Writing Comments

How should gain be set to ensure the impulse response does not exceed the maximum allowed value of $2^{15} - 1$?

We have known that output_value = gain * y0, and $-2^{15} <$ output_value $< 2^{15}-1$.

We can find the maximum value of all y, and make gain $<$ abs(min(($2^{15}-1$)/max(y), $2^{**}15$/min(y))).

By doing this, the impulse response will not exceed the maximum allowed value.