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LCS(53)/OR/R(6) (Final)
9th November, 1953.

UK/US COMMUNICATIONS SECURITY CONFERENCE 1953

REPORT OF THE OPERATIONAL REQUIREMENTS SUB-COMMITTEE

to the

EXECUTIVE COMMITTEE

On-Line Teletypewriter Security Equipments:

Speech Security Equipments

1. The Operational Requirements Sub-Committee has considered Combined and NATO requirements for on-line teletypewriter security equipments and speech security equipments and endorses the general statements made at the 1952 Conference. The Sub-Committee calls the attention of the Executive Committee to the fact that long range planning for meeting the overall on-line and speech requirements is contingent upon the provision of a definitive statement of the requirements. Thus the Operational Requirements Sub-Committee endorses the recommendation of the Engineering Committee that a requirements directory be prepared. In addition, the Sub-Committee recommend:

a. That long-term plans should aim at the maximum degree of standardisation of equipment thereby reducing the maintenance load and lack of flexibility of communications inevitable in the use of a multiplicity of equipments but necessitated by the present shortages of those equipments.

b. That when plans are made to transfer equipments designed by one nation to operational staffs of other nations due account should be taken of the need for providing:

(1) adequate supplies of spare parts;

(2) training facilities for both the operating and maintenance personnel of the receiving nations;

(3) where possible, the use of repair facilities on a reciprocal basis.

c. That the design of on-line equipment should be such that it is impossible to transmit plain text inadvertently in place of cypher text.

2. On-Line Teletypewriter Security Equipments.

a. Requirements and Available Equipments.

(1) First Level and Second Level.

(a) There are Combined and NATO requirements for on-line teletypewriter security equipments at both First and Second Levels. It is desirable but not necessary that these requirements eventually be met by the adoption of standardised or interworking equipments. SACEUR and SACLANT have defined their requirements for on-line teletypewriter equipments. In addition, there are naval requirements for point-to-point and RATT broadcast equipments, although the adoption of on-line cyphering for the latter purpose is unlikely to be implemented for some considerable time.

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(b) At the present time, Apparatus 5 UCO* is available in limited quantities for synchronous use. For non-synchronous use, limited quantities of SIGTOT (in two versions) are available and SACEUR has also contracted with a Norwegian firm for the manufacture of still another version (ETCRRM).

* It should be noted that the production contract for Apparatus 5 UCO is running out and could be extended only if additional orders are placed in the near future.

(2) Third Level.

No Combined and NATO requirement for an on-line teletypewriter security system for use at the third level can, at present, be defined. It is possible that a requirement will be established when Combined and NATO requirements are examined in detail by the group charged with compiling a directory of operational requirements.

b. Equipments Planned.

The following on-line teletypewriter security equipments are now in course of development but are subject to final security clearance and may eventually be available to meet Combined and NATO operational requirements.

(1) Non UK/US Equipments.

(a) The Dutch "ECOLEX" one-time tape equipment has been proposed. It is in limited use by the Dutch now. Capacity for production is about ten per month.

(b) The French have proposed an equipment, the T53, which does not employ key tape. It is in test use (pre-production models). Exact status and production capacity not known.

(2) UK/US Equipments.

(a) Synchronous.

(i)	AFSAZ D. 7315 (US)	Service test model due 1954.
(ii)	AFSAM D.26 (US)	First engineering model under construction.
(iii)	AFSAM D.22 (U.S.)	Development model due late 1953.
(iv)	ARTICHOKE (U.K.)	Engineering model on trial.

(b) Non-Synchronous.

(i)	AFSAM 9 (U.S.)	Production due to start Sept. 1954.
(ii)	METROPOLE (U.K.)	Under development.
(iii)	INCUBATOR (U.K.)	Breadboard stage only.
(iv)	CONVERTOR No. 5 (U.K.) (Synchronous when used with 5 UCO)	Development model due late 1953.

(c) Facsimile and Speech Equipments capable of providing teletypewriter security.

(i)	AFSAJ 700 used (U.S.) with ANF/FGC-14 or ANF/FGC-5.	Service tests in near future. Production contract calls for delivery of 102 equipments for U.S. use by end of 1954 at rate of 8 per month.

(ii) AFSAY 806 (U.S.) Service trials scheduled early 1954.

(iii) MOUNTEBANK (U.K.) Development models under test.

3. Speech Security Equipments.

a. Requirements.

(1) Strategic Requirements.

The Sub-Committee agreed that there is no general Combined and NATO requirement for speech security equipments for strategic use. Such needs as might arise should be met by the exchange or reciprocal use of national equipments as they become available although there is currently no general requirement for equipments of one nation to interwork with equipments of another nation, such interworking if it could be provided would be desirable.

(2) Tactical Requirements.

The Sub-Committee agreed that there was a general Combined and NATO tactical requirement for a common speech security device capable of operation over a circuit of normal speech bandwidth (nominal 300 to 3200 cycles per second). In addition, there are Combined and NATO Naval and Air requirements for a common speech security device capable of operation over VHF circuits. Since there is no prospect of providing a narrow band speech security device of size and weight suitable for use in a tactical role, part of the Combined and NATO Army and Air requirement for an equipment to operate over a circuit of normal speech bandwidth may have to be met by utilising equipments requiring the use of a wide band transmission system for a single speech channel.

b. Equipment Availability.

No speech security equipments suitable for Combined and NATO use are at present available. The following equipments are under development and, subject to final security approval, may eventually be available to meet Combined and NATO requirements.

(1) Strategic Use. (Wire or HF radio)

(a) SORCERER (U.K.) Development not complete.

(b) AFSAY D.806 (U.S.) Service trials due Feb. 1954.

(c) AFSAY D.809 (U.S.) Research stage only.

(2) Tactical Use.

(a) TRUMPETER (U.K.) Research stage only.

(b) HALLMARK II (U.K.) Engineering models complete.

(c) PICKWICK (U.K.) Development models on trial.

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(d) AFSAY D.804	(U.S.)	Engineering models mid 1954.
(e) AFSAY D.808	(U.S.)	Service test models due end 1954.
(f) AFSAY D.810	(U.S.)	Research stage only.
(g) AFSAY D.801	(U.S.)	Early development.

(3) Special Purpose Microwave Radio Relay.

(a) D.70 (BLUE BOY)	(U.K.)	Two engineering models nearly complete.
(b) AFSAY 816	(U.S.)	In use.
(c) AFSAY D.807	(U.S.)	Service test models due 1955.

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a. That long-term plans should aim at the maximum degree of standardisation of equipment thereby reducing the maintenance load and lack of flexibility of communications inevitable in the use of a multiplicity of equipments but necessitated by the present shortages of those equipments.

b. That when plans are made to transfer equipments designed by one nation to operational staffs of other nations due account should be taken of the need for providing:

(1) adequate supplies of spare parts;

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(3) where possible, ~~a reciprocal exchange~~ use of repair facilities on a reciprocal basis;

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c. That the design of on-line equipment should be such that it is impossible to transmit plain text inadvertently in place of cypher text.

2. On-Line Teletypewriter Security Equipments

a. Requirements and Available Equipments

(1) First Level and Second Level

There are Combined and NATO requirements for on-line teletypewriter security equipments at both First and Second Levels. It is desirable but not necessary that these requirements eventually be met by the adoption of standardised or interworking equipments.

In the case of a variety of one-time tape systems interworkability but not standardisation is now available. SACEUR and SACLANT have defined their requirements for on-line teletypewriter equipments. So far, a limited quantity of SIGTOT (in two versions) and Apparatus 5 UCO* have been made available. SACEUR has also contracted with a Norwegian firm for the manufacture of still another version (ETCRRM) of SIGTOT.

* It should be noted that the production contract for Apparatus 5 UCO is running out.

(2) Third Level

No Combined and NATO requirement for an on-line teletypewriter security system for use at the third level can, at present, be defined. It is possible that a requirement will be established when Combined and NATO requirements are examined in detail by the group charged with compiling a directory of operational requirements.

b. Equipments Planned

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(b) The French have proposed a non-tape system, the T53. It is in test use (pre-production models). Exact status and production capacity not known.

(2) UK/US Equipments

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available. There is no requirement for equipments of one nation to interwork with equipments of another nation.

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