



**S-VDR Presentation
Norshipping, Oslo
June 2005**

KELVIN HUGHES

Martin Taylor

KELVIN HUGHES

A PART OF THE SMITHS GROUP



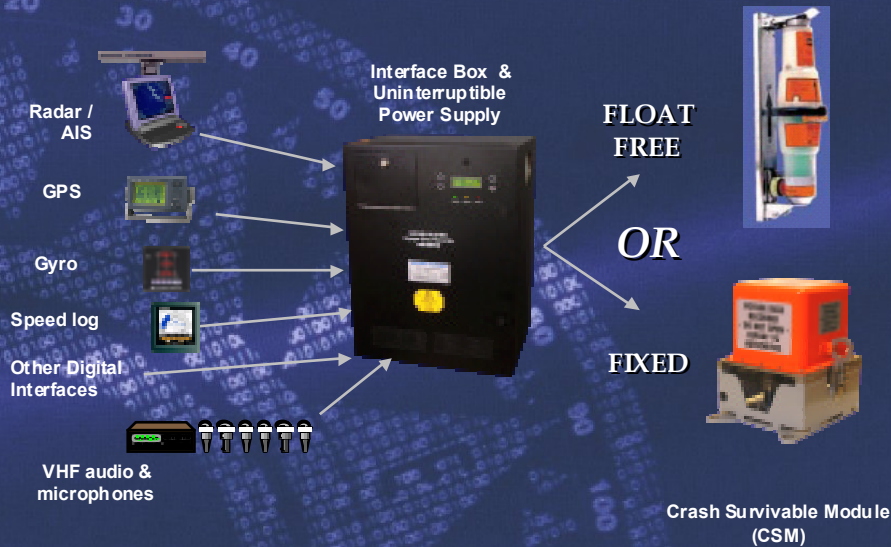
What are we going to cover ?

- *What is S-VDR ?*
- *Why do we need S-VDR ?*
- *What are the Carriage Requirements ?*
- *How does S-VDR differ to VDR ?*
- *What does S-VDR look like ?*
- *What about Type Approval ?*
- *What else could a S-VDR do for you?*
- *Open Questions and Answers*

KELVIN HUGHES

A PART OF THE SMITHS GROUP

What is VDR ?



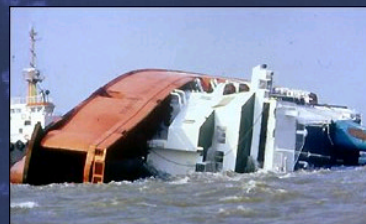
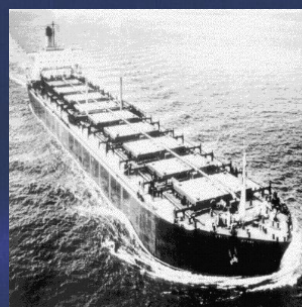
KELVIN HUGHES

A PART OF THE SMITHS GROUP

Why do we need a VDR ?

WHY ?

In 1980 Derbyshire vanished
In 1987 Herald of Free
Enterprise capsized
In 1994 the Estonia sank



KELVIN HUGHES

A PART OF THE SMITHS GROUP

Why do we need a VDR ?



- **IMO made decisions to mandate VDR initially because :**
 - Numbers of vessels lost without explanation
 - Numbers of lives lost
 - Public Pressure

KELVIN HUGHES

A PART OF THE SMITHS GROUP

VDR Carriage Rules

SOLAS Chapter V Regulation 20 (adopted 5th December 2000)

- 1. *To assist in casualty investigations, ships, when engaged on international voyages, subject to the provisions of regulation 1.4, shall be fitted with a voyage data recorder (VDR) as follows:***
 - 1.1 *passenger ships constructed on or after 1 July 2002;***
 - 1.2 *ro-ro passenger ships constructed before 1 July 2002 not later than the first survey on or after 1 July 2002;***
 - 1.3 *passenger ships other than ro-ro passenger ships constructed before 1 July 2002 not later than 1 January 2004; and***
 - 1.4 *ships, other than passenger ships, of 3,000 gross tonnage and upwards constructed on or after 1 July 2002.***

KELVIN HUGHES

A PART OF THE SMITHS GROUP

Why do we need S-VDR ?

- Complaint that VDR was too expensive
- Study to reduce cost
- Outcome was S-VDR:
 - Simplified Interfacing Requirements
 - Reduced requirements for the Crash Survivable Module

KELVIN HUGHES

A PART OF THE SMITHS GROUP

What are the Carriage Requirements ?

IMO through MSC at its 79th session in December 2004 agreed the following amendment to SOLAS Chapter V Regulation 20

To assist in casualty investigations, cargo ships, when engaged on international voyages, shall be fitted with a VDR which may be a simplified voyage data recorder (S-VDR) as follows:

- .1 in the case of cargo ships of 20,000 gross tonnage and upwards constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2006 but not later than 1 July 2009;
- .2 in the case of cargo ships of 3,000 gross tonnage and upwards but less than 20,000 gross tonnage constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2007 but not later than 1 July 2010; and
- .3 Administrations may exempt cargo ships from the application of the requirements of subparagraphs .1 and .2 when such ships will be taken permanently out of service within two years after the implementation date specified in subparagraphs .1 and .2 above.

KELVIN HUGHES

A PART OF THE SMITHS GROUP

What are the Carriage Requirements ?

To assist in casualty investigations, **cargo ships, when engaged on international voyages**, shall be fitted with a VDR which **may be** a simplified voyage data recorder (S-VDR) as follows:

- .1 in the case of cargo ships of **20,000 gross tonnage and upwards** constructed before 1 July 2002, **at the first SCHEDULED dry-docking after 1 July 2006 but not later than 1 July 2009;**
- .2 in the case of cargo ships of **3,000 gross tonnage and upwards** but less than 20,000 gross tonnage constructed before 1 July 2002, **at the first scheduled dry-docking after 1 July 2007 but not later than 1 July 2010;** and
- .3 **Administrations may exempt cargo ships** from the application of the requirements of subparagraphs .1 and .2 **when such ships will be taken permanently out of service within two years** after the implementation date specified in subparagraphs .1 and .2 above.

KELVIN HUGHES

A PART OF THE SMITHS GROUP

What else is mandated ?

Regulation 18.8 of SOLAS Chapter V requires that:

The voyage data recorder system, including all sensors, shall be subjected to an annual performance test. The test shall be conducted by an approved testing or servicing facility to verify the accuracy, duration and recoverability of the recorded data. In addition, tests and inspections shall be conducted to determine the serviceability of all protective enclosures and devices fitted to aid location. A copy of the certificate of compliance issued by the testing facility, stating the date of compliance and the applicable performance standards, shall be retained on board the ship.

KELVIN HUGHES

A PART OF THE SMITHS GROUP

What else is mandated ?

Regulation 18.8 of SOLAS Chapter V requires that:

*The voyage data recorder system, including all sensors, shall be **subjected to an annual performance test**. The test shall be conducted by an approved testing or servicing facility to verify the accuracy, duration and recoverability of the recorded data. In addition, tests and inspections shall be conducted to determine the serviceability of all protective enclosures and devices fitted to aid location. A copy of the certificate of compliance issued by the testing facility, stating the date of compliance and the applicable performance standards, shall be retained on board the ship.*

KELVIN HUGHES

A PART OF THE SMITHS GROUP

How does S-VDR differ to VDR ?

- **Interfacing Requirements**
- **Crash Module Specification**

KELVIN HUGHES

A PART OF THE SMITHS GROUP

How does S-VDR differ to VDR ?

Crash Module Requirement	VDR
Shock	✓
Penetration	✓
Low Temperature Fire Test	✓
High Temperature Fire Test	✓
Sea-water immersion	✓
Deep-sea Immersion	✓ (Fixed)

KELVIN HUGHES

A PART OF THE SMITHS GROUP

How does S-VDR differ to VDR ?

Crash Module Requirement	VDR	SVDR Fixed	SVDR Float Free
Shock	✓	✓	✓
Penetration	✓	✗	✗
Low Temperature Fire Test	✓	✓	✗
High Temperature Fire Test	✓	✓	✗
Sea-water immersion	✓	✓	✓
Deep-sea Immersion	✓ (Fixed)	✓	✗

KELVIN HUGHES

A PART OF THE SMITHS GROUP

How does S-VDR differ to VDR ?

Interface	VDR
Date and Time	✓
Ship's Position	✓
Speed	✓
Heading	✓
Bridge Audio	✓
Communications Audio	✓
Radar Data – post-display selection	✓
AIS	✗
Echo Sounder	✓
Main Alarms	✓
Rudder Order and Response	✓
Engine Order and Response	✓
Hull Openings (doors) status	✓
Watertight and fire door status	✓
Accelerations and Hull Stresses	✓
Wind Speed and Direction	✓

KELVIN HUGHES

A PART OF THE SMITHS GROUP

How does S-VDR differ to VDR ?

Interface	VDR	SVDR
Date and Time	✓	✓
Ship's Position	✓	✓
Speed	✓	✓
Heading	✓	✓
Bridge Audio	✓	✓
Communications Audio	✓	✓
Radar Data – post-display selection	✓	Unless 'impossible'
AIS	✗	If no Radar
Echo Sounder	✓	Only if the data is available on the bridge and in accordance with the international digital interface standard
Main Alarms	✓	
Rudder Order and Response	✓	
Engine Order and Response	✓	
Hull Openings (doors) status	✓	
Watertight and fire door status	✓	
Accelerations and Hull Stresses	✓	
Wind Speed and Direction	✓	

KELVIN HUGHES

A PART OF THE SMITHS GROUP

What does S-VDR look like ?



KELVIN HUGHES



A PART OF THE SMITHS GROUP

What does S-VDR look like ?



KELVIN HUGHES



A PART OF THE SMITHS GROUP

What does S-VDR look like ? MantaDigital Simplified Voyage Data Recorder



KELVIN HUGHES

A PART OF THE SMITHS GROUP

What does S-VDR look like ? MantaDigital Simplified Voyage Data Recorder



KELVIN HUGHES

A PART OF THE SMITHS GROUP

What about Type Approval ?

Test Specification
IEC 61996-2

Type Approval
granted December
2004 for the
World's first
Type Approved
S-VDR



KELVIN HUGHES

A PART OF THE SMITHS GROUP

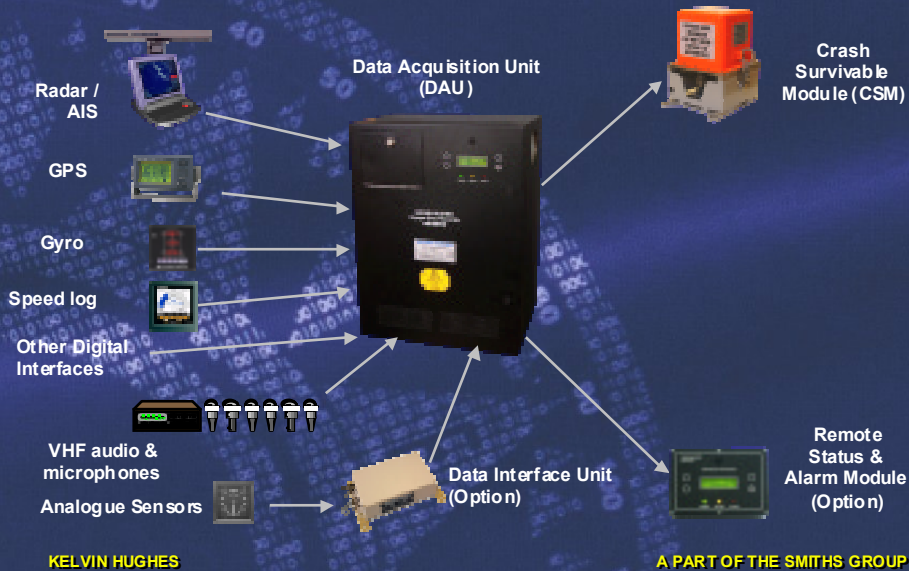
What else could S-VDR do for you ?

- Why would I want it to do more ?
 - Major investment
- Added Value
 - Litigation
 - Investigation
 - Learning
 - Training

KELVIN HUGHES

A PART OF THE SMITHS GROUP

What else could S-VDR do for you ?



What else could S-VDR do for you ?

STATUS & ALARM UNIT

Operator Controls:

- Mark Incident
- Backup 12 hours CSM data
- Alarm acknowledgment

LCD Screen shows:

- Date & Time
- Loss of power
- Loss of GPS
- Loss of Video
- Loss of Microphone



Local Unit

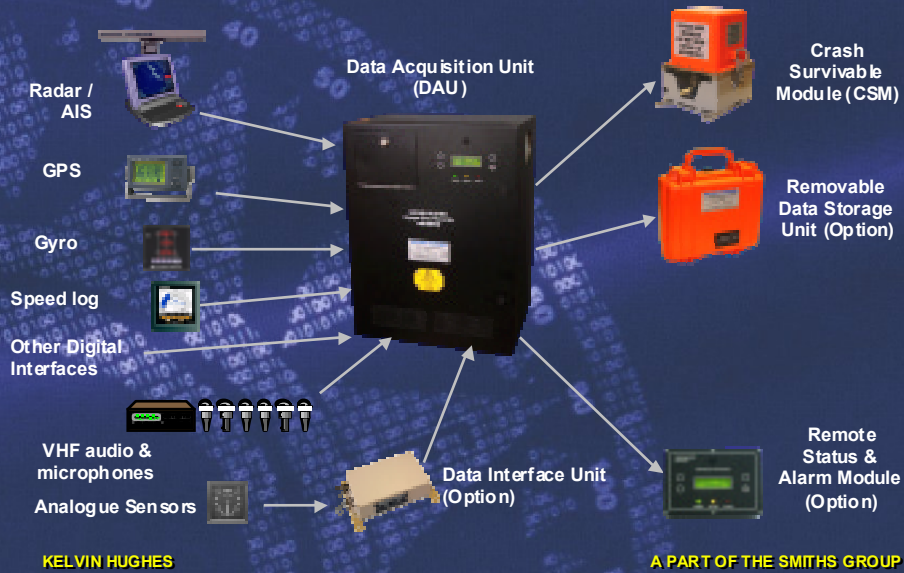


Remote Unit
(Bridge, Captain's Cabin)

KELVIN HUGHES

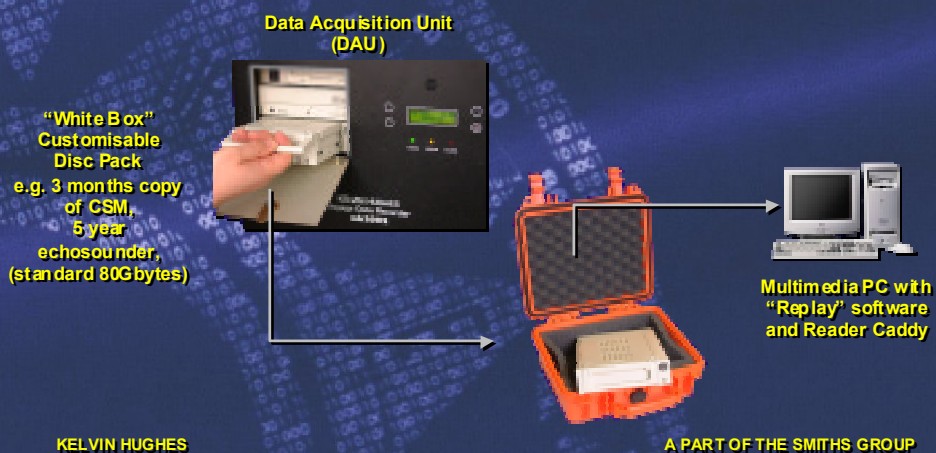
A PART OF THE SMITHS GROUP

What else could S-VDR do for you ?

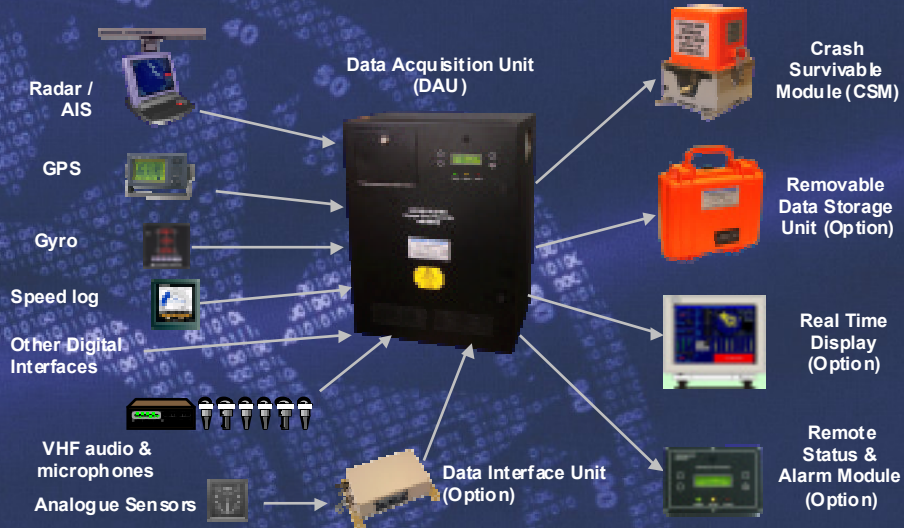


What else could S-VDR do for you ?

“White Box” & “REPLAY” Shore Playback System



What else could S-VDR do for you ?



KELVIN HUGHES

A PART OF THE SMITHS GROUP

Real Time Display



KELVIN HUGHES

A PART OF THE SMITHS GROUP

What else could S-VDR do for you ?

- Allows remote diagnosis of problems
- Not limited to VDR
 - Radar
 - GPS
 - ECDIS
 - Bridge
- Correction remotely
- Correct identification of defective part

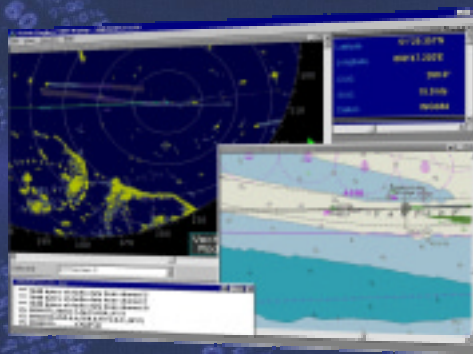


KELVIN HUGHES

A PART OF THE SMITHS GROUP

What else could S-VDR do for you ?

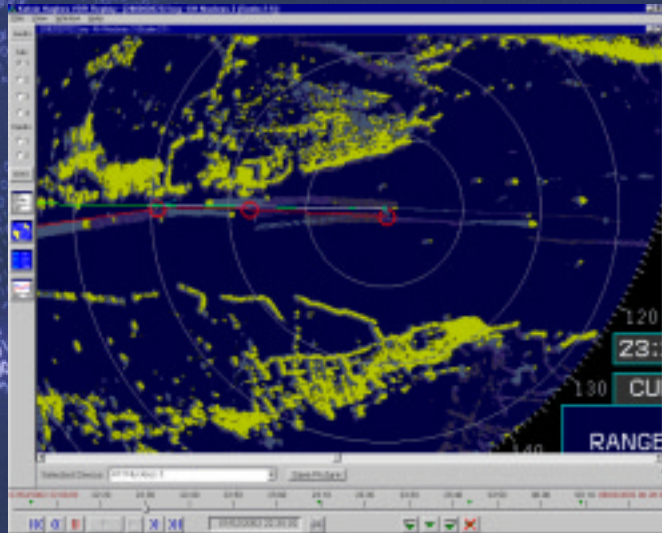
- Replay Software



KELVIN HUGHES

A PART OF THE SMITHS GROUP

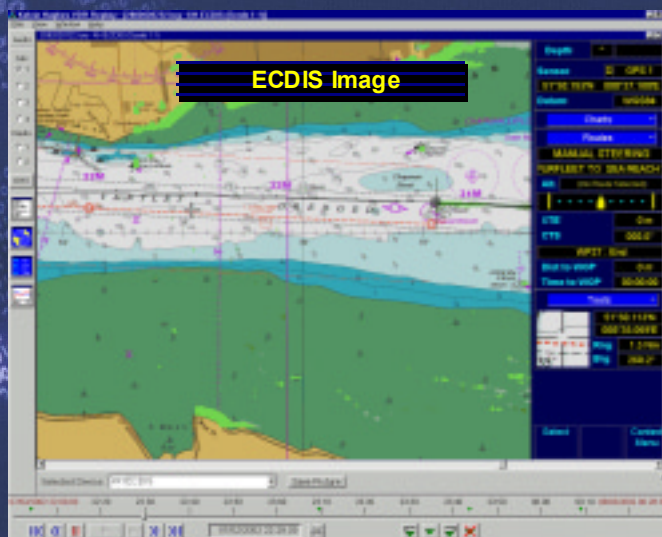
What else could S-VDR do for you ?



KELVIN HUGHES

A PART OF THE SMITHS GROUP

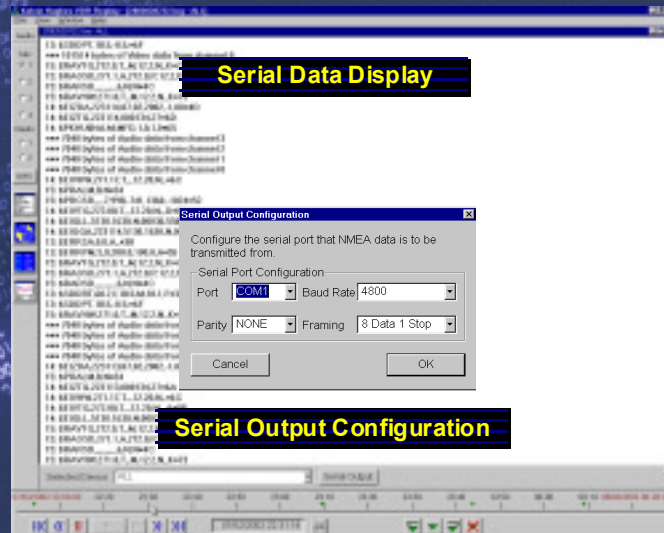
What else could S-VDR do for you ?



KELVIN HUGHES

A PART OF THE SMITHS GROUP

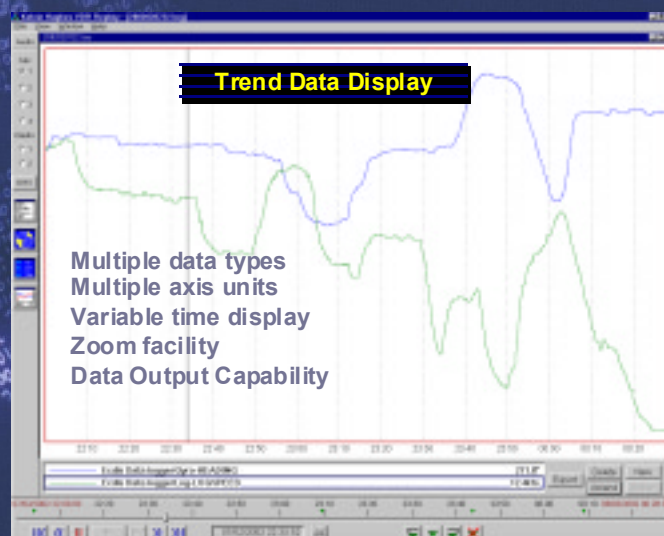
What else could S-VDR do for you ?



KELVIN HUGHES

A PART OF THE SMITHS GROUP

What else could S-VDR do for you ?



KELVIN HUGHES

A PART OF THE SMITHS GROUP

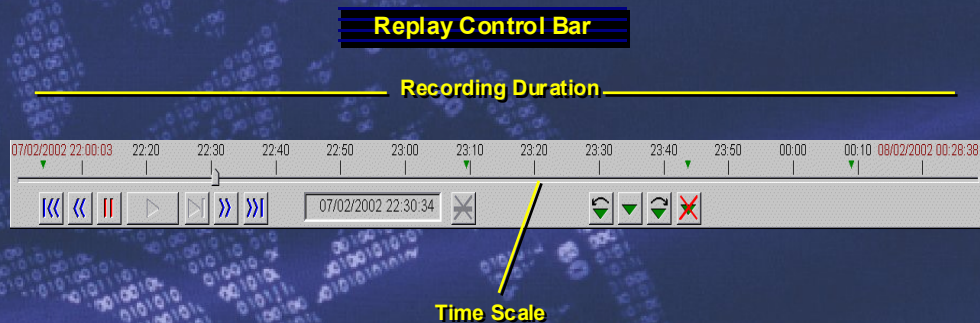
What else could S-VDR do for you ?



KELVIN HUGHES

A PART OF THE SMITHS GROUP

What else could S-VDR do for you ?



KELVIN HUGHES

A PART OF THE SMITHS GROUP

What have we covered ?

- *What is S-VDR ?*
- *Why do we need S-VDR ?*
- *What are the Carriage Requirements ?*
- *How does S-VDR differ to VDR ?*
- *What does S-VDR look like ?*
- *What about Type Approval ?*
- *What else could a S-VDR do for you?*

KELVIN HUGHES

A PART OF THE SMITHS GROUP

Questions and Answers

vdr@kelvinhughes.com

martin.s.taylor@kelvinhughes.co.uk

www.s-vdr.com

Thank you

KELVIN HUGHES

A PART OF THE SMITHS GROUP