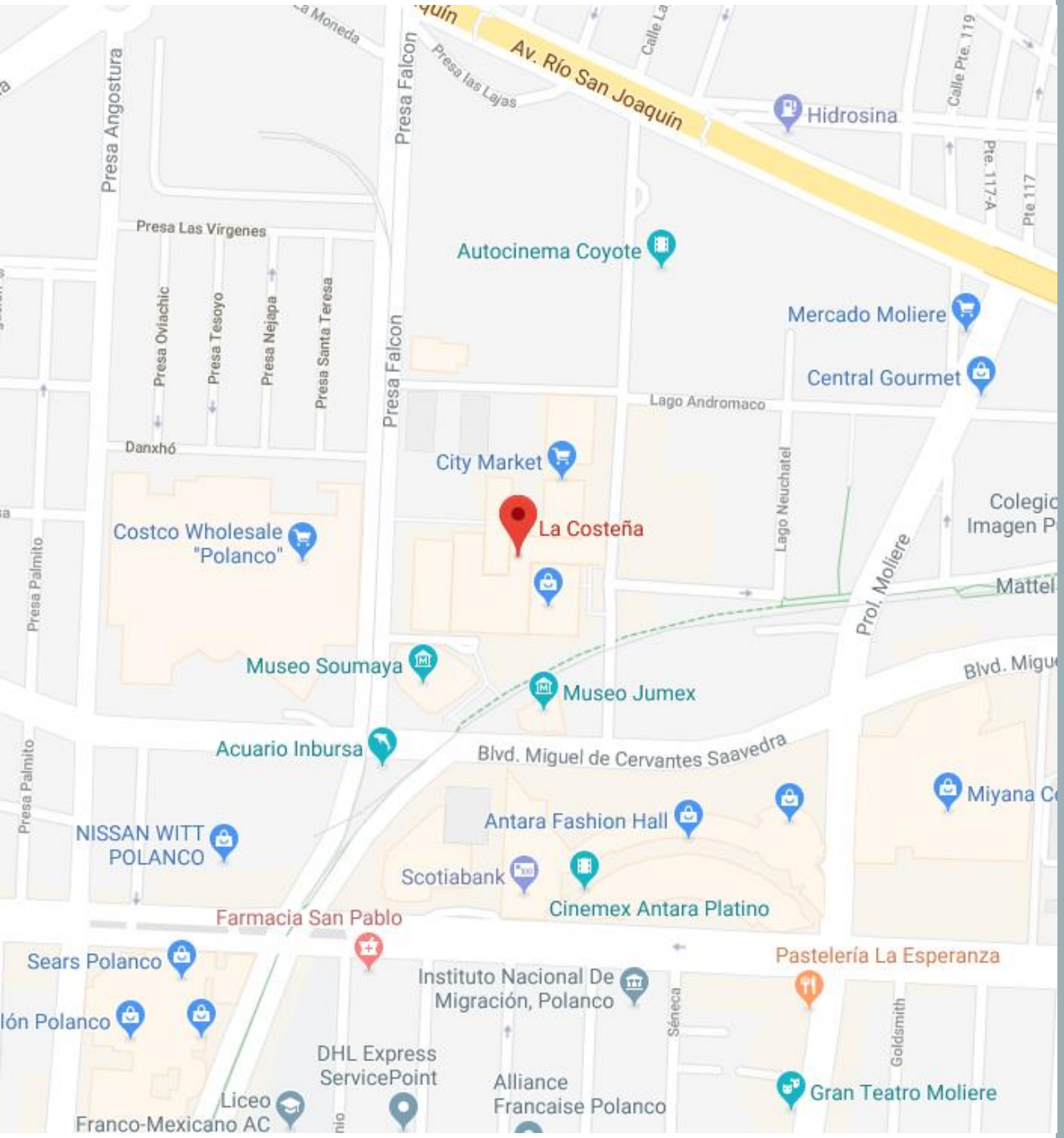
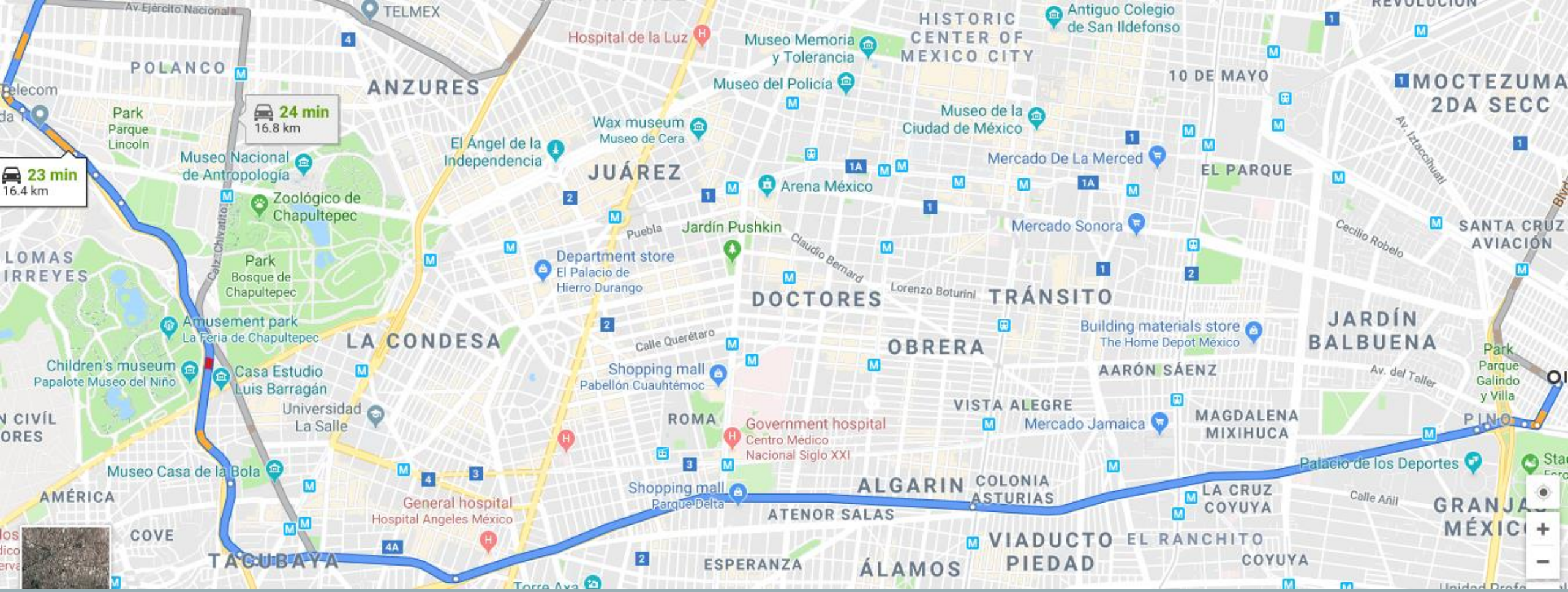
REDES DE TELECOMUNICACIONES

Alvarado Balbuena Jorge Anselmo

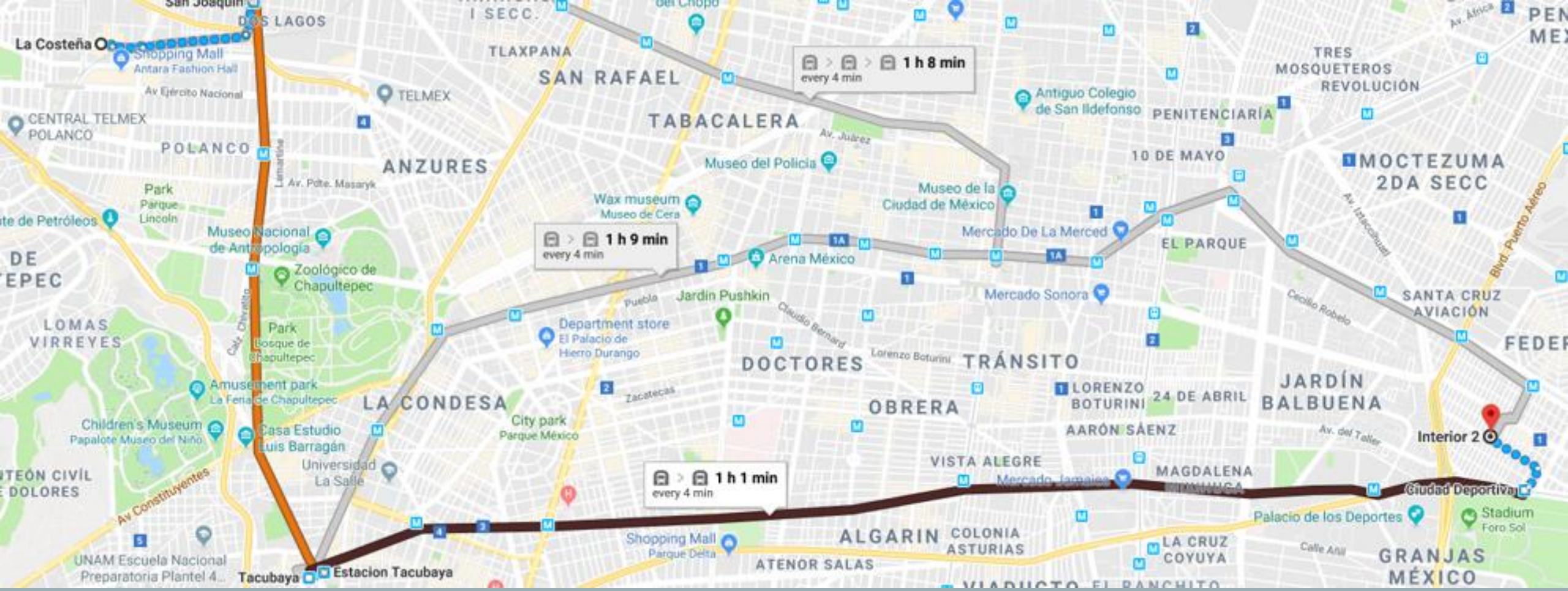


UBICACIÓN CORPORATIVO

UBICACIÓN CD



RUTA ALTERNATIVA



RUTA PRINCIPAL

VALORES CALCULADOS

Tramo 1

$L_1 = 0.65\ km$

$$At_1 = 0.65 * .02 + 0.5 * 1 + 0.3 * 1 = 0.93\ dB$$

$$P_{Tx1} - 0.93 = 5 - 0.93 = 4.07\ dBm$$

Tramo 2

$L_2 = 3.4\ km$

$$At_2 = 3.4 * .02 + 0.5 * 1 = 1.18\ dB$$

$$P_{Tx2} - 1.18 = 4.07 - 1.18 = 2.89\ dBm$$

Tramo 3

$L_3 = 3.5\ km$

$$At_3 = 3.5 * .02 + 0.5 * 1 = 1.2\ dB$$

$$P_{Tx3} - 1.2 = 2.59 - 1.2 = 1.69\ dBm$$

Tramo 4

$L_4 = 3.6\ km$

$$At_4 = 3.6 * .02 + 0.5 * 1 = 1.22\ dB$$

$$P_{Tx4} - 1.22 = 1.69 - 1.22 = 0.47\ dBm$$

VALORES CALCULADOS

Tramo 5

$L_5 = 3.7\ km$

$$At_5 = 3.7 * .02 + 0.5 * 1 = 1.24\ dB$$

$$P_{Tx5} - 1.24 = 0.47 - 1.24 = -0.77\ dBm$$

Tramo 6

$L_6 = 1.3\ km$

$$At_6 = 1.3 * .02 + 0.5 * 1 = 0.76\ dB$$

$$P_{Tx6} - 0.76 = -0.77 - 0.76 = -1.53\ dBm$$

Tramo 7

$L_7 = 1.7$

$$At_7 = 1.7 * .02 + 0.5 * 1 + 0.3 * 1 = 1.14\ dB$$

$$P_{Tx7} - 1.14 = -1.53 - 1.14 = -2.67\ dBm$$

Potencia de recepción del enlace.

$$\sum_{n=1}^{7} P_{Txn} = -2.67\ dB$$

$$P_{RxEnlace} - A_{Reserva} = -2.67 - 3 = 5.67\ dBm$$

Atenuación de total.

$$\sum_{n=1}^{7} At_n = 7.67\ dB$$

Atenuación real.

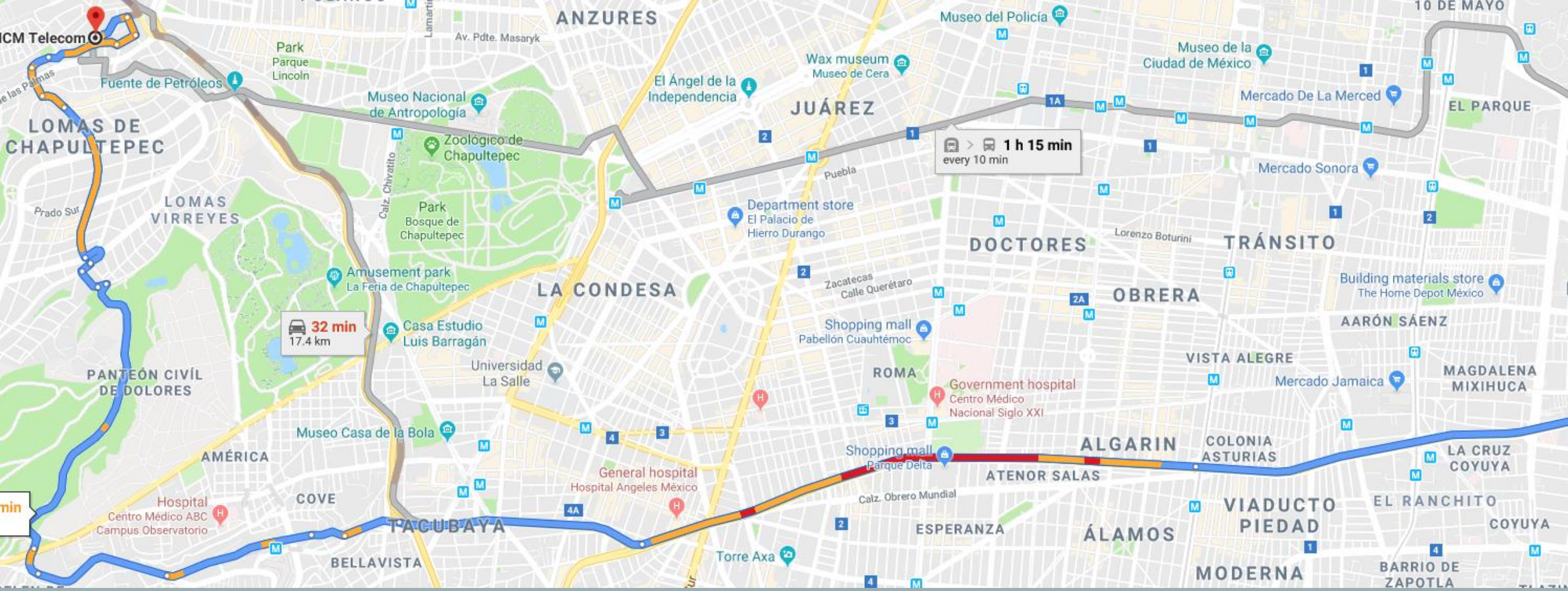
$$A_{real} = A_T + 3 = 7.67 + 3 = 10.67\ dB$$

Potencia de recepción

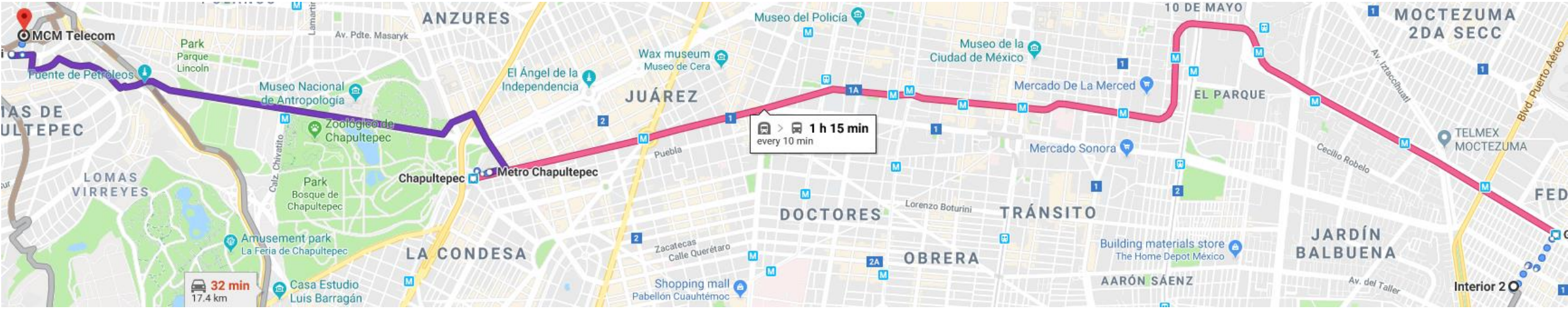
$$P_{Rx} = P_{Tx} - A_{Real} = 5 - 10.67 = -5.67\ dB$$

Como $P_{Rx} > -16dBm$, el enlace es PON (Passive Optic Network).

UBICACIÓN MCM



RUTA ALTERNATIVA



RUTA PRINCIPAL

VALORES CALCULADOS

Tramo 1

$L_1 = 0.65\ km$

$$At_1 = 0.65 * .02 + 0.5 * 1 + 0.3 * 1 = 0.93\ dB$$

$$P_{Tx1} - 0.93 = 5 - 0.93 = 4.07\ dBm$$

Tramo 2

$L_2 = 3.9\ km$

$$At_2 = 3.9 * .02 + 0.5 * 1 = 1.28\ dB$$

$$P_{Tx2} - 1.28 = 4.07 - 1.28 = 2.79\ dBm$$

Tramo 3

$L_3 = 3.92\ km$

$$At_3 = 3.92 * .02 + 0.5 * 1 = 1.284\ dB$$

$$P_{Tx3} - 1.284 = 2.79 - 1.284 = 1.506\ dBm$$

Tramo 4

$L_4 = 1.9\ km$

$$At_4 = 1.9 * .02 + 0.5 * 1 + 0.3 * 1 = 1.18\ dB$$

$$P_{Tx4} - 1.18 = 1.506 - 1.18 = 0.326\ dBm$$

Tramo 5

$L_5 = 0.3\ km$

$$At_5 = .3 * .02 + 0.5 * 1 + 0.3 * 1 = 0.86\ dB$$

$$P_{Tx5} - 0.86 = 0.326 - 0.86 = -0.534\ dBm$$

Tramo 6

$L_6 = 3.9\ km$

$$At_6 = 3.9 * .02 + 0.5 * 1 + 0.3 * 1 = 1.58\ dB$$

$$P_{Tx6} - 1.58 = -0.534 - 1.58 = -1.046\ dBm$$

Tramo 7

$L_7 = 1\ km$

$$At_7 = 1 * .02 + 0.5 * 1 + 0.3 * 1 = 1\ dB$$

$$P_{Tx7} - 1 = -1.046 - 1 = -2.046\ dBm$$

VALORES CALCULADOS

Potencia de recepción del enlace.

$$\sum_{n=1}^{7} P_{Txn} = -2.046\ dB$$

$$P_{RxEnlace} - A_{Reserva} = -2.046 - 3 = -5.046\ dBm$$

Atenuación de total.

$$\sum_{n=1}^{7} At_n = 8.114\ dB$$

Atenuación real.

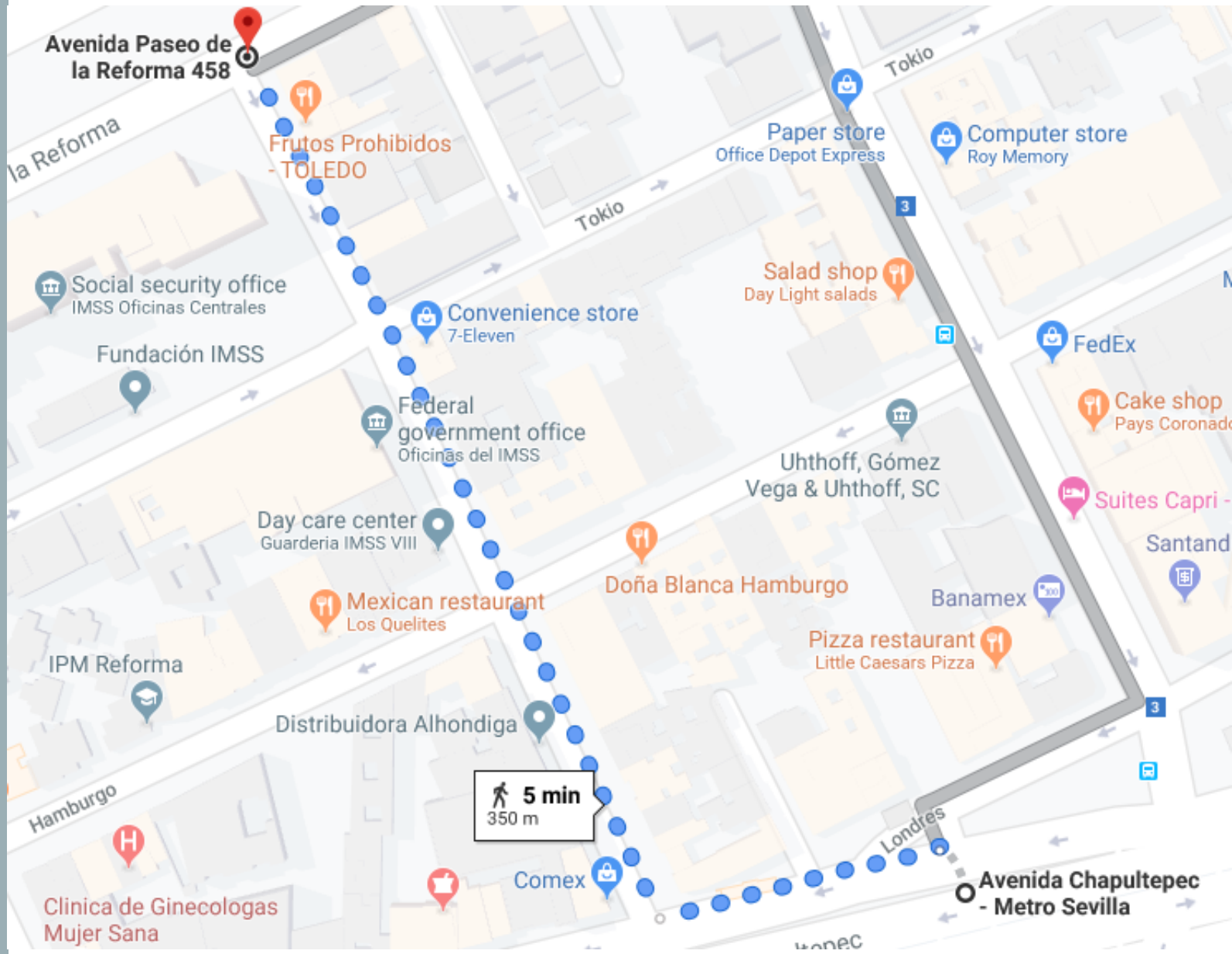
$$A_{real} = A_T + 3 = 8.114 + 3 = 11.114\ dB$$

Potencia de recepción

$$P_{Rx} = P_{Tx} - A_{Real} = 5 - 11.114 = -6.114\ dB$$

Como $P_{Rx} > -16dBm$, el enlace es PON (Passive Optic Network).

PUNTO CRÍTICO



SALIDA DE METRO SEVILLA

ENTRADA A SUBSUELO

CONCLUSIONES