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DEPARTMENT OF SUPPLY

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- Electronics Division (Formerly E.R.L.)
- Propulsion Division (Formerly P.R.L.)

CHEMICAL AND PHYSICAL RESEARCH LABORATORIES,
RESEARCH AND DEVELOPMENT BRANCH,

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Your Ref: 2601/005.

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In reply please quote...115/5.....

4th May, 1954.

Wing Commander Berry,
Head of S Group,
Defence Signals Branch,
C/o Defence Registry,
Victoria Barracks,
MELBOURNE. S.C.1 Vic.

Interception Malayan Communist Party
Communications.

I have looked into the points raised in your letter from two angles, firstly interception in Malaya in general terms, and secondly possible implications arising from the intercepts.

Retaining your division into

- (i) External links to
- (ii) Internal links between state committees.
- (iii) Tactical links of an operational nature.

the situation is as follows:-

(i) External Links

If these exist it should be possible to intercept them at any site in Malaya. I have made predictions for Malaya and Malaya for the months of May and June and the appropriate sheet is attached to this letter. The blocks enclosed by the red lines contain all the reasonable frequencies and times which would need to be covered. Probably this is not very much help to you when you have only restricted search facilities available to you, but you may be able to further restrict the possibilities by knowing available transmitter frequencies and preferred times of operation for the organizations concerned. For the circuit a frequency of about 15 Mc/s would be a likely choice for day time transmissions and probably 10 Mc/s for night time. This implies a free choice to the operator to select his preferred frequency and this free choice very possibly does not exist, hence the red lined block covers a range of frequencies on either side of those quoted. For the paths the suitable frequencies are much less restricted as shown on the attached charts.

These links could be intercented at stations outside Malaya, for example at and also probably Australia. It is therefore, probably unnecessary to make any special effort to intercept them at temporary positions set up in Malaya.

(ii) Internal Links.

The maximum range to be considered here is less than 1000 Kms. and lower frequencies than in section (i) would be required. The attached chart showing the internal predictions for May and June indicates this.

The frequencies which would probably be used fall within the range of 3 and 12 Mc/s with a noticeable drop in frequencies before local dawn. At this period the maximum useful frequency would be about 5 Mc/s. The minimum frequencies which can be used for these distances are in considerable doubt. If it is assumed the available transmitters are of low power then it is reasonable to suggest that the frequencies will not be below 5 Mc/s during the day time. When a frequency of about 10 Mc/s is used it should be possible to intercept it at ranges of from 200 to 1000 Kms. but it may not be received at short ranges. It therefore is necessary to have intercept stations so situated that they cover the short range requirement ~~and~~ it is considered that this is best satisfied by three intercept locations, one in the south at the second ~~at~~ and the third in the north. If these three stations cover the frequency range of 5 to 12 Mc/s by day and 3 to 7 Mc/s by night they should be able to intercept all frequencies used for internal links from any position in Malaya.

(iii) Tactical Links.

The frequencies used for these links have to be suitable for very short range transmissions and are shown on the graph for internal frequencies for May and June. The maximum frequency which could be used at any time is 10 Mc/s, the minimum daytime frequency is about 3 Mc/s. ~~Again~~ The ~~same~~ problem arises that the low frequency transmissions must be received fairly near their origin and again the three stations as before would satisfy this requirement. The frequency coverage is however slightly different in that frequencies from 3 Mc/s upwards should be covered.

A study of these internal links supports the information that the range of 4 to 10 Mc/s would be in use possibly coming down to 3 in the period before local dawn. It is unlikely but not impossible that anything above 10 Mc/s would be used in these medium and short range circuits.

It has been assumed throughout that sky wave transmissions were being employed if this is not true the alternative for tactical use, is that a very low power transmitter is being used for ground wave transmission and this because of the aeri-als and low power would make interception more difficult. The same three stations however would seem to offer the best attack on the problem unless it is known that radio is being used for tactical purposes in a particular area in which case the intercept should take place as close as possible to this area.

To summarize this portion it is suggested that (a) be used to cover long distance links in conjunction with other established stations outside Malaya, (b) be used as, at present in the range of 3 to 10 Mc/s, for tactical and internal links and (c) that a similar cover to (b) be provided in the north of Malaya.

Intercept.

(At 1430Z hours March on a frequency of 7132 Kc/s.) It is difficult to understand why other stations did not hear this transmission if they were monitoring the correct frequency at the correct time. While checking ionospheric conditions for March it is found that the frequency in use can be expected to provide satisfactory link between any two places in Malaya at the time quoted and it should also have been heard at stations outside Malaya.

To explain the lack of intercept at other stations the following points should be considered:-

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(1) Incorrect frequency reported by - this would probably have been overcome by search techniques covering adjacent frequencies.

(2) were receiving a harmonic (from a local link) or a sub-harmonic (from a long distance link) of the correct operating frequency. If a harmonic was being received it would probably be weak and probably be received from a local source only. It is suggested that search be carried out on frequencies of 3566 and 2377 Kc/s. Such harmonic of local origin would probably give a very weak but steady signal. If the intercept operators made any comments it may be possible to check this. If a sub-harmonic of a long distance link were received at and not at other stations ~~and~~ again would indicate that the source was near and would also provide a weak steady signal. In this case a search should be made on 14264 Kc/s.

(3) The signals may have come from a very low power transmission, as for example used in walkie-talkie equipment, this again would indicate that the source was near

(4) It may be that an ionospheric disturbance was in progress at the time and if this was so the matter would have to be considered. If you can supply me with dates and times of the intercepts at I will follow this one up further. The signal in this case would be characterized by repeat fading (flutter) and severe distortion if it was a voice transmission.

(5) It is possible that a completely wrong frequency was reported due to cross modulation in the aerial amplifiers (if used at). Cross modulation would result in distorted signals subject to interference by another station and these conditions may be erratically variable.

This analysis of the intercept is based on very meagre data and is therefore largely estimation until supporting evidence, for example in the form of operators comments are available.

If you send me any additional information you have I will do my best to interpret it. I will however be away on leave for about a fortnight which may delay a reply.

(G. de V. Gipps)
For: Chief Superintendent
C.P.R.L.

ECP.