

The objective of this document is to specify the materials required to give a training course of LigoWave (LigoDLB and LigoPTP).

LigoDLB materials per participant:

Item	Equipment	Quantity	Description
1	DLB-SIMULATOR-5GHZ	1	LigoDLB 5 Simulator
2	PoE (24 Volts)	1	Power supply (PoE) for the radios.
3	UTP cable (1.2 meters)	3	Straight UTP cable (TIA/EIA-568-B) of 1.2 meters (4 ft.).
4	Laptop	1	Laptop with administrator rights, Ethernet port, Wi-Fi interface, Java and Flash installed.

Example:



LigoDLB Simulator



24 VDC PoE



UTP Cable



Laptop

Image 1

Important Note: It is recommended that the LigoDLB radios are already upgraded to the last SW version available on the LigoWave website.

LigoPTP RapidFire radios for 2 participants:

<i>Item</i>	Equipment	Quantity	Description
1	LigoPTP RapidFire 5N	2	Radio in 5 GHz with external N Connectors
2	802.3af/at PoE (48 Volts)	2	Power supply (PoE) for the radios.
3	60 dB of attenuation	2	The commercial values of attenuators are 10 dB, 20 dB or 30 dB. A mixture of attenuators is required to achieve the 60 dB of attenuation per chain. The attenuator requires N connectors (N male- N female).
4	Coaxial cable	2	The recommended length of the cable is 0.6 meters (2 ft.). The required connector is N Male on both ends.
5	UTP cable (1.2 meters)	4	Straight UTP cable (TIA/EIA-568-B) of 1.2 meters (4 ft.).
6	Laptop	2	Each student should have a personal Laptop with administrator rights, Ethernet port, Wi-Fi interface, Java and Flash installed.

Example:



LigoPTP RapidFire 5-N



802.3af/at



Attenuator



Coaxial
cable



UTP Cable



Laptop

Image 2

Classroom facilities

<i>Item</i>	Equipment	Quantity	Description
1	Projector	1	Used by the instructor to teach the class.
2	Whiteboard and markers	1	Used by the instructor to make annotations during the class.
3	Table	1	Used by the students to attend the class.
4	Chair	2	Used by the students to attend the class.
5	Power outlet	4	A power strip could be used to provide the required contacts: *2 for the laptops *2 for the radios
6	Wireless internet access with a 2.4 GHz AP. The APC 2Mi is recommended.	250 kbps	Is recommended to have a minimum of 250 kbps per team. A backup scenario with 4G Router has to be considered in case of a failure.
7	Switch	1	24 ports switch