tabs for "Unit Status", "Configuration", and "Engineering". Under "Configuration", there are 16 numbered tabs, with tab "1" highlighted in green. Below the numbered tabs are sub-tabs for "Encoder", "Modulator", and "Streamer", with "Modulator" selected. The "Modulator" tab contains two sections: "Mod" and "DVB-T Settings".

Mod		DVB-T Settings	
Modulation Mode	DVB-T	Bandwidth	8 MHz
Modulation On	<input checked="" type="checkbox"/>	Constellation	16-QAM
Frequency	2170 MHz	FEC Rate	1/2
Output Attenuation	10 dB	Guard Interval	1/32
Output Power per port	10 mW	Dual Pedestal	Off
RF Output Port	A+B	Spectrum Inversion	<input type="checkbox"/>

At the bottom of the configuration area are three buttons: "Apply", "Save", and "Refresh".

5.6.1 Mod

Mod

Modulation Mode	<input type="text" value="DVB-T"/>	▼
Modulation On	<input checked="" type="checkbox"/>	
Frequency	<input type="text" value="2170"/>	MHz
Output Attenuation	<input type="text" value="10"/>	dB
Output Power per port	<input type="text" value="10"/>	mW
RF Output Port	<input type="text" value="A+B"/>	▼

Property	Description
Modulation Mode	<p>DVB-T gives excellent data throughput but shorter range than Narrowband modes.</p> <p>NB (narrowband) gives excellent range and best use of available channel bandwidth.</p> <p>UMVL (Ultra Mobile Video Link) is optimised for operation in high-speed mobile environments. UMVL is also excellent when you are operating with high frequency (4GHz and above) transmissions.</p>
Modulation On	Set this to enable the RF COFDM output.
Frequency	This is the centre frequency of operation and must be set within the frequency range of the transmitter. See the Engineering>Information tab, see <i>Section 5.8</i> .
Output Attenuation	The level of attenuation that can be applied to the output. Refer to <i>Section 9.1</i> for a dBm to watts conversion table.
Output Power per port	Indication only. This will display the RF power on each port according to the output attenuation figure.
RF Output Port	<p>The transmitter has two RF transceiver ports or three for dual band variants.</p> <p>Select either A or B, or both A and B to improve output power by 3dB.</p> <p>Note: Dual band variants set to a C-band frequency will automatically select RF port C.</p>

5.6.2 DVB-T or NB/UMVL Settings

DVB-T Settings		NB/UMVL Settings	
Bandwidth	8 MHz	Bandwidth	8 MHz
Constellation	QPSK	Constellation	16-QAM
FEC Rate	7/8	FEC Rate	2/3
Guard Interval	1/32	Guard Interval	1/16
Dual Pedestal	Off	Spectrum Inversion	<input type="checkbox"/>
Spectrum Inversion	<input type="checkbox"/>		

Property	Description
Bandwidth	Select the bandwidth for the transmission. The wider bandwidths offer greater data throughput but with shorter range.
Constellation	<ul style="list-style-type: none"> • QPSK, BPSK and 8-PSK – less data, more robust, more range. • 16QAM – more data, less robust, less range. • 64QAM – max data, least robust, least range.
FEC Rate	<p>The forward error correction (FEC) rate. For example:</p> <ul style="list-style-type: none"> • 1/2 – 1 bit out of 2 bits is data and 1 bit is for error correction. • 7/8 – 7 bits out of 8 bits are data and 1 bit is for error correction. <p>More user data means better picture quality, but less error correction means less robust signal and thus less range.</p>
Guard Interval	<p>The guard interval is an extension of the RF symbol period to give immunity to reflections. For example:</p> <ul style="list-style-type: none"> • 1/32 – deals with fast reflections. More data, less range. • 1/4 – deals with slower reflections. Less data, more range.
Dual Pedestal (DVB-T only)	<p>Dual pedestal mode is a licensed feature which will double the bitrate by using two adjacent COFDM channels, e.g., 8MHz will give a nominal bandwidth of 16MHz.</p> <p>Single Port (A or B OR A+B) – 100mW output for both channels on a single port.</p> <p>Dual Port (A+B) – 100mW output for each channel across both ports (200mW total).</p> <p>Note: Dual port (A+B) will give the best adjacent channel performance at higher power but will produce more heat. Dual Port will also increase the bandwidth and range.</p> <p>See <i>Figure 5-1</i> and <i>Figure 5-2</i> dual pedestal images.</p>
Spectrum Inversion	<p>Set this if you needed to invert the COFDM spectrum to align with third party equipment.</p> <p>When operating with DTC products, this is not necessary.</p>

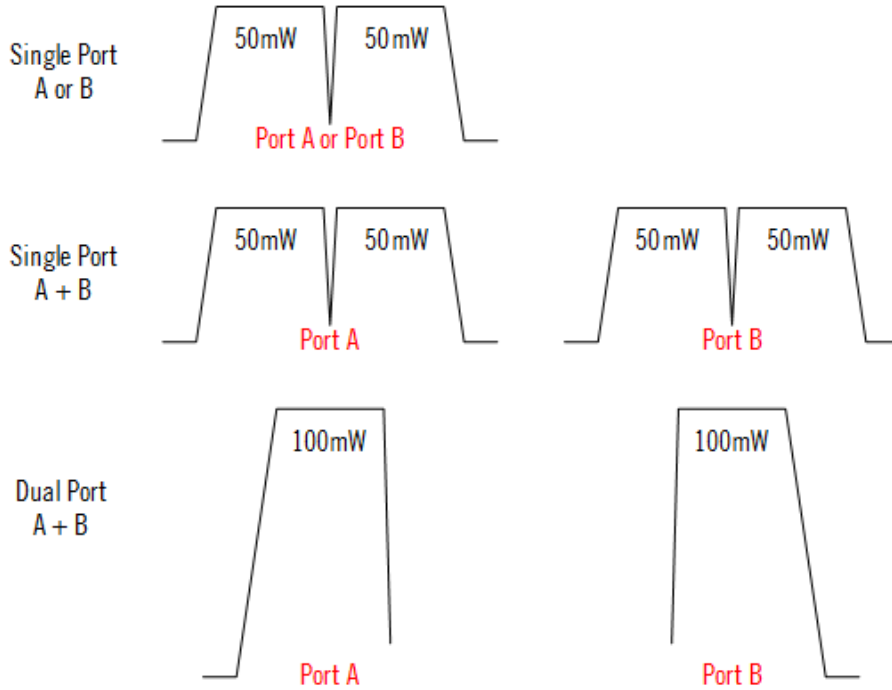


Figure 5-1: Dual Pedestal COFDM Representation

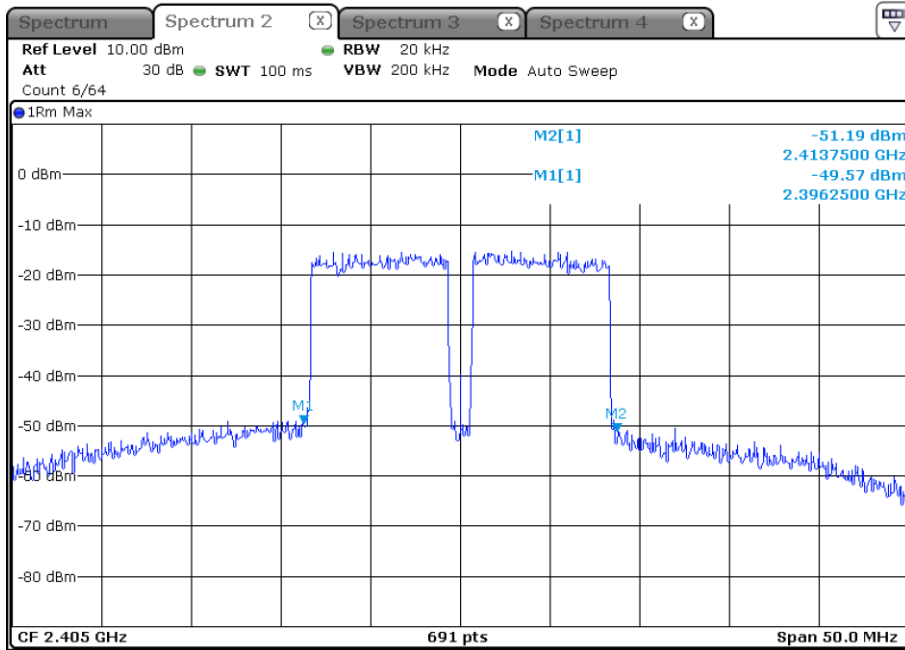



Figure 5-2: Dual Pedestal Spectrum Analyser Plot

5.7 Configuration>Streamer

There are up to sixteen different preset configurations that can be setup. The active preset is highlighted with a green background to denote that it is active.

Eclipse Transmitter

ECLIPSE_493D - 2000MHz



Unit Status
Configuration
Engineering

Global
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Encoder
Modulator
Streamer

Mux

Mux Bitrate Mbps

Streamer

Streaming Mode

Base Address

Base Port

Disable Elem Buffer

Apply
Save
Refresh

5.7.1 Mux

Mux

Mux Bitrate Mbps

The Mux Bitrate is the total bitrate for the transport stream.

5.7.2 Streamer

Streamer

Streaming Mode

Base Address

Base Port

Disable Elem Buffer

Property	Description
Streaming Mode	RTSP TCP and RTSP UDP are both unicast. RTSP TCP streaming does not have issues with firewall blocking making it more user friendly for VMS customers.
Base Address	This enables you to change the address used by the unit for multicast streaming. The default value is random to make sure different devices have different addresses.
Base Port	Port numbers in the header are used to direct traffic around the network.

Property	Description
Disable Elem Buffer	<p>Elementary streams are encoded video data that is carried within the transport stream. The elementary data will vary depending on the content.</p> <p>If unset, the elementary stream bitrate is kept constant within the transport stream.</p> <p>If set, this will disable elementary stream buffering but will ensure correct timing of video frames within the transport stream. This may be useful when playing elementary streams into media players which can struggle with fluctuating bitrate.</p>


5.8 Engineering>Information

The **Information** tab provides software and licensing information that may be useful during a service call. It includes voltage and temperature measurements of the internal PCB.

To set the system time go to the **Configuration>Global** tab, see *Section 5.4*.

Eclipse Transmitter

ECLIPSE_13D6 - 2340MHz



Unit Status

Configuration

Engineering

Information

Calibration

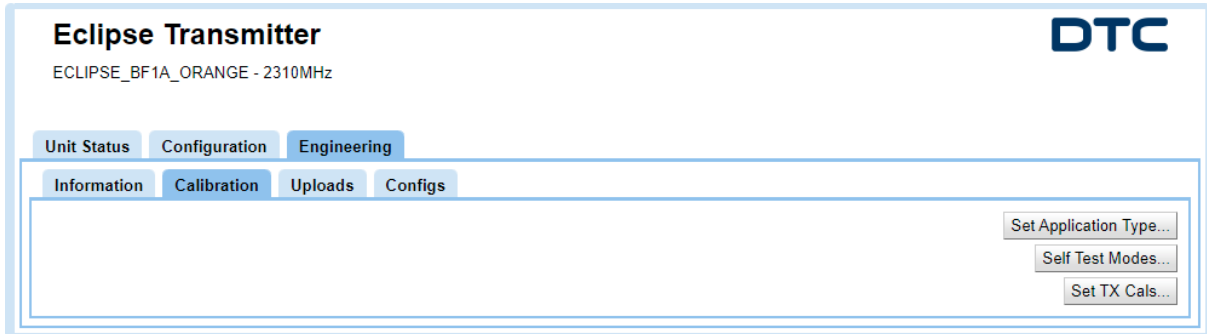
Uploads

Configs

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Board Type</td><td>D760</td></tr> <tr><td>SW Version</td><td>6.3.9</td></tr> <tr><td>SW Branch</td><td>/SDR/branches/D760_6.3.9_Itchen</td></tr> <tr><td>SVN Revision</td><td>74259</td></tr> <tr><td>Serial Number</td><td>780BDEDC93132E5D</td></tr> <tr><td>MAC Address</td><td>00:11:6A:BF:EF:3E</td></tr> <tr><td>Frequency Range</td><td>1980MHz-2700MHz</td></tr> <tr><td>Supply Voltage</td><td>12.21 V</td></tr> <tr><td>FPGA Temperature</td><td>43.0 °C</td></tr> <tr><td>System Time</td><td>2023JAN26 11:19:53 UTC</td></tr> <tr><td>UHD FPGA Temperature 1</td><td>39.0 °C</td></tr> <tr><td>UHD FPGA Temperature 2</td><td>40.0 °C</td></tr> <tr><td>Fan Speed 1 PWM</td><td>60.0 %</td></tr> <tr><td>Fan Speed 2 PWM</td><td>60.0 %</td></tr> <tr><td>Fan Temperature</td><td>41.0 °C</td></tr> <tr><td>UHD FPGA Build Date</td><td>2023 01 04 - 12:37:27</td></tr> <tr><td>Board Revision</td><td>Rev 2.1</td></tr> </table>	Board Type	D760	SW Version	6.3.9	SW Branch	/SDR/branches/D760_6.3.9_Itchen	SVN Revision	74259	Serial Number	780BDEDC93132E5D	MAC Address	00:11:6A:BF:EF:3E	Frequency Range	1980MHz-2700MHz	Supply Voltage	12.21 V	FPGA Temperature	43.0 °C	System Time	2023JAN26 11:19:53 UTC	UHD FPGA Temperature 1	39.0 °C	UHD FPGA Temperature 2	40.0 °C	Fan Speed 1 PWM	60.0 %	Fan Speed 2 PWM	60.0 %	Fan Temperature	41.0 °C	UHD FPGA Build Date	2023 01 04 - 12:37:27	Board Revision	Rev 2.1	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="vertical-align: top;">Licensable Features</td> <td> [A] SOLO 2.5MHz Modulation [B] SOLO 1.25MHz Modulation [C] SOLO 625kHz Modulation [E] UML Modulation [F] DVB-T Modulation [H] License Exempt Band Only [S] Streaming H.265 Encoder Quad Video 4K UHD Video </td> </tr> </table>	Licensable Features	[A] SOLO 2.5MHz Modulation [B] SOLO 1.25MHz Modulation [C] SOLO 625kHz Modulation [E] UML Modulation [F] DVB-T Modulation [H] License Exempt Band Only [S] Streaming H.265 Encoder Quad Video 4K UHD Video
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5.9 Engineering>Calibration Tab

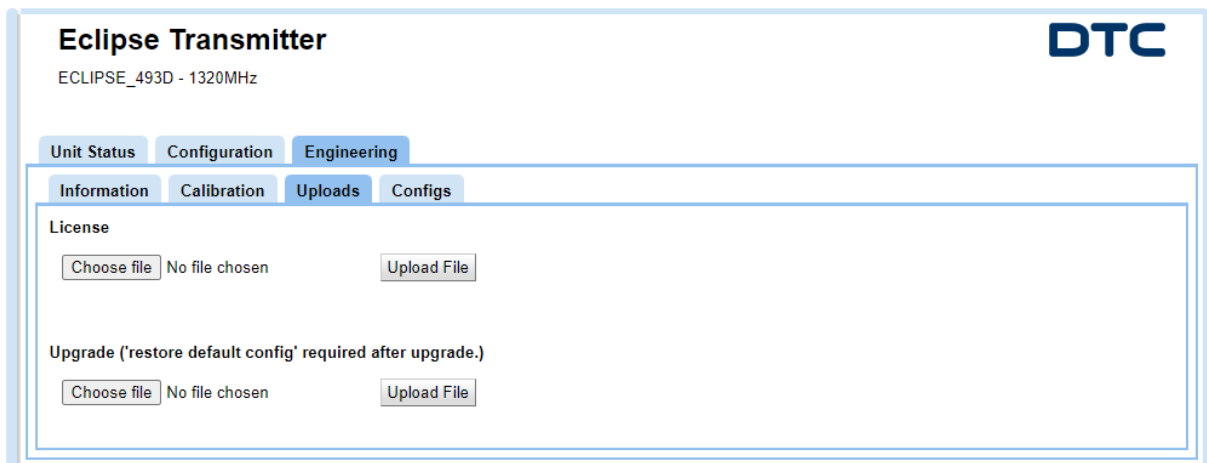
These features are password controlled and are used at DTC to configure the RF performance prior to shipment.



5.10 Engineering>Uploads

The **Uploads** tab provides the recommended method to upgrade software and licenses to a single device.

Note: Firmware upgrades can also be performed using a USB stick and the OLED. See *Section 6.4.11*.



Browse for files by clicking **Choose File** and initialise the upgrade by clicking **Upload File**.

When upgrading software, a **Please Wait - Unit Upgrading** message will be displayed for a while before the browser times out. When the upgrade is complete, the unit will reboot and the web browser can be recovered.

The new software version or licenses can be viewed in the **Engineering>Information** tab.

After upgrade, ensure a restore to defaults has been carried out in the **Configuration>Global** tab, see *Section 5.4.6*. The Config status can be viewed in the **Unit Status>Overview** tab, see *Section 5.2*.

Notes: The upgrade involves uploading the code to the SD card which then writes the code to the on-board flash. A useful way to observe this cycle is to open a command prompt (enter **cmd** in the Windows Start Menu search box) and enter a permanent ping command, the syntax for this is:

```
ping -t <Eclipse_ip_address>           e.g., ping -t 192.168.2.133
```

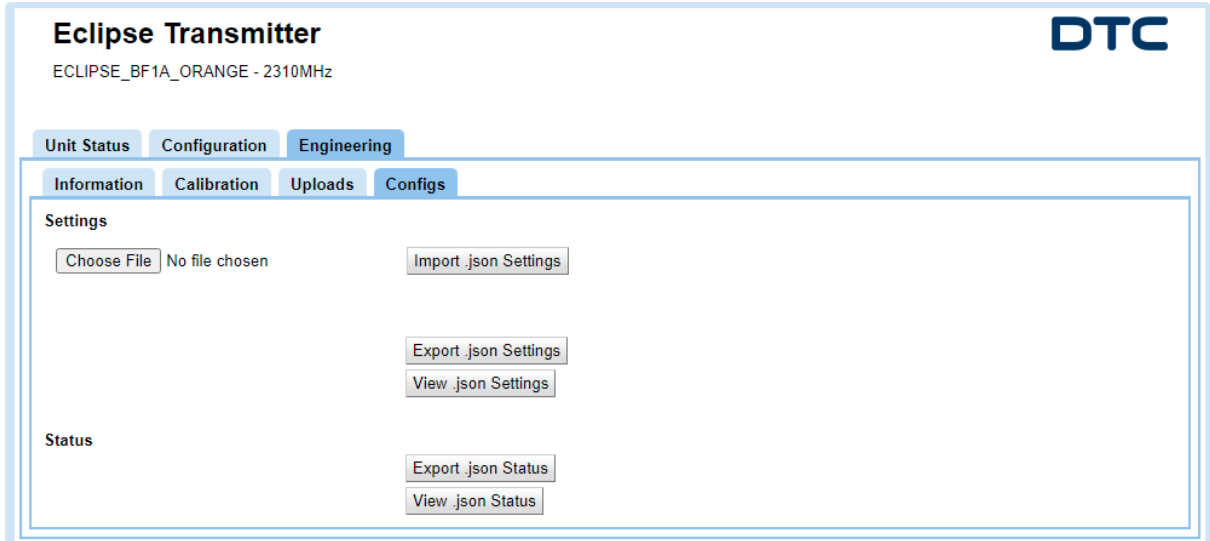
The pings will reply for a while, then time out (the write cycle), then reply again (Eclipse has rebooted).

If the Eclipse loses power during a software upgrade, the upgrade will start again when the unit is repowered.

5.11 Engineering>Configs Tab

The **Configs** tab provides an easy way to save or view JSON files for the Eclipse. Config files can be used to ensure settings are consistent across a system.

Note: Configs can also be saved and uploaded using a USB stick and the OLED. See *Section 6.4.11*.



JSON Settings

You can **Import .json Settings** which will overwrite the current settings. Click **Choose File** and browse to the location of the new JSON configuration file.

Export .json Settings will save a JSON formatted configuration file for editing or upload to other Eclipse devices.

View .json Settings will open a new tab displaying the configuration settings in JSON format.

JSON Status

Export .json Status and **View .json Status** will allow you to save or view the read only status for the Eclipse.

6. OLED Operation

6.1 Introduction

The following sections will explain in detail the OLED control buttons and display. It will detail how to navigate the OLED display and the menu structure to configure and monitor the Eclipse when an Ethernet connection is not available.

Note: If the display is not used for a period of approximately 30 seconds after boot-up, it will automatically turn off.

6.2 Control Buttons



You can scroll through, select, and save settings on the OLED display using the navigation buttons which are located adjacent to the OLED display (shown above). The button functions are:

No.	Description
1	The top left button is the enter button. If the OLED display is off, press to turn the display on. From the status screen, press to enter the configuration menus. Press to select the highlighted menu or select a parameter.
2	The bottom left button is the cancel button. From the status screen, press this button to close the OLED display. Press this button to return to the previous menu.
3	The up/down buttons will scroll through the display. When a property has been selected for editing, use the up/down arrows to select a new character or number, see the <i>Character Editing Guide</i> below.
4	When a property has been selected for editing, use the left/right buttons to select a character or number to be changed.
5	If an invalid selection is pressed, a button help image will pop-up momentarily, indicating the valid options.

Character Editing Guide

When editing characters with the up/down buttons, it may be useful to know the order in which characters can be selected:

Space	,	8	D	P	\	h	t
!	-	9	E	Q] ^	i	u
"	.	:	F	R	^	j	v
#	/	;	G	S	`	k	w
\$	0	<	H	T	a	l	x
%	1	=	I	U	b	m	y
&	2	>	J	V	c	n	z
'	3	?	K	W	d	o	}
(4	@	L	X	e	p	
)	5	A	M	Y	f	q	{
*	6	B	N	Z	g	r	~
+	7	C	O	[s	

6.3 OLED Status

When the Eclipse has booted up, the OLED will display status overview.

Note: If a camera control module is not fitted, the IP address will be displayed where the CC frequency is shown.



Press the up/down arrow buttons to scroll through the status pages. The status pages are categorized:

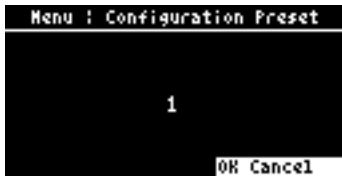
- SDI Input
- SDI Cable Length
- SDI Decoder (VPID)
- Video Encoder
- Audio Source
- Audio Codec (1-4 / 5-8)
- Modulation
- RF
- Camera Control
- License RF
- License Encoder
- Misc Status
- Engineering Overview (includes current IP address)

6.4 OLED Configuration Menus

From the status menu, press the enter button once to enter the Eclipse configuration menus.



6.4.1 Configuration Preset



Menu	Notes
Configuration Preset	Select a preset from 1-16. This will apply the settings for the selected preset.

6.4.2 RF Enable



Menu	Notes
RF Enable	Set RF power on or off.

6.4.3 RF Settings

```

Menu : RF Settings
1 Modulation
2 Frequency
3 Output Attenuation
4 RF Output Port
5 Bandwidth
6 Constellation
7 FEC Rate

```

Menu	Sub-Menu	Notes
RF Settings	Modulation	As for WUI, see <i>Section 5.6.1</i> .
	Frequency	As for WUI, see <i>Section 5.6.1</i> .
	Output Attenuation	As for WUI, see <i>Section 5.6.1</i> .
	RF Output Port	As for WUI, see <i>Section 5.6.1</i> .
	Bandwidth	As for WUI, see <i>Section 5.6.2</i> .
	Constellation	As for WUI, see <i>Section 5.6.2</i> .
	FEC Rate	As for WUI, see <i>Section 5.6.2</i> .
	Guard Interval	As for WUI, see <i>Section 5.6.2</i> .
	Dual Pedestal	As for WUI, see <i>Section 5.6.2</i> .
	Spectrum Inversion	As for WUI, see <i>Section 5.6.2</i> .

6.4.4 Video Encoder

```

Menu : Enc! setting !
1 Resolution
2 Codec
3 Latency
4 Loss of Video
5 HDR Mode
6 Service Name

```

Menu	Sub-Menu	Notes
Video Encoder	Resolution (SDI1-4)	As for WUI, see <i>Section 5.5.1</i> .
	Codec (SDI1-4)	As for WUI, see <i>Section 5.5.1</i> .
	Sampling (SDI1-4)	As for WUI, see <i>Section 5.5.1</i> .
	Latency (SDI1-4)	As for WUI, see <i>Section 5.5.1</i> .
	Loss of Video	As for WUI, see <i>Section 5.5.1</i> .
	HDR Mode	As for WUI, see <i>Section 5.5.1</i> .
	Service Name (SDI1-4)	As for WUI, see <i>Section 5.5.1</i> .

6.4.5 Audio Encoder

```

Menu : Aud : Encoder
1 Audio 1
2 Audio 2
3 Audio 3
4 Audio 4
5 Audio 5
6 Audio 6
7 Audio 7

```

Menu	Sub-Menu 1	Sub-Menu 2	Notes
Audio Encoder	Audio (1-8)	Source	As for WUI, see <i>Section 5.5.2</i> .
		SDI Pair	As for WUI, see <i>Section 5.5.2</i> .
		Codec	As for WUI, see <i>Section 5.5.2</i> .
		Bitrate	As for WUI, see <i>Section 5.5.2</i> .

6.4.6 Analogue Audio

```

Menu : Analogue Audio
1 Phantom Power Voltage
2 A1 Left Phantom Enable
3 A1 Right Phantom Enable
4 A2 Left Phantom Enable
5 A2 Right Phantom Enable
6 A1 Left Gain
7 A1 Right Gain

```

Menu	Sub-Menu	Notes
Analogue Audio	Phantom Power Voltage	As for WUI, see <i>Section 5.5.3</i> .
	A1 Left Phantom Power Enable	As for WUI, see <i>Section 5.5.4</i> .
	A1 Right Phantom Power Enable	As for WUI, see <i>Section 5.5.4</i> .
	A2 Left Phantom Power Enable	As for WUI, see <i>Section 5.5.4</i> .
	A2 Right Phantom Power Enable	As for WUI, see <i>Section 5.5.4</i> .
	A1 Left Gain	As for WUI, see <i>Section 5.5.4</i> .
	A1 Right Gain	As for WUI, see <i>Section 5.5.4</i> .
	A2 Left Gain	As for WUI, see <i>Section 5.5.4</i> .
A2 Right Gain	As for WUI, see <i>Section 5.5.4</i> .	

6.4.7 Camera Control (Option)

Camera Control	
1	Control Frequency
2	Control Frequency 2
3	Camera Number
4	Camera Type
5	IP Address
6	IP Netmask
7	IP Gateway

Menu	Sub-Menu	Notes
Camera Control	Control Frequency	Telemetry control frequency.
	Control Frequency 2	A frequency to allow the camera to move to a second area of control.
	Camera Number	A number that identifies the camera
	Camera Type	Please check the license has been enabled for the required camera.
	IP Address	IP settings will need to be configured to enable web user interface communications with the camera control module.
	IP Netmask	
	IP Gateway	
	License Key	Licenses can also be uploaded via the camera control module WUI front panel emulator.
	Option 5600K	Please contact DTC Technical Support for advice.
	Option Tally Mode	Please contact DTC Technical Support for advice.
	Option Hitachi HD	Please contact DTC Technical Support for advice.
Option Sony Colour	Please contact DTC Technical Support for advice.	

6.4.8 IP

```
Menu : IP Address
1 DHCP Enable
2 IP Address
3 Network Mask
4 Gateway
5 Disable Web Password
```

Menu	Sub-Menu	Notes
IP	DHCP Enable	As for WUI, see <i>Section 5.4.3</i> .
	IP Address	
	Network Mask	
	Gateway	
	Disable Web Password	<p>When you select this, it will not be necessary to enter password credentials when opening the WUI.</p> <p>Restore global defaults to reinstate the default password.</p> <p>Note: If a web interface is already open, it may be necessary to log in with no credentials entered.</p>

6.4.9 Misc

```
Menu : Misc
1 External Power Output
2 QR Code
3 IP Streaming
4 Engineering Mode
```

Menu	Sub-Menu	Notes
Misc	External Power Output	<p>Enables a DC output on the Eclipse Data connector which will be at the battery voltage.</p> <p>See <i>Section 3.5</i>, and <i>Section 3.8.2</i> for pinout.</p>
	QR Code	When the QR code is scanned, it will pass the RF settings to a phone.
	Engineering Mode	This mode is reserved for use at DTC.

6.4.10 Restore Defaults

```
Menu : Restore Defaults
1 Config
2 Globals
3 Config + Globals
4 IP + Config + Globals
```

Menu	Sub-Menu	Notes
Restore Defaults	Config	As for WUI, see <i>Section 5.4.6</i> .
	Globals	
	Configs + Globals	
	IP + Configs + Globals	

6.4.11 USB

Note: There must be a USB stick attached to access this menu. The USB stick must have the relevant files to perform Load Config or firmware upgrades.

```
Menu : USB
1 Load Config
2 Save Config
3 Upgrade
```

Menu	Sub-Menu	Notes
USB	Load Config	<p>Select this to load a config settings file from the USB stick to the Eclipse. This file will override all current settings.</p> <p>Note: The file name must be in the format <i>cfgs.json</i> for the load to be successful.</p>
	Save Config	<p>This provides an easy way to save the Eclipse settings.</p> <p>Config files can be transferred to other units to ensure settings are consistent across a system.</p>
	Upgrade	<p>Select this to select an upgrade file from the USB stick.</p> <p>Scroll through the files and select the upgrade file to begin the firmware upgrade.</p> <p>A restore to defaults must be carried out after a firmware upgrade, see <i>Section 6.4.10</i>.</p>

6.4.12 Setup Wizard



The setup wizard guides you through some key configuration parameters.

Menu	Sub-Menu	Notes
Setup Wizard	Resolution	As for WUI, see <i>Section 5.5.1</i> .
	Latency	As for WUI, see <i>Section 5.5.1</i> .
	Audio	As for WUI, see <i>Section 5.5.2</i> .
	Frequency	As for WUI, see <i>Section 5.6.1</i> .
	Attenuation	As for WUI, see <i>Section 5.6.1</i> .
	Constellation	As for WUI, see <i>Section 5.6.2</i> .
	Guard Interval	As for WUI, see <i>Section 5.6.2</i> .
	FEC	As for WUI, see <i>Section 5.6.2</i> .
	RF Enable	As for WUI, see <i>Section 5.6.1</i> .

7. Camera Control (Option)

7.1 Introduction

The optional camera control module provides a robust, wireless link to a remote-control system via a UHF antenna on the Eclipse top panel.

Data communications to and from the camera are provided by the supplied cable on the bottom panel.

An Ethernet cable is also supplied to enable IP communications with the camera control module.

Note: User guides and support for the camera control system can be accessed from the VideoSys Broadcast website, <https://videosys.tv/>.

7.2 OLED Control

Camera control module settings can be configured using the Eclipse OLED, these are explained in *Section 6.4.7*.

The settings will allow you to establish wireless communications with the system and IP communications with the camera, if required.

The default IP address for the module is 192.168.1.240, this can be configured via the OLED if required.

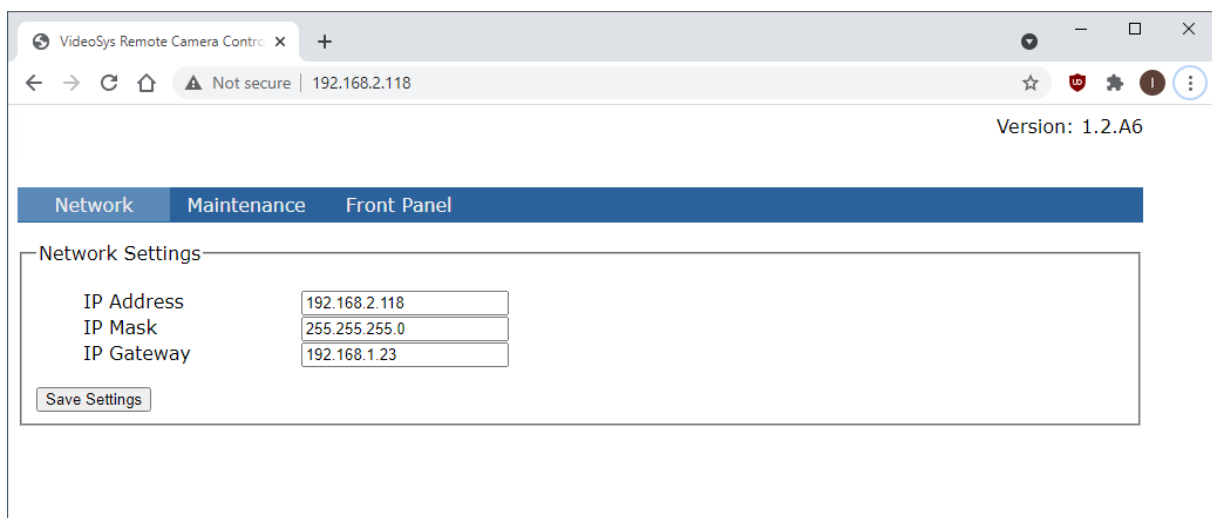
7.3 Web User Interface

7.3.1 Introduction

The web user interface is the recommended application for software upgrades. The WUI also provides an OLED emulator for configuration.

Ensure the supplied ODU to Ethernet cable (CA3919) is connected to a network or PC. The IP address of the camera module can be established in the OLED display.

Open a web browser and enter the IP address in the address bar.



7.3.2 Network

Network	Maintenance	Front Panel
Network Settings		
IP Address	192.168.1.240	
IP Mask	255.255.255.0	
IP Gateway	192.168.1.254	
<input type="button" value="Save Settings"/>		

The camera control module IP parameters can be re-configured from the **Network** page. The IP address is fixed, so this may need to be changed to match the network or PC that it will be connected to.

Click **Save Settings** to save the settings and make them active.

7.3.3 Maintenance

Network	Maintenance	Front Panel
Software Update		
Select the software file: <input type="button" value="Choose File"/> No file chosen		
<input type="button" value="Perform Upgrade"/>		
Diagnostics		
MAC Address	80-1f-12-6e-4b-35	
Application Version	1.2.A6	
Unit Serial Number	370101	
Radio Serial Number	2012000153	
<input type="button" value="Reboot System"/>		
Licence Options		
Mode	Serial	
Mode	IP	
Mode	MCS	
Manufacturer	Sony	
Manufacturer	Panasonic	
Manufacturer	Grass Valley	
Manufacturer	Ikegami	
Manufacturer	Hitachi	
Manufacturer	Videosys	
Manufacturer	Pan Studio	
Manufacturer	Tally Only	
Manufacturer	Arri	
Manufacturer	Dreamchip	
Manufacturer	Visca	
Manufacturer	IDT	

Camera control module upgrades can be performed from the **Maintenance** page. System information and licensing details are also displayed which may be useful in a service call.

When a software upgrade is available, DTC will provide the upgrade file, save this file to a convenient location on the PC. Select **Choose File** and browse to the location of the upgrade file, the file name will appear adjacent to the Choose File button when selected. Select **Perform Upgrade** to start the upgrade, do not switch off the unit until the new software version is displayed.

Note: It is important that the Eclipse does not lose power whilst the upgrade is taking place.

7.3.4 Front Panel



The **Front Panel** page emulates an OLED display for camera control configuration. Use the arrows and enter button to access and edit settings.

8. Example Applications

8.1 4K Video Over COFDM RF

8.1.1 Set Up

The following diagram illustrates a 12G-SDI single 4K video transmission over a COFDM RF link to a PRORXD-AEON with a 4K video monitor.

The 12G-SDI signal must be connected to SDI1 input.

The transmitter modulation settings must be matched in the receiver demodulator settings to achieve an RF lock.



8.1.2 Eclipse Configuration

Go to the **Configuration>Encoder** tab. For a single 12G-SDI input, select **2160p50** or **2160p60** resolution (depending on source) for Video 1 setting and set **Enable**.

Click **Apply** to make the settings active.

The screenshot displays the Eclipse Transmitter configuration interface for unit AMC0000_D2EF - 2025MHz. The interface is divided into several sections: Unit Status, Configuration, and Engineering. Under Configuration, there are tabs for Encoder, Modulator, and Streamer. The Encoder section is active and shows settings for four video channels (Video 1-4) and eight audio channels (Audio 1-8). Video 1 settings are highlighted with an orange box, showing 'Enable' checked and 'Resolution' set to '2160p60'. Other video channels have 'Enable' unchecked and various resolutions. Audio channels are set to 'Off' source with various codecs and bitrates. A 'Misc' section includes 'Mux Bitrate' (18.10 Mbps), 'Phantom Power' (12V), and 'Camera Control PID' (250). Two 'Analog Audio' sections (Analog Audio 1 and 2) show 'Phantom Power Enable' and 'Analog Gain' settings. At the bottom left, the 'Apply' button is circled in orange.

Go to the **Configuration>Modulator** tab.

Set the Modulation Mode to DVB-T, the Frequency to the transmit frequency in MHz and set Modulation On.

Configure the **DVB-T Settings** for the environment and ensure that Dual Pedestal is set, refer to the guidance provided in *Section 5.6.2*.

Click **Apply** to make the settings active.

Eclipse Transmitter
AMC0000_D2EF - 2290MHz

Unit Status Configuration Engineering

Global 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Encoder Modulator Streamer

Mod

Modulation Mode: DVB-T
 Modulation On:
 Frequency: 2290 MHz
 Output Attenuation: 5 dB
 RF Output Port: A+B

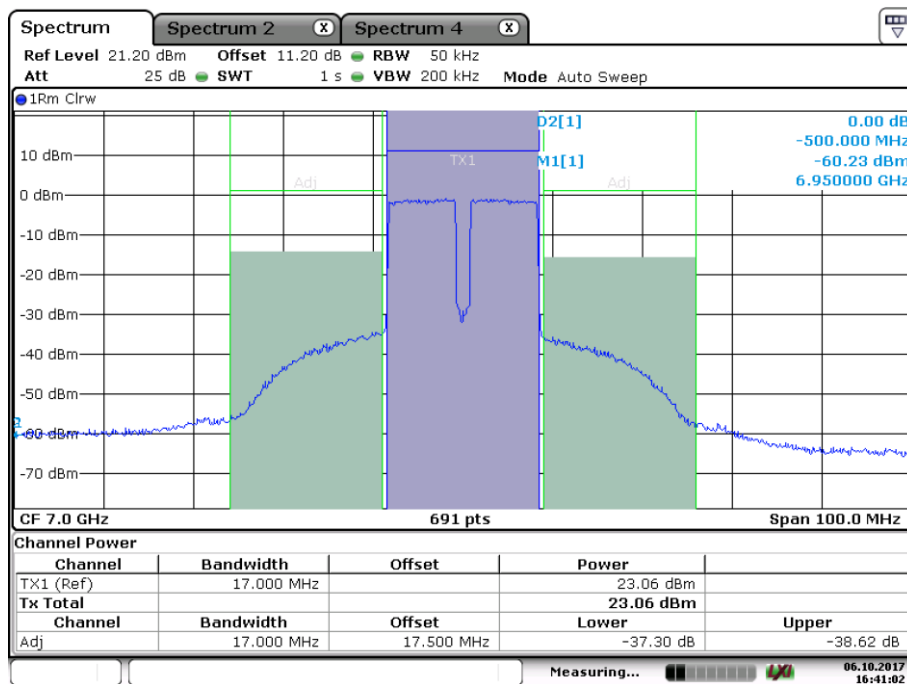
DVB-T Settings

Bandwidth: 8 MHz
 Constellation: 16-QAM
 FEC Rate: 1/2
 Guard Interval: 1/32
 Dual Pedestal: Dual Port
 Spectrum Inversion:

Apply Save Refresh

DTC's dual pedestal mode doubles the bitrate by using two adjacent COFDM channels, also doubling the bandwidth. To carry the required data for 4K video, the system should be configured to utilise dual pedestal mode at both the transmitter and receiver.

The screenshot below is an example dual pedestal **dual port** 16MHz DVB-T signal. The total bandwidth of 17MHz accounts for 1MHz separation.



Date: 6.OCT.2017 16:41:02

8.1.3 PRORXD-AEON Configuration

The PRORXD-AEON needs two demodulators to successfully receive dual pedestal 4K video signals, with the bandwidth split between both demodulators.

Open web browser communications, go to the **Configuration** tab, and set the **Diversity Mode** to **2x4-way**.

Click **Apply** to make the settings active.

The screenshot shows the 'Pro-RXD AEON' configuration page. At the top right is the 'DTC' logo. Below the title is the 'PRO-RX' label and a navigation menu with tabs: Status, Global Settings, Configuration (selected), Log, Uploads, Frequency, Information, and SNMP. A secondary menu shows numbered tabs 1 through 16, with tab 1 highlighted. The main configuration area is divided into sections: 'General', 'Demod 1', 'Demod 2', and 'Decoder 1'. In the 'General' section, 'Diversity Mode' is set to '2x4-way' and is highlighted with an orange box. Other settings include Preset Name (Config 1), Modulation Type (DVBT), DVBT Carrier Mode (Dual), and ASI Output (Dec 1). The 'Demod 1' section has Frequency (2290.00), Pedestal Side (Lower), Bandwidth (16MHz), Guard Interval (Auto), and Polarity (Auto). The 'Demod 2' section has Frequency (7064.25), Pedestal Side (Upper), Bandwidth (16MHz), Guard Interval (Auto), and Polarity (Auto). The 'Decoder 1' section includes Default Format (2160p60), Quad3G Format (SQD), Delay Mode (Ultra-Low), Input (Demod 1), Default Service (Unit 1), Default Program ID (1), Service Select Mode (List), Service List (Service #1), Descrambling Mode (Off), and Descrambling Keys (Change Keys). At the bottom, there are buttons for 'Save', 'Apply' (circled in orange), 'Copy From Config', 'Save to file', 'Choose File', 'No file chosen', and 'Load from file'.

Once the diversity mode is set, the **Downconverters** can be configured on the **Global Settings** tab. In this example, the downconverters used are **DCBGS-203255**, which will cover the transmitter bandwidth. Both presets need to be configured for each demodulator and the **LNB Voltage** set to **9V**. Click **Apply** to make the settings active.

The screenshot shows the configuration interface for a Pro-RXD AEON device. The 'Global Settings' tab is active, and the 'Downconverters' section is highlighted with an orange border. The 'Apply' button at the bottom left is also circled in orange. Other sections like 'IP Config' and 'OSD' are also visible.

Section	Field	Value
General	Unit Name	PRO-RX
	Audio Output	Analogue
	Tx Battery Alarm (V)	10
	Enable SNMP	<input type="checkbox"/>
Downconverters	Presets	DCBGS-203255
	LO Frequency	1720
	LO Side	Low
	LNB Power	On
	LNB Voltage	9V
	Presets 2	DCBGS-203255
	LO Frequency 2	2700
	LO Side 2	Low
LNB Gain Offset	9	
Individual LOs	<input type="checkbox"/>	
IP Config	DHCP Enable	<input checked="" type="checkbox"/>
	IP Address	192.168.2.36
	Network Mask	255.255.255.0
	Gateway	192.168.2.254
	MTU	1500
OSD	Blue On Fail	<input checked="" type="checkbox"/>
	Genlock Mode	Off
	Offset Lines	0
Decoder 1	Offset Pixels	0

Return to the **Configuration** tab and complete the remaining RF settings. Click **Apply** to save the settings.

Parameter	Setting
Modulation Type	The modulation type must be set to DVB-T .
DVB-T Carrier Mode	Dual is the setting for dual pedestal.
Frequency	Set to match the frequency from the transmitter. This must be within the bandwidth of the downconverters.
Pedestal Side	Set to upper or lower. Demod 2 will automatically configure to the opposite. This setting determines which demodulator will receive the upper or lower COFDM pedestal.
Bandwidth	Set to match the signal bandwidth from the transmitter.
Guard Interval/Polarity	Set to match the guard interval and polarity from the transmitter. These settings will configure automatically if set to Auto .

If the RF settings are correct, the Demod should report back as locked on the **Status** tab.

Return to the **Configuration** tab, these are the basic settings for PRORXD-AEON **Decoder**.

Decoder 1

Default Format	2160p60 ▼
Quad3G Format	SQD ▼
Delay Mode	Ultra-Low ▼
Input	Demod 1 ▼
Default Service	Unit 1
Default Program ID	1 ▼
Service Select Mode	List ▼
Service List	Service 1 ▼
Descrambling Mode	Off ▼
	Selected Service ▼
Descrambling Keys	Change Keys

Parameter	Setting
Default Format	Set the format for the 4K video.
Quad3G Format	Select the format that is required for onward processing of the 3G-SDI outputs. This setting will depend on user equipment.
Input	For dual pedestal decoding, select Demod 1 . <div style="border: 1px solid black; padding: 2px;">Note: If Demod 2 is selected, only half the data will be decoded.</div>

9. Appendix A – Reference Material

9.1 How to Configure a PC IP Address

The following guide will tell you how to configure your PC or laptop IP address so that it matches the IP address range of the unit you are connected to. This is important because if they don't match, you will not be able to communicate with your device.

The IP address range given in this example is a good one to use if you are unsure.

The image is a composite of several Windows Control Panel windows illustrating the steps to configure a network adapter. The windows shown are:

- Control Panel - Network and Sharing Center:** Shows active networks. Callout 1 points to the 'Local Area Connection2' icon.
- Local Area Connection2 Status:** Shows connection details. Callout 2 points to the 'Properties' button.
- Local Area Connection2 Properties:** Shows the 'Networking' tab with 'Internet Protocol Version 4 (TCP/IPv4)' selected. Callout 3 points to this selection.
- Internet Protocol Version 4 (TCP/IPv4) Properties:** Shows the 'General' tab with 'Use the following IP address' selected and the IP address '192.168.0.2' entered. Callout 4 points to the 'Properties' button in the previous window, and callout 5 points to the 'Use the following IP address' radio button.
- Local Area Connection2 Properties:** Shows the 'Authentication' and 'Sharing' tabs. Callout 6 points to the 'Properties' button in the previous window.
- Local Area Connection2 Properties:** Shows the 'Authentication' and 'Sharing' tabs. Callout 7 points to the 'Use the following IP address' radio button.
- Local Area Connection2 Properties:** Shows the 'Authentication' and 'Sharing' tabs. Callout 8 points to the 'OK' button.

Callout 1: Click the network icon which may also look like this

Callout 2: Click on 'Open Network and Sharing Centre'

Callout 3: Click on the network adapter you wish to configure.

Callout 4: Click on 'Properties'

Callout 5: Select 'Internet Protocol Version 4 (TCP/IPv4)

Callout 6: Click on 'Properties'

Callout 7: Select 'Use the following IP address' and enter the IP address you wish to use. Any units connected to this PC must be on the same address range but the last number of the address must be unique. In this example – 192.168.0 is common and 2 is unique. The 'Subnet Mask' will auto populate.

Callout 8: Close all windows by clicking 'OK' or 'Close' to the apply the settings.

9.2 dBm to Watts Conversion

It will be useful to know the equivalent dBm to watts power conversion when adding attenuation to the modulator RF output. The Eclipse has a maximum RF output of 23dBm (200mW).

When calculating, do not convert the equivalent watt value until after the sum has been done.

e.g., 23dBm-3dBm = 20dBm (100mW)

dBm	Watts
0	1.0mW
1	1.3mW
2	1.6mW
3	2.0mW
4	2.5mW
5	3.2mW
6	4mW
7	5mW
8	6mW
9	8mW
10	10mW
11	13mW
12	16mW
13	20mW
14	25mW
15	32mW
16	40mW

dBm	Watts
17	50mW
18	63mW
19	79mW
20	100mW
21	126mW
22	158mW
23	200mW
24	250mW
25	316mW
26	398mW
27	500mW
28	630mW
29	800mW
30	1.0W
31	1.3W
32	1.6W
33	2.0W

9.3 Video Resolutions

The following table defines video resolution to the SDI interface.

SDI	Resolution
12G-SDI	2160p60, 2160p59.94, 2160p50
6G-SDI	2160p30, 2160p29.97, 2160p25, 2160p24, 2160p23.98
3G-SDI	1080p60, 1080p59.94, 1080p50
1.5G-SDI	1080p30, 1080p29.97, 1080p25, 1080p24, 1080p23.98 1080i60, 1080i59.94, 1080i50

10. Appendix B – After-Sales Support

10.1 Documentation and Software

It is DTC's practise to make the majority of our latest user guides and software available to customers online, by using our WatchDox facility. To access this site, please contact your Account Manager or send a request to uk.technical.support@domotactical.com.

You will be sent a link where you can log in and create your own password followed by a confirmation email. Once you have done this, you can then log in to your account.

10.2 Contact Technical Support

The Technical Support team can be accessed by one of the following:

- **Phone US:** +1 571 563 7077
- **Phone UK:** +44 1489 884 550
- **Email US:** us.technical.support@domotactical.com (no restricted content)
- **Email ROW:** uk.technical.support@domotactical.com (no restricted content)

10.3 Using the DTC RMA Service

10.3.1 Contact DTC

If there is a problem and our technical support team have been unable to resolve the issue, email dtc.rma@domotactical.com (US) or solent.customerhub@domotactical.com (UK/ROW) to request a Return Material Authorisation (RMA) form.

Note: Alternatively, use the online form at <https://www.domotactical.com/support/>.

10.3.2 Complete and Return the RMA Form

Complete the RMA form with the following information and return to the customer hub:

- Name
- Address
- Unit serial number
- Date of purchase or the original invoice number
- Date of failure
- A detailed description of the problems you have encountered
- A list of the hardware/software configuration if applicable

When the hub receives the completed form, an RMA number and shipping instructions will be sent.

10.3.3 Pack the Device

Note: Before packing, remove all personal non-DTC kit or media from the device.

Use the original shipping container and packing materials, if possible.

If the original packing materials are not available, wrap the equipment with soft material (e.g., PU/PE form) then put the wrapped equipment into a hard cardboard shipping box.

10.3.4 Put the RMA Number on the Box

Clearly mark the outside of the shipping box with the RMA number. If an RMA number is not present on the shipping box, receiving will be unable to identify it and it might be returned.

10.3.5 Send the Box to DTC

Send the box using your normal shipping process.

11. Appendix C – Safety and Maintenance

Note: The following guidelines may or may not be applicable to your product. However, we would ask that you read them to assess their relevance.

11.1 Cautions and Warnings

Area	Note
Aircraft safety	<p>Use of this equipment on board aircraft is strictly forbidden without the required testing and qualification for aircraft type.</p> <p>Use of radio transmitter equipment in an aircraft can endanger navigation and other systems without appropriate testing, or carry-on certification by a competent certified body.</p>
Cables	Connecting cables should not be positioned where they are likely to become damaged or where they may present a trip hazard.
Electrostatic discharge	ESD guidelines must be followed for this electrostatic sensitive device.
Enclosures	<p>Do not remove any factory installed screws or fastenings as this may void any warranties.</p> <p>There are no functions that require the user to gain access to the interior of the product. There are no user serviceable parts inside.</p>
Environment	The equipment should not be used in hazardous or corrosive atmospheres. Users are reminded of the necessity of complying with restrictions regarding the use of radio devices in fuel depots, chemical plants and locations where explosives are stored and/or used.
Lightning strike	There is a risk of lightning strike to antennas. The equipment should not be assembled in an area at the time of lightning activity. Antennas should be adequately protected from lightning strikes.
Power supply	Ensure that the power supply arrangements are adequate to meet the stated requirements of each product. Observe all electrical safety precautions.
Risk of eye injury	Care should be taken to avoid eye contact with the antennas.
RF emissions	When using this device please ensure 20cm is maintained between your device and your body while the device is transmitting.
Thermal control system	<p>If you operate this device in an enclosed space, you must ensure it has adequate airflow to keep it cool.</p> <p>If worn close to the body, care must be taken to protect the operator from excessive temperatures.</p>
Working at height	Observe caution when locating the device at height, for example on a mast. Ensure the unit is well secured to prevent it falling and injuring personnel.

11.2 Repairs and Alterations

Attempted repairs, alterations, improper installations, or connections may invalidate the warranty.

Please contact Technical Support if you suspect a faulty or defective component. See *Section 10.2*.

11.3 Caring for your Equipment

- Do not subject the unit to physical abuse, excessive shock or vibration
- Do not drop, jar or throw the unit
- Do not carry the unit by the antenna
- Avoid exposure to excessive moisture or liquids
- Do not submerge the unit unless it is designed to be submersible
- Do not expose the unit to corrosives, solvents, cleaners or mineral spirits
- Avoid exposure to excessive cold and heat
- Avoid prolonged exposure to direct sunlight
- Do not place or leave units on surfaces that are unstable
- Only use accessories intended for the specific make and model of your unit, especially batteries, chargers and power adapters.

11.4 Charging

- Use approved batteries, chargers and adapters designed specifically for your make and model unit
- Do not attempt to charge a wet unit or battery pack
- Do not charge the unit or battery pack near anything flammable
- Stabilize the battery pack to room temperature (22°C) before charging
- Do not charge units and/or battery packs on wet or unstable surfaces
- Do not leave units and/or batteries in chargers for excessive periods

11.5 Cleaning

- Turn off the unit and remove batteries (if applicable) before maintenance
- Use a clean, soft, damp cloth to clean the unit. A microfiber cloth is recommended.
- Do not use alcohol or cleaning solutions to clean the unit
- Do not immerse the unit in water to clean it
- If the unit becomes wet, immediately dry it with a microfiber or other lint-free cloth

11.6 Storage

- Turn off the unit and remove batteries before storage
- Store units and battery packs in a cool, dry area at room temperature (22°C)
- Do not store units and/or batteries in active chargers

11.7 Working with Lithium Batteries

- Charge only with the approved charging cable
- Batteries are to be used only for the specified purpose. Incorrect use will invalidate the warranty and may make the battery become dangerous.
- Charge in a clean, dry environment ideally at 10°C (0 to 45°C is permissible).
- Do not store or operate in direct sunlight for extended periods. Battery can be damaged by over-heating, for example if placed on the rear parcel shelf of a motor vehicle.
- Store in a cool dry environment. Storage at elevated temperatures can cause permanent loss of capacity.
- For short term storage (less than six months), store in a fully charged state.
- For extended periods of storage (more than one year), charge before storage and recharge every six to nine months.
- Always fully recharge the battery after any storage period greater than one month before use.
- Do not store the battery with the charge depleted as this can cause failure of the battery and invalidate warranty.
- Do not short circuit
- Do not immerse in water
- Do not incinerate. Cells are likely to explode if placed in a fire.
- Dispose of batteries in accordance with the regulations in place for the country of use. Batteries are normally considered separate waste and should not be allowed to enter the normal waste stream. Either return to the seller or deliver to an approved re-cycling facility.