The problem is in $\mathcal{NP}$ since we can exhibit a set of k locations, and it can be checked in polynomial time, for each frequency, that the frequency is unblocked in at least one of the locations.

Now we show that *Vertex Cover* $\leq_P$ *Nearby Electromagnetic Observation*. Given a graph $G = (V, E)$ and a number k, we define a location ℓ_i corresponding to each node v_i, and a frequency f_s corresponding to each edge e_s.

Now, for each edge $e_s = (v_i, v_j)$, there is an interference source that blocks frequency f_s at all but locations ℓ_i and ℓ_j. Finally, we ask whether there is a sufficient set of size at most k.

If there is such a sufficient set, then the corresponding set of locations has the property that each frequency is unblocked in at least one of them, so the corresponding set S of nodes has the property that each edge is incident to at least one of them. Thus S is a vertex cover in G. Conversely, if there a vertex cover consisting of k nodes in G, then the corresponding set of locations has the property that for every frequency f_s, at least one of the locations has access to f_s. Thus it is a sufficient set.

[1] ex759.113.462