Abstract. Let $G$ be an LCA group, $\Gamma$ its dual group, and $H$ a closed subgroup of $G$ such that its annihilator $\Lambda$ is countable. Let $M$ denote a regular positive semidefinite matrix-valued Borel measure on $\Gamma$ and $L^2(M)$ the corresponding Hilbert space of matrix-valued functions square-integrable with respect to $M$. For $g \in G$, let $Z_g$ be the closure in $L^2(M)$ of all matrix-valued trigonometric polynomials with frequencies from $g + H$. We describe those measures $M$ for which $Z_g = L^2(M)$ as well as those for which $\bigcap_{g \in G} Z_g = \{0\}$. Interpreting $M$ as a spectral measure of a multivariate wide sense stationary process on $G$ and denoting by $J_H$ the family of $H$-cosets, we obtain conditions for $J_H$-singularity and $J_H$-regularity.

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The full text is available [here]({#full_text_link}).