

## **Constelación 64 QAM**

**Tabla 1 Normalización de constelaciones** 

	Factor Escalado	BPSK (tps)	BPSK (pilotos)	64QAM (datos)
Símbolo sin normalizar	1	6.48	8.64	7 + 7i
Normalizado E(c, $c^*$ ) = 16/9	8.64	0.75	1	0.81 + 0.81i

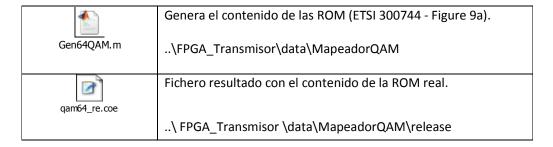
```
% Reading the values from Figure 9a
dvbt_qam = [ +7 + 7i % ++

% Normalization factor from Section 4.4
M = 64;
v = log2(M); % Constalletion Size
arg = 2/3 * (M - 1); %
scale = 4/3 * sqrt(arg); % Scaling factor
```

```
dvbt_qam = dvbt_qam/scale;
for i=1:M
         qam_re(i) = real(dvbt_qam(i));
         qam_im(i) = imag(dvbt_qam(i));
end;
```

## **QAM Mapper (1.0.15)**

- >>> El mapeador se implementa mediante dos memorias ROM de 64 x 16 bits.
- >>> Su contenido esta codificado en formato 1.0.15 con lo que el máximo numero representable es ±1.



```
% A/D Conversion 1.0.15
dac_bit= 16;
lsb = 1 / 2^(dac_bit-1);

for i=1:M
    aux_real(i) = floor(( qam_re(i) + lsb/2 )/lsb );
    aux_imag(i) = floor(( qam_im(i) + lsb/2 )/lsb );
end;

diag_qam64_adc = aux_real(:) + j * aux_imag(:);
```