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TO: NSA [redacted]

SUBJ: Long Range/Near Term Program "C" Recommendations

1. As per your request the matter of what measures that might be taken in the E program to obtain an improved collection capability against tactical weapon systems has been investigated and the following findings and recommendations are made:

a. There is the need to obtain and implement an intercept capability which provides for a simultaneity of intercept in several bands with a time/direction of arrival correlation capability.

b. There are convincing arguments for implementing for a commanded and/or a "reflexive" control of detection sensitivities in various geographic locations, particularly the open ocean and other specific areas.

c. There is a need for increased frequency resolution or an ability to task various segments of the collection spectrum in particular regions for more accurate emitter definition and identification such as the [redacted] signals evident in ABM/AES.

d. There may be compelling reasons for increased utilization of simultaneous band coverage.

2. The arguments and discussion which lead to the above conclusions/recommendations are given in the following paragraphs:

a. Examination of the technical intelligence on certain serious threat systems leads to the finding that threat system definition is presently definitely hampered by two factors:

(1) lack of tasking opportunity to collect

(2) lack of utilization of the existing facilities to collect [redacted]

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3. Two examples of this problem are presently current, but the future will be even more demanding.

a. In the case of the [redacted] it is definitely known that the following emitters are associated:

[redacted]

Two main points are pertinent. First, there may be signals already in the "unknown signal category" which furnish the system functions indicated above, but which have not yet been associated with this platform. Secondly, time correlated detection of [redacted] might have indicated by synchronization, etc. to which subsystem the association should be made. These situations reinforce the contention that time correlated detection and recording in two or more bands is absolutely essential to the technical intelligence analysis of these complex weapon systems.

b. The second example is the [redacted] missile system and the [redacted] system continue to baffle the intelligence community. The history of the analysis effort on these systems has been that of frustration and doldrums for lack of any substantial amount of time-correlated emitter recordings or emitter/platform association. Periodically a new emitter is recorded which is thought to have a system association but its association has been very tenuous and its function difficult to assign for lack of anything but the most primitive data correlation basis. In the analysis area the approach has been to throw open the whole question of system description with each new emitter discovery. Probably, the later discovered signals existed from the beginning of the threat system tests and operations, but they were missed during the rare opportunities when collection was possible because of lack of tasking to adequately detect and record [redacted]

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simultaneously.

c. As an example of the need the following signal emitter hardware association is presently assumed:

[redacted]

4. Also associated with one or more of these systems, (and possibly all of them) is the [redacted] system. This system has a PRF sub-multiple of one or more of the platform and missile associated signals but thus far, no simultaneous intercept data exist which confirm synchronization. If this synchronization could be established with particular emitters considerable headway might be made in the analysis, particularly as to which systems are slaved to what signals. Thus, there is a need to associate in time and direction coincidence the X-band [redacted] and the S-band radar video signal or [redacted] Further, there is the need to establish the role of the 865 Mhz [redacted] signal transmitted from

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associated aircraft - i.e., whether it is an operational relay system or an R&D type signal. In either case its intercept and time/duration association with respect to the platform and missile might throw a considerable light on the problem of analysis.

6. The above paragraphs have attempted to highlight some near term and longer range goals thought to be appropriate to increased support by the existing program to the areas of electronic intelligenc analysis and electronic warfare, especially that of reacting to new threat weapon systems for the protection of naval ships and aircraft. If the program objectives of paragraph 1 and elaborated in subsequent paragraphs could be accomplished, there is good assurance that the collection program would be much more responsive to the tactical threat intelligence problem, especially as related to anti-aircraft and anti-ship missile system.

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