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The Files - Project 2112

20 March 1959

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[REDACTED]

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Conference Report - [REDACTED] Short Pulse Radar System

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1. On 3 March 1959 a conference was held at the [REDACTED] to discuss the possible use of a newly developed short pulse radar system as part of a DZ beacon system. Present at the discussions were:

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[REDACTED]

OC-E/R&D-EP  
T/CT-OR  
-E Liaison  
- OC-E/R&D-EP

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2. In an earlier meeting at [REDACTED] on 19 February 1959, Messrs. [REDACTED] of OC-T discussed the

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possible use of the radar system developed by [REDACTED] at this meeting the representatives of [REDACTED] were given the requirements of the DZ beacon and were asked if the radar system could be used to solve the beacon problem. Without making any calculations, Messrs. [REDACTED]

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[REDACTED] could not say whether the radar system could be used and still meet the weight and size requirements of the aircraft and ground equipments. They were sure, however, that the [REDACTED] radar alone would not give the required range of 15 miles, but agreed to determine the maximum range that could be obtained.

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3. To get the required range of 15 miles, the aircraft's ADF system would have to be used against a radio transmitter on the ground. This would allow the aircraft to approach the DZ area, then the radar system would give accurate (within less than one foot) range and azimuth on the final approach. The complete beacon system would then consist of two independent systems: (1) a ground transmitter and the aircraft's ADF and (2) a corner reflector or horn reflector on the ground and the miniature short pulse radar system and indicating devices in the aircraft.

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4. After the representatives of [REDACTED] studied the problem with the requirements given them, they calculated the maximum range that could be obtained with this radar system. This range, regretfully, was less than one mile. This severely limits the operational use of the system because:

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- a. The maximum time to prepare for a drop would be less than three minutes. This would be for an aircraft flying at 20 mph and for larger planes flying at, say, 60 mph the time would be less than one minute.
- b. The beam width of the radar signal from both the aircraft and the ground reflector is very narrow (due to necessary antenna design) and further limits the range to less than one mile.
- c. The calculations were made for ideal conditions and therefore ideal ground reflectors. In order to make the reflector concealable and portable, the efficiency would be reduced and further reduce the range.

Also, the radio transmitter and reflector on the ground would pose a problem to the weight and concealability requirements of the beacon system.

5. Messrs. [REDACTED] were of the opinion that the requirements of the beacon were extremely rigid. However, they felt that the problem could be solved through the development of future radar equipment. [REDACTED] stated that [REDACTED] would be happy to undertake the task of developing such equipment, but at present the heavy workload at [REDACTED] would not permit any study of the problem.

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