let assume we have in LTE system we have.

Filter $H(z)$ with impulse response $\{h(n)\}_{n=-\infty}^{\infty}$

and input signal $e(n)$ and out put signal $x(n)$

$$e(n) \longrightarrow \boxed{H(z)} \longrightarrow x(n)$$

$$x(n) = h(n) * e(n) = \sum_{k=-\infty}^{\infty} h(k)\, e(n-k)$$

we can see That $x(n)$ is stationary stochastic Process, where The output power:

$$P_x(e^{j\omega}) = |H(e^{j\omega})|^2 \, P_e(e^{j\omega})$$

if we consider $e(n)$ as white noise, The output spectrum is:

$$P_x(e^{j\omega}) = \sigma_e^2 \, |H(e^{j\omega})|^2.$$

Since The process is stochastice, we can say that the filter is limited and The Transfer fuction for filter will be:

$$H(z) = \frac{B(z)}{A(z)}$$

in Z domain.

$$B(z) = 1 + b_1 z^{-1} + \cdots + b_q z^{-q}$$

$$A(z) = 1 + a_1 z^{-1} + \cdots + a_p z^{-p}$$

we can express The out put signal $x(n)$ like:

$$x(n) + a_1 x(n-1) + x(n-2) \cdots + a_p x(n-p) = e(n) + b_1 e(n-1) + e(n-2) + \cdots + b_q e(n-q).$$

Thus, $x(n)$ is ARMA process and The out put is:

$$P_x(e^{j\omega}) = \sigma_e^2 \, \frac{|B(e^{j\omega})|^2}{|A(e^{j\omega})|^2}.$$

so by set filter coefficient we can get power shap spectrum.

when $q = 0 \Rightarrow H(z) = \frac{1}{A(z)}$ and this is AR processes.

$$x(n) + a_1 x(n-1) + \cdots + a_p x(x-p) = e(n)$$

and The power spectrum AR:

$$P_x(e^{j\omega}) = \frac{\sigma_e^2}{|A(e^{j\omega})|^2}$$

Similarly, when $p = 0$, $H(z) = B(z)$ so we can get MA process.

$$x(n) = e(n) + b_1 e(n-1) + \cdots + b_q e(n-q).$$

with power spectrom.

$$P_x(e^{j\omega}) = \sigma_e^2 \, |B(e^{j\omega})|^2$$