

Tardis plc



Capability beyond equipment

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The SHS-24F White Paper



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Tardis Special Product Division:

1. Introduction:

Tardis is committed to a vision for producing secure products that will help protect our Intelligent and military services. We are committed to working with the best communication products in the market. We believe in protecting the transmission of sensitive information from any adversities.

How we do it, we have the SHS-24F TEMPEST certified headset that completes the any secure radio black circuit transmissions from operator-to-operator.

1.1. Reasons for the SHS-24F technology:

A major factor driving the military and defence communications market are the rising technical capability of known adversaries, which drives the need to tighten both operational practise in harmony with improved technology, but importantly, with the ability to be interoperable with legacy equipment and new digital solutions.

The need for enhanced functionality from a secure headset is our vision that drove us to develop the SHS-24F fibre headset that will serve as an underpinning of the existing secure communications SOP's and will improve security in military systems across the NATO community.

The SHS-24F: Secure Solution kit.



Certified Product



SDIP 271 Level C
TUV SUD 010

Fibre cable

The RRCU

SHS-24F has been tested with the Harris crypto radio system, (Mil 117G and Mil 152A). It has also shown that it is compatible with other military standard transmission devices by using a shielded cable from the remote radio connecting unit (RCU) with the required connector.

2. Technology Name (TEMPEST Secure Headset – SHS-24F).

3. Description.

SHS-24F is a fibre headset that is solely targeted to the military, intelligence & defence markets. It is approved on GCHQ's "Design-to-Meet" TEMPEST criteria and is a CESG approved product. The device is capable of operating with satellite and radio with full interoperability with legacy equipment. Supplied initially as an ear-defender style headset, with 24dB attenuation, the product is suitable for high ambient noise environments where clarity of essential operational command is paramount. SHS-24F can be helmet modified, and would add immediate value to motorised vehicle communications.



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4. Value to the Soldier:

4.1. Value: significantly reduced theatre intercepts & improves clarity to communications. Life saving attributes of transmission point (splash-point) can be deployed at distance from the operator.

4.2. Measure: TEMPEST tested and approved to Level C SDIP 27/1, but operated to Level B when used with Level B equipment (passed at first presentation).

4.3. **Relevance:** The SHS-24F is a TEMPEST certified headset and as such has a zero electromagnetic signature, which completes the secure communication link from operator-to-operator when using any communications equipment; such as - Harris Mil117G secure radio system (legacy or next generation design).

5. **Concept of Operation:** Immediately suitable to intelligence and reconnaissance personnel, and with modification to suit specific operational roles, any vehicle or soldier operating in sensitive areas.

6. **Environment.** SHS-24F is ready for immediate use in live operational environments, as determined by the sensitivity of the communication.

7. **Availability/Maturity.** The SHS-24F is a production standard device, tested and TEMPEST certified to SDIP 27/1 Level C and ready for immediate use. Further developments include: - multiple radio connection, pistol grip PTT with channel selection, revised ear-shells for use with helmets. The upgrades will be available between 2017Q2 and 2017Q3.

8. **Training.** – No training required – Operational document supplied with headset.

9. **Interfaces.** The SHS-24F: Secure Solution kit. (TEMPEST Certified)



RCC



Fibre Cable



RCU



9.1. Facts:

- RCC – Radio connecting Cable.
- RCU – Radio Connecting Unit. Will connect to any radio with the correct connector wired to the (RCC).
- Fibre Cable is to connect headset-to-RCU.

Features of RCU:

- USB charge / firmware update port
- Status indicator
- Fibre Optic port – ST
- Radio port
- USB chargeable – can be charged from PC or a laptop (Not whilst in use)



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Feature of SHS-24F

- Push-to-talk (PTT button)
- Power ON/OFF button
- Fibre Optic connector – to connect to (RCU)
- USB charge / firmware update port

10. Reasons for TEMPEST Certification:

Without TEMPEST: The products used currently by most military operational forces will, either not understand or do not have the budget to secure classified transmissions across what is otherwise a secure radio link. This helps you understand the vulnerability of your ICT system from unintentionally emitting classified information. This can be a costly error! TEMPEST and Electromagnetic (EM) Security are concerned with understanding the vulnerabilities associated with radio frequency emanations from ICT equipment, systems or mobile platforms (for example military vehicles processing classified information).

CESG is the National Technical Authority for EM Security and TEMPEST.

TEMPEST relates purely to passive phenomena while EM Security may apply to active techniques to enhance or extract signals of interest.

This area of leakage in a secure radio links is solved by using the SHS-24F headset, it is a TEMPEST Certified headset which **ensures a zero electromagnetic signature which eliminates the risk and save on the need for any appropriate countermeasures.**

10.1 Operational Assurance and Services:

Operational Assurance assesses the vulnerability of equipment, systems, installations and facilities based on the potential exploitation of Electromagnetic signals.

If you are part of HMG, an HMG customer or part of CNI and you are concerned about losing SECRET data, then the use of TEMPEST certified products are for you.

TEMPEST Headset Testing:

Having produced a secure headset model SHS-24F and achieved a TEMPEST test pass at level 'B' and certified at level 'C' we have a responsibility under the rules for certification set out by CESG for the continued production too standards and quality of manufacture.

As the UK National Technical Authority for Information Assurance, CESG seeks to ensure that UK government customers can have confidence that the TEMPEST integrity of certified products and platforms lasts throughout the entire lifetime of the product or platform.



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10.2. TPAT: (TEMPEST Production Assurance Testing)

This is in part achieved through TEMPEST Production Assurance Testing (TPAT). TPAT helps give assurance that initial and subsequent production runs of any item, when built to the same standard as that originally certified, have a similar TEMPEST performance. All TEMPEST approved products must undergo TPAT.

The Secure Headset solution:



Certified Product



SDIP 27/1 Level C
TÜV SÜD 010

SHS-24F & RCU & RCC

Fibre Cable Connect headset-to-RCU

Summary of Facts:

- No copper cabling involved – NO EMR – No security risk.
- New electronic circuitry for fibre communication is shielded to Tempest certified level – NO (EMR) electromagnetic radiation emissions.
- In using fibre to produce a secure communication headset, we will eliminate any possibility of transmissions being intercepted, thus completing the secure communications link from end-point to end-point.
- The first fibre headset on the market has TEMPEST certification SDIP 27/1 Level C, it was tested and passed to Level 'B' and will offer enhanced security in Command and control environments,
- The use of the SHS-24F, fibre headset will frustrate adversaries from any intercept attacks at the targeted red element of the link, eliminating eaves-dropping in transmissions across the complete system.

SHS-24F is fully interoperable with both modern digital transceivers, and legacy analogue transceivers subject to radio termination (connector) interface. When used with legacy equipment, SHS-24F significantly improves the reproduced sound and reception of any communication network (qualifiable by Harris Radio Corporation, Wokingham) and simultaneously protecting the RED element of the communications link. SHS-24F is compatible with all three Service's and civil defence authorities operating in the secure intelligence led field, or anywhere where the planned and measurable outcome is dependent on the integrity of the communication.



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SHS-24F (TEMPEST HEADSET)

Question: HOW DO YOU PROTECT AGAINST EMR LEAKAGE

<p>Certified Product</p>  <p>SDP 27/1 Level C TUV SUD 010</p> 	<h3>Technical Description</h3> <p>The SHS-24F is a full ear defender style headset with passive attenuation of 24dB, and provides a full duplex fibre optic link between Operator/User's Headset and a radio transceiver. This capability allows the operator to be remote from the terminal or transmission equipment whilst maintaining a secure link. In such examples, the headset allows a full transmit and receive operation with the transceiver of up to 3km separation if required, connected only by a single multimode Fibre Optic cable which can be ruggedised if required.</p>
<h3>Operational Description</h3> <p>The SHS-24F fibre headset will offer the G & D sector a level of safe transmissions in an end-to-end secure communications sector safeguarding any red element from possible and unintended exposure. The SHS-24F is a fully certified TEMPEST product having been tested to level 'B' and then certified at level 'C'. This was achieved first time of testing in Q1-2015. This now ensures end-point to end-point 'whole link' secure command and Control operational communications engagement or any environment requiring secure transmission. The SHS-24F eliminating any risk of interception in a crypto link secure transmission. The enhanced functionality of a secure fibre headset SHS-24F will serve as an underpinning of the existing secure radio system and new digital system SOP's and will improve security in military systems.</p>	<h3>Contact Details</h3> <p>Tardis plc Faber House Eastern Road, Romford Essex, RM1 3PJ</p> <p>Bob Speller 07831 220174 bob.speller@tardis.uk.com</p>