ANNEX A · PRACTICAL 3.6 · WIRELESS LAN

Name _____ **Group G =** _____ **Date** _____

Lines marked **[R]** go into your report.

TASK 0 · DECODE THE BOX (ALONE)

Printed on the box	Wi-Fi name (4, 5, 6, 6E, 7)	Bands
802.11b/g/n		
Dual band AC1200		
Wi-Fi 6 AX3000		
Tri-band Wi-Fi 6E		

My phone, right now (if it shows it): Wi-Fi generation _____ band _____ security _____

PART A · THE GROUP'S ACCESS POINT

Our SSID: `TRAMUNTANA-G` Our channel (from the board): _____ = _____ MHz Passphrase (12+ characters): _____

Look at the WinBox menu and follow **one** column.

If the menu says WiFi (`wifi1`)	If the menu says Wireless (`wlan1`)
a · WiFi → double-click `wifi1`. **b** · Mode `ap` · SSID · Country `Spain`. **c** · Channel: Frequency (MHz) · Width `20MHz`. **d** · Security: tick `WPA2 PSK` and `WPA3 PSK`, type the passphrase. **e** · Enable the interface.	**a** · Wireless → Security Profiles → + : name `tramuntana`, tick `WPA2 PSK`, type the key. **b** · WiFi Interfaces → double-click `wlan1`. **c** · Mode `ap bridge` · Band `2GHz-B/G/N` · Channel Width `20MHz` · Frequency · SSID · Security Profile `tramuntana` · Country `spain`. **d** · Enable the interface.

Then, both: Bridge → Ports → + : interface `wifi1` (or `wlan1`), bridge `bridge-lan`.
Finally: join `TRAMUNTANA-G` with your phone. It will say "no internet": stay connected.

[R] My phone's address _____ It comes from (which server?) _____

[R] From a wired PC: `ping -c 3` your phone's address. Answer? _____ What does that prove? _____
`DONE WHEN` every phone of the group has a `10.G.0.x` address and answers a ping from a wired PC.

PART B · MEASURE IT AND TRY TO BREAK IT (EACH STUDENT, OWN PHONE)

1. **Find yourself.** WiFi (or Wireless) → Registration. **[R]** MAC address shown for my phone: _____
   Is it the MAC printed in the phone's settings? _____ Why not? _____
2. **Walk.** A partner reads your signal in the registration table while you move.

[R] Where	1 m from the router	At the door	Behind a wall
Signal (dBm)			

Which of the three is the strongest signal? _____ How many dB did the wall cost? _____

3 **Wrong key.** Try to join another group's network with a wrong passphrase. **[R]** What happens? _____
Now ask them for the right one. **[R]** Address your phone gets there: _____ Why is it different? _____

4 **WPA3 only** (WiFi menu only). Security: untick `WPA2 PSK`. Reconnect all phones. **[R]** Which phones cannot connect? _____
Put `WPA2 PSK` back.

5 **Same LAN?** On a wired PC: `ping` a phone, then `ip neigh`. **[R]** Is the phone's MAC in the list? _____
Yesterday A could not see B's MAC. What is different today? _____

6 One student saves the configuration: `/export file=gG-1112`.

DONE WHEN you have three signal values of your own and you can say which is the best one and why.

Hand in `practical-3.6-surname.md` on Classroom before Monday 14/12 at 23:59: Task 0, the **[R]** answers, and five lines in your own words: which settings did you choose for your access point (band, channel, security) and why each one?

Marks (10): Task 0 correct 1 · access point works, phones get an address 3 · Part B measurements and answers 3 · the five lines of explanation 2 · clear report 1.

EXIT TICKET (ALONE, NO NOTES)

1. Wi-Fi 6 is the standard: A · 802.11ac B · 802.11ax C · 802.11n D · 802.11be
2. At 2.4 GHz, the channels that do not overlap are: A · 1, 2, 3 B · 1, 5, 10 C · 1, 6, 11 D · all 13
3. Compared with 5 GHz, the 2.4 GHz band:
   A · reaches farther but is slower and more crowded B · is faster and reaches farther
   C · is only for Wi-Fi 6 D · does not go through walls
4. The best choice for an office network today:
   A · WEP B · open network with a hidden name C · WPA with a short key D · WPA2/WPA3 with a long passphrase
5. Which signal is stronger? A · −45 dBm B · −80 dBm C · they are equal D · it depends on the channel