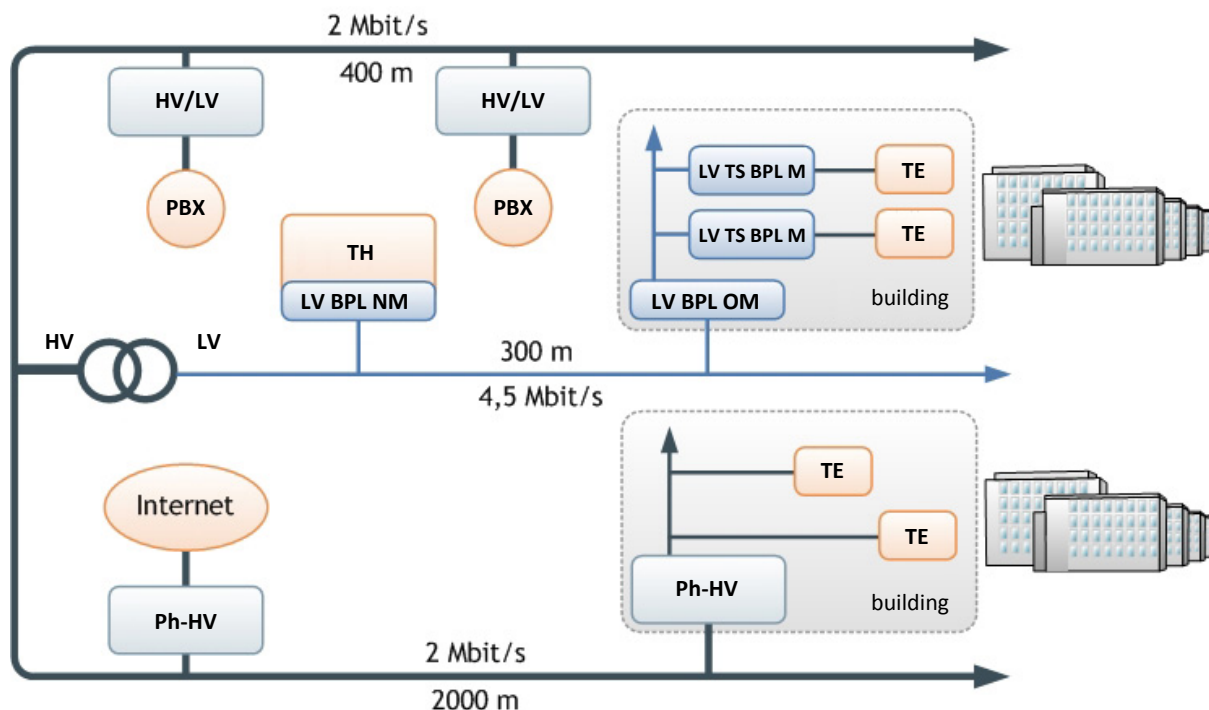





1. BPL topology. In the following figure, please, mark the occurrence of the following frequencies:  $F_{od}$  (Out Door) and  $F_{id}$  (In Door)



<b>HV/LV</b>	High-voltage transformer connected to the high voltage side of the transformer is launched to the BPL modem for telecommunication device
<b>PBX</b>	Private Branch Exchange
<b>TH</b>	Telecommunication headquarters
<b>LV BPL NM</b>	Low-Voltage BPL Network Modem
<b>LV BPL OM</b>	Low-Voltage BPL Object Modem
<b>LV TS BPL M</b>	Low-Voltage Terminal Subscriber BPL Modem
<b>Ph-HV</b>	High-voltage device connected to one phase of high voltage, launched to BPL modem for telecommunication device
<b>HV</b>	High Voltage
<b>LV</b>	Low Voltage
<b>TE</b>	Terminal Equipment



2. Modulation methods in BPL. Please, label particular modulation techniques shown in the figure. Put a tick symbol next to those modulations that are currently used in the PLC devices.

<input type="checkbox"/>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"><b>OFDM</b> Orthogonal Frequency Division Multiplex</div>	 <p>A diagram showing a single, wide, flat rectangular block representing a frequency spectrum. The horizontal axis is labeled 'Frequency'.</p>
<input type="checkbox"/>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"><b>GMSK</b> Gaussian Minimum Shift Keying</div>	 <p>A diagram showing a series of overlapping, bell-shaped curves (Gaussian pulses) along a horizontal axis labeled 'Frequency'.</p>
<input type="checkbox"/>	<div style="border: 1px solid black; padding: 5px; width: fit-content;"><b>DSSM</b> Direct Sequence Spread Spectrum Modulation</div>	 <p>A diagram showing three distinct, rounded rectangular pulses along a horizontal axis labeled 'Frequency'.</p>

