

The error polynomial is $e(z) = z^{14} + z^9 + z^4$.

The syndrome polynomial is $s(z) = \alpha^9 z^5 + \alpha^{12} z^2$.

The error locator polynomial is $\ell(z) = \alpha^{12} z^3 + 1$.

$w(z) = \alpha^{12} z^2$ and $u(z) = \alpha^6 z^2$.

Finally, $\ell(z)s(z) + u(z)z^6 = (\alpha^{12} z^3 + 1)(\alpha^9 z^5 + \alpha^{12} z^2) + \alpha^6 z^2 z^6 = \alpha^6 z^2 = w(z)$.