

EWHRA

Proyecto Integrador

- *Moya Santucho Atila*
- *Zangara Rüffer Máximo*
- *Martin Rodrigo Santiago*





ESTADO DE SOMNOLENCIA

¿Que Consecuencias Tiene?



ONDAS CEREBRALES



$$\text{SEÑAL} < \frac{220\text{V}}{4.400.000}$$

01

Delta

02

Theta

03

Alfa

04

Beta

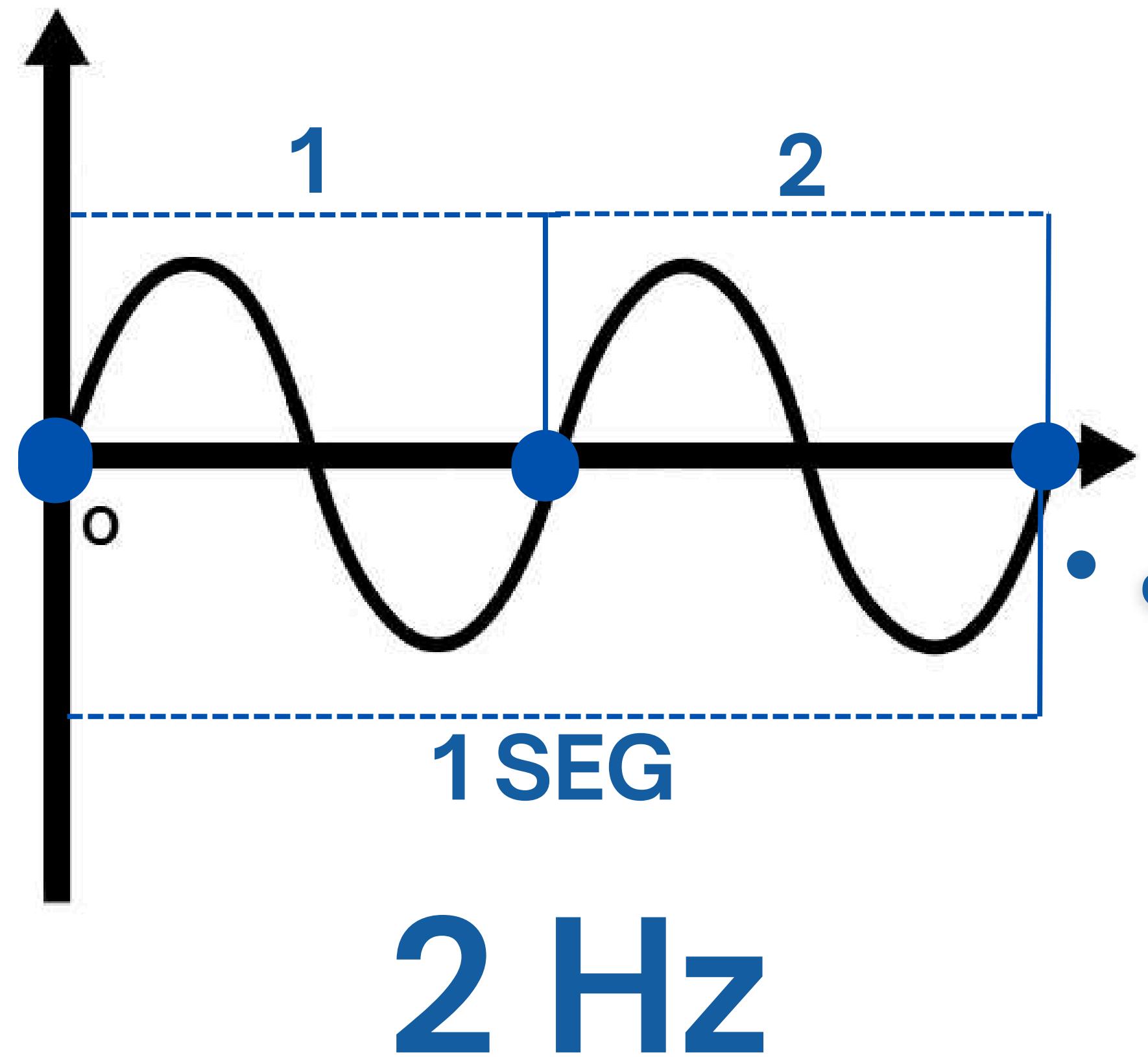
05

Gamma

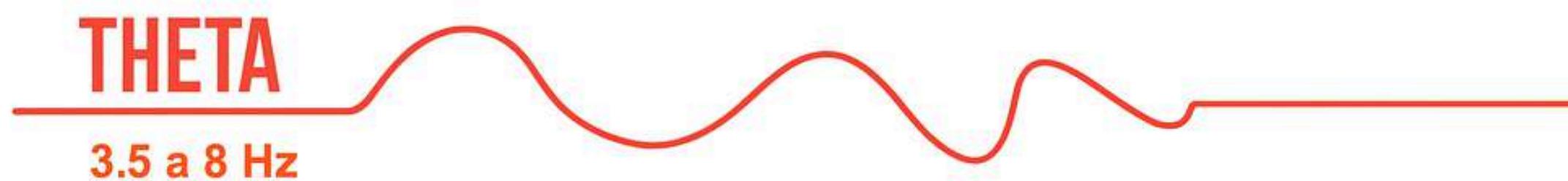
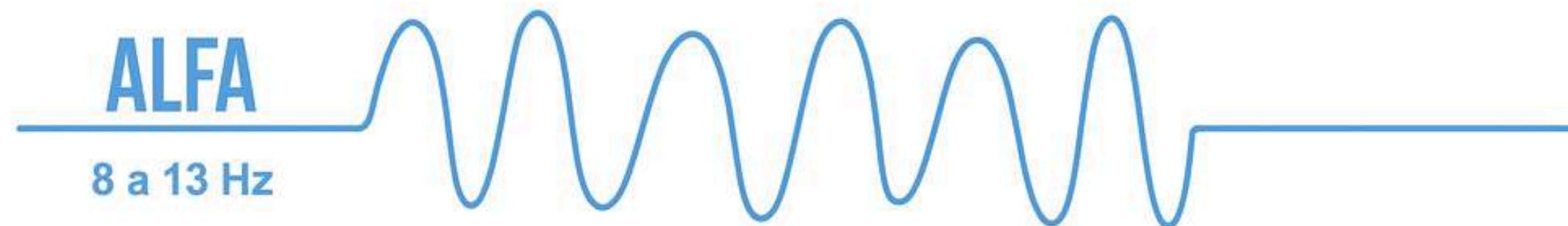
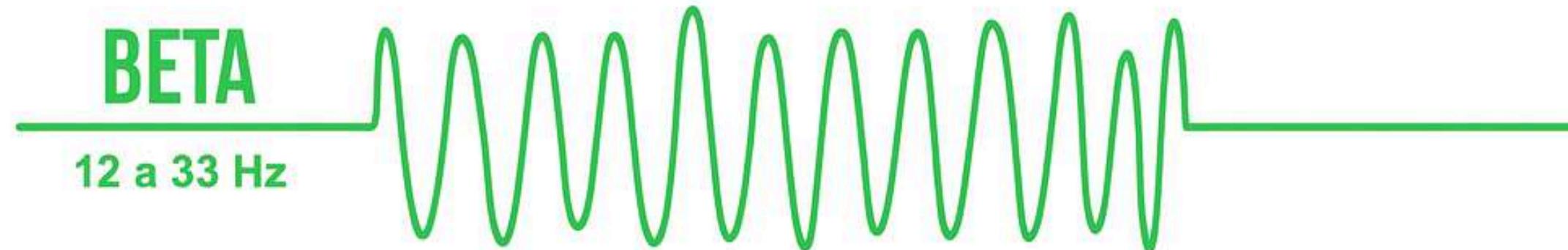
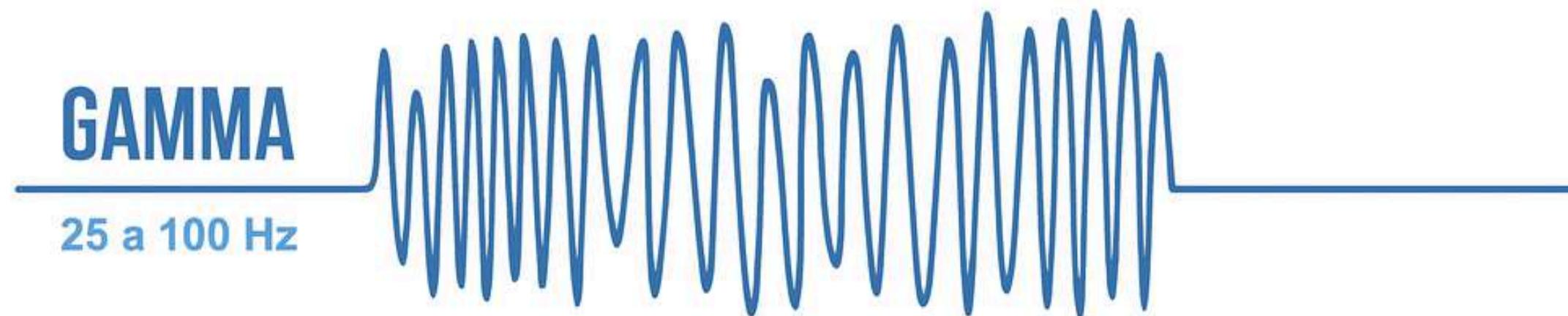




FRECUENCIA

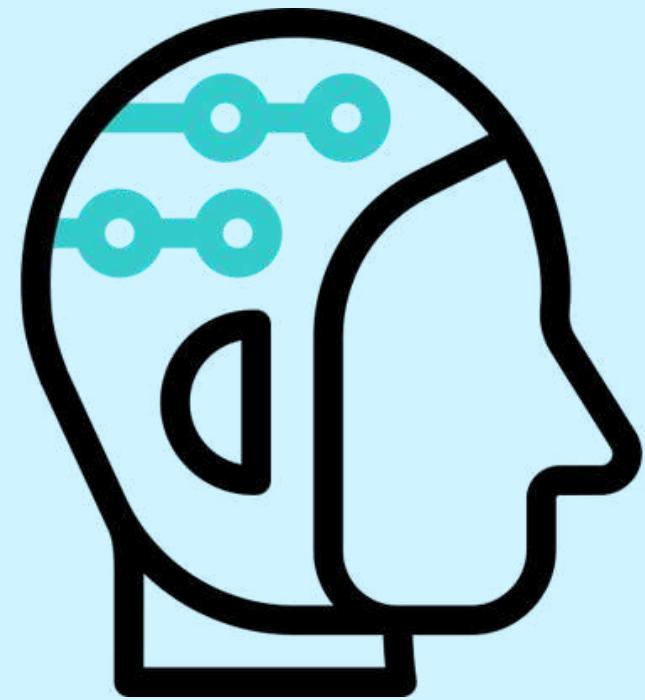


- ¿QUÉ ES?
- ¿EN QUE SE MIDE?





¿CÓMO SE DETECTAN?

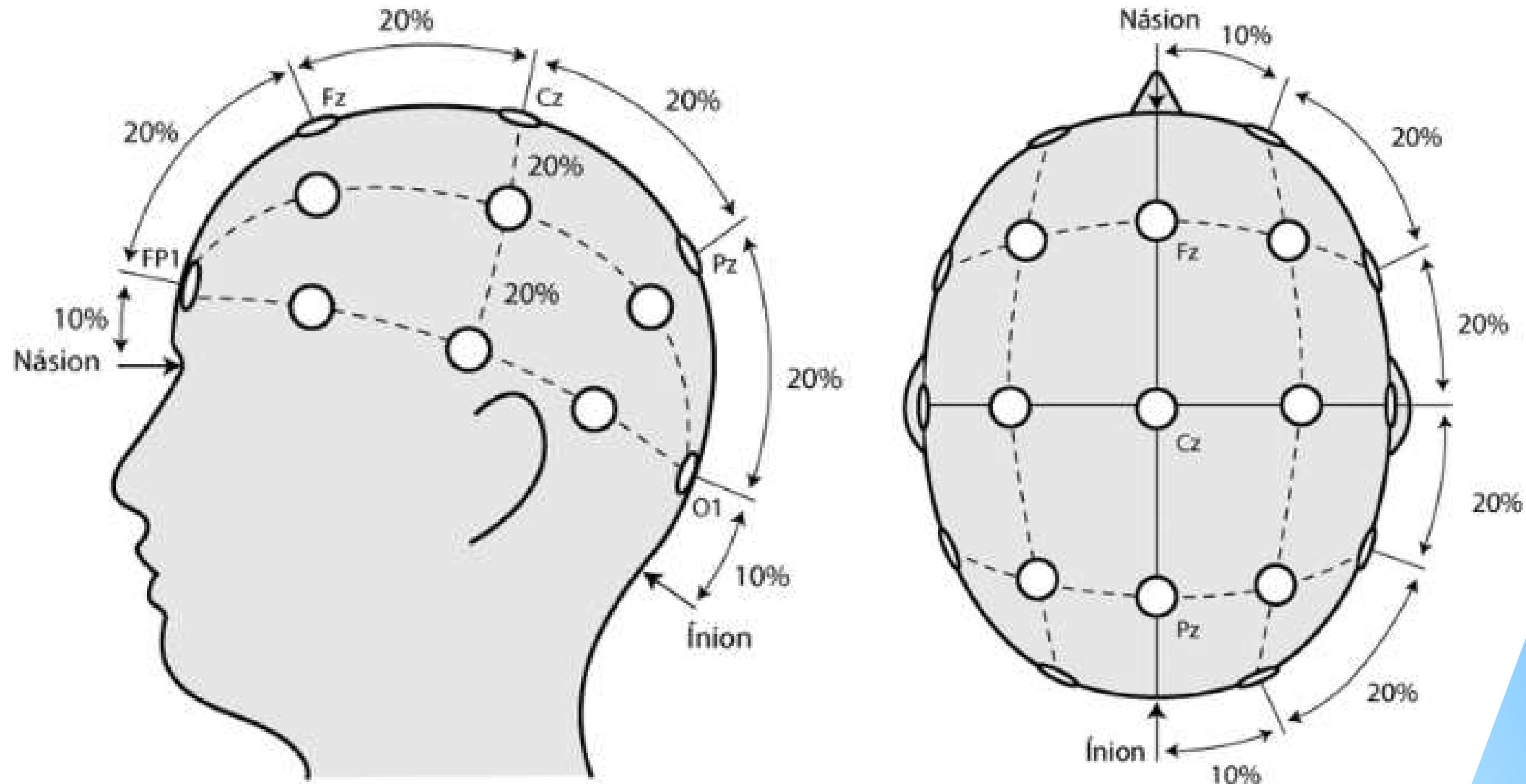


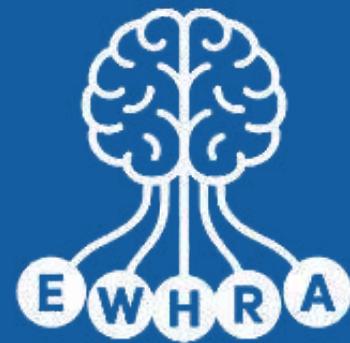
Electroencefalogramma





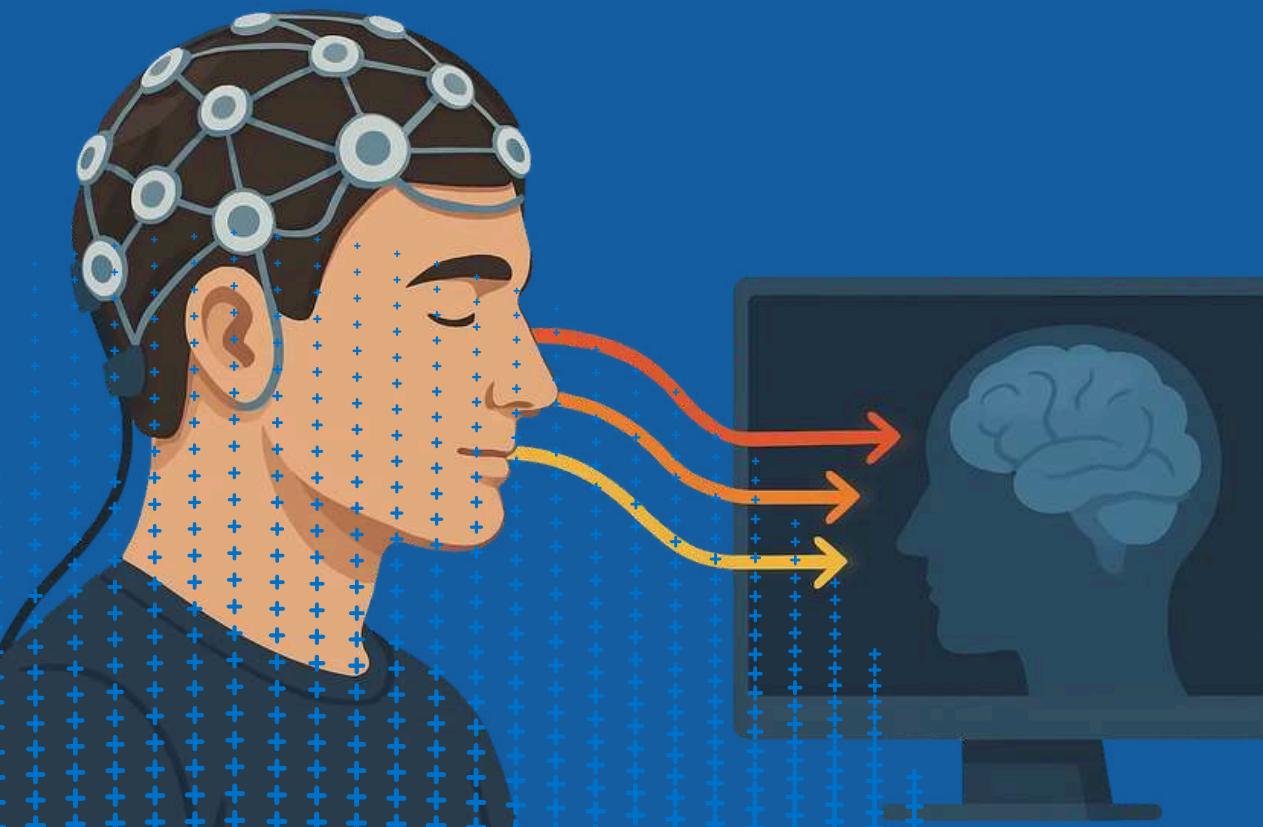
SISTEMA INTERNACIONAL 10/20





Interfaz Cerebro Computadora (ICC)

Aplicaciones



Rehabilitación

Mejora
Cognitiva

Neurofeedback

Protesis



Electroencephalographic
Wave
Helmet for the
Regulation of
Attention





¿Cómo detectar la somnolencia?

Ondas beta → Persona concentrada

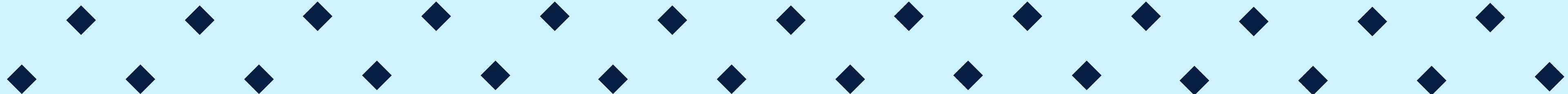
Disminución → Presencia de somnolencia



¿Cómo prevenir las consecuencias?

1. Detectar disminución

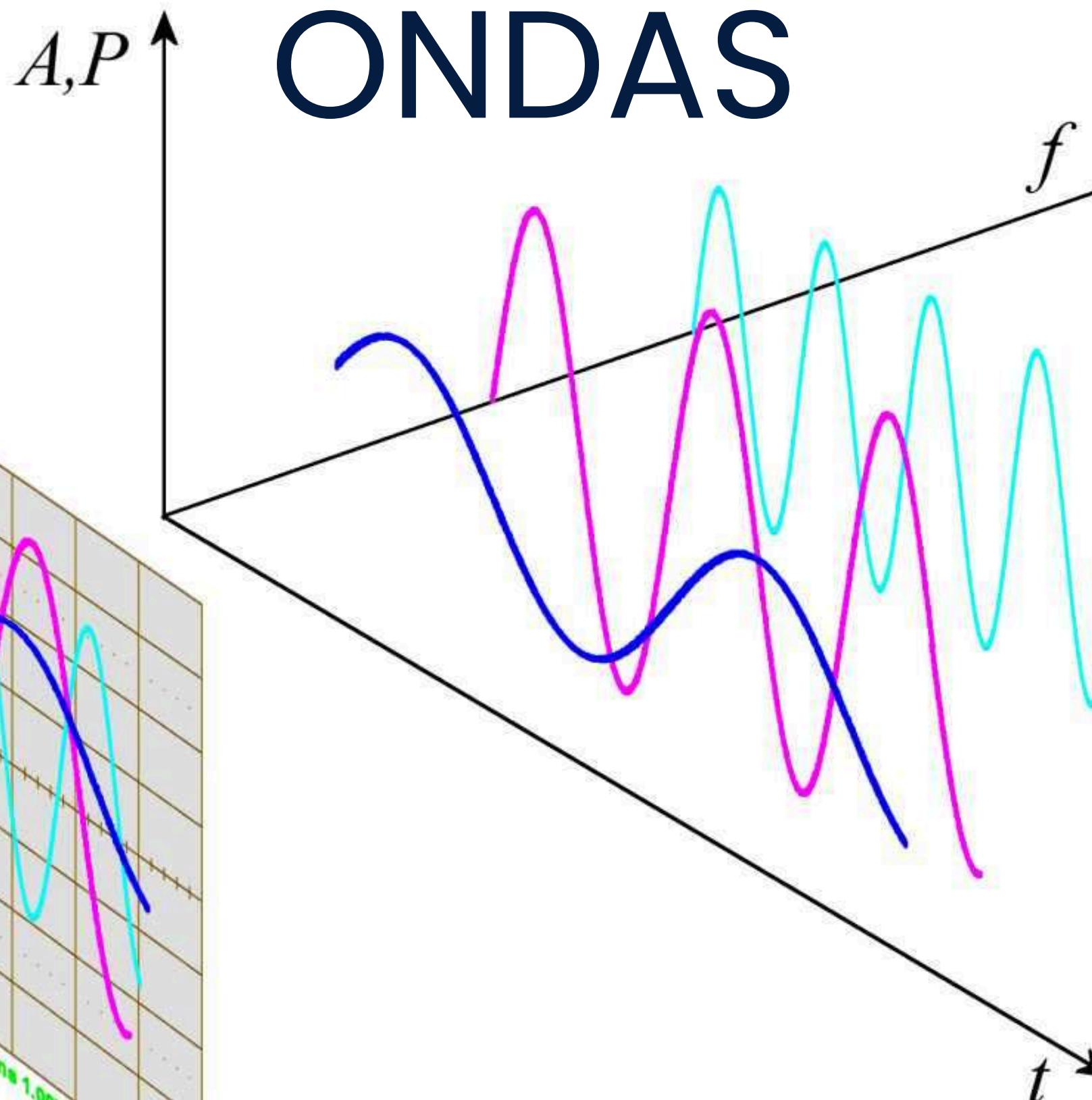
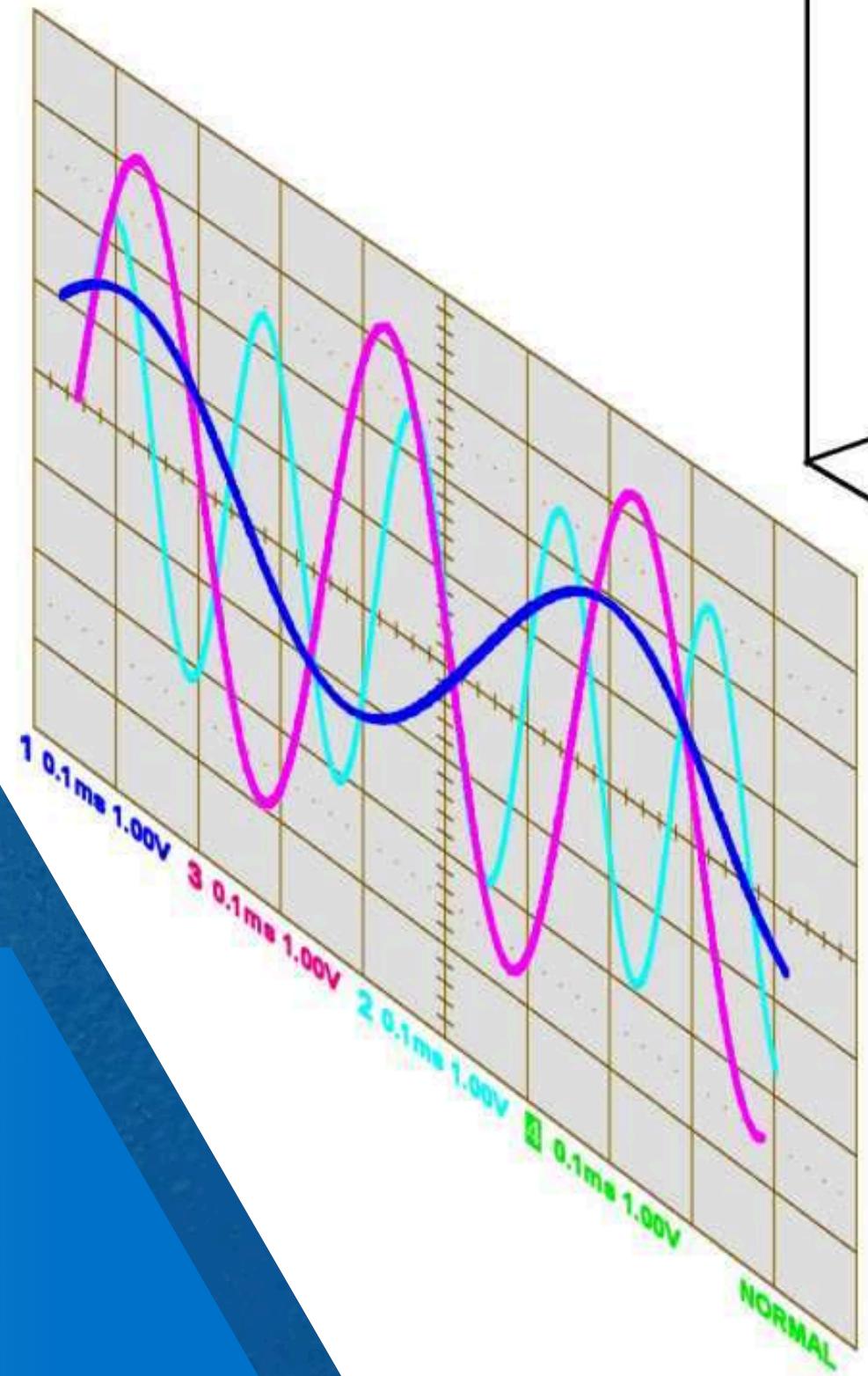
2. Advertir al usuario



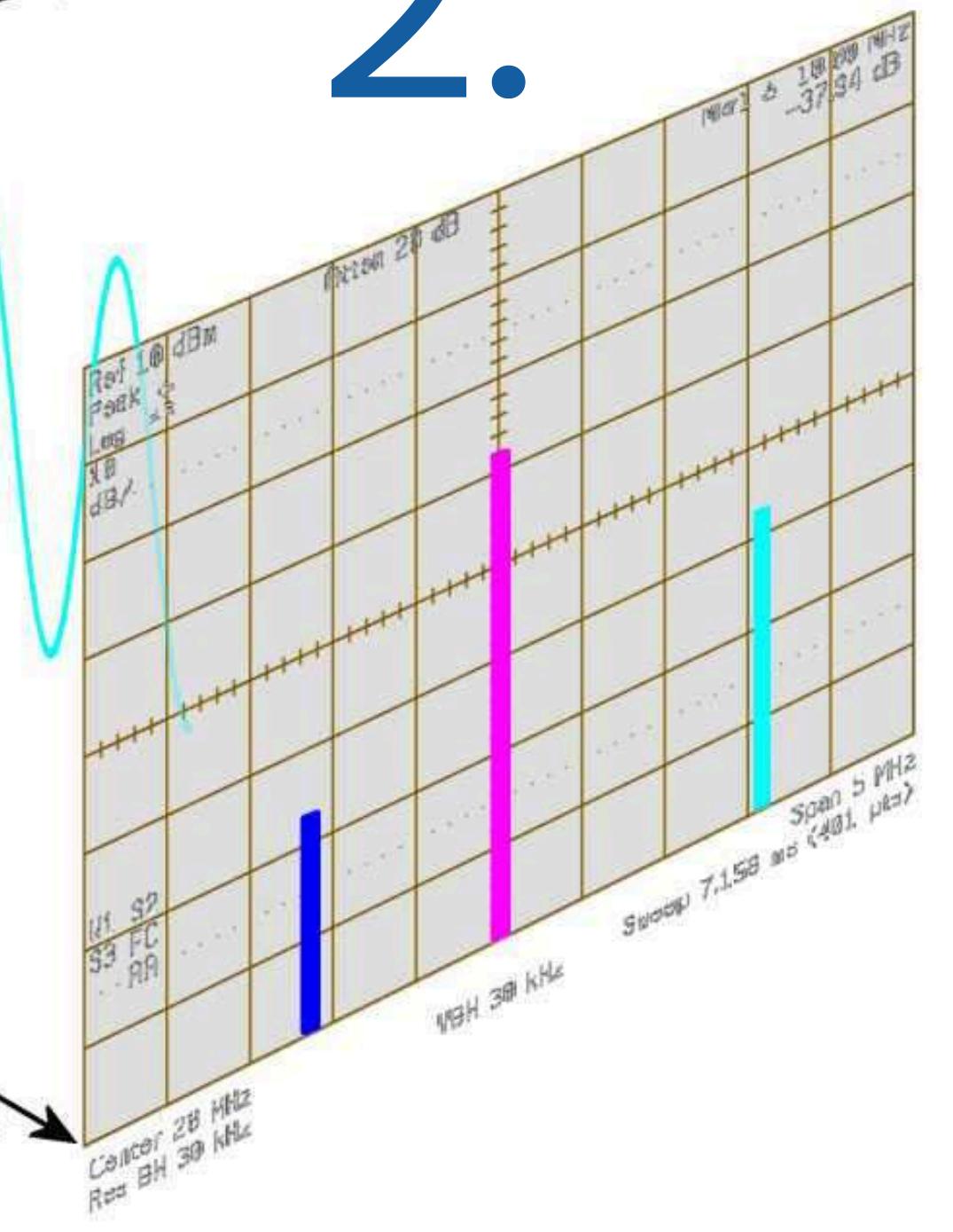


¿CÓMO DIFERENCIAR LAS ONDAS

1.

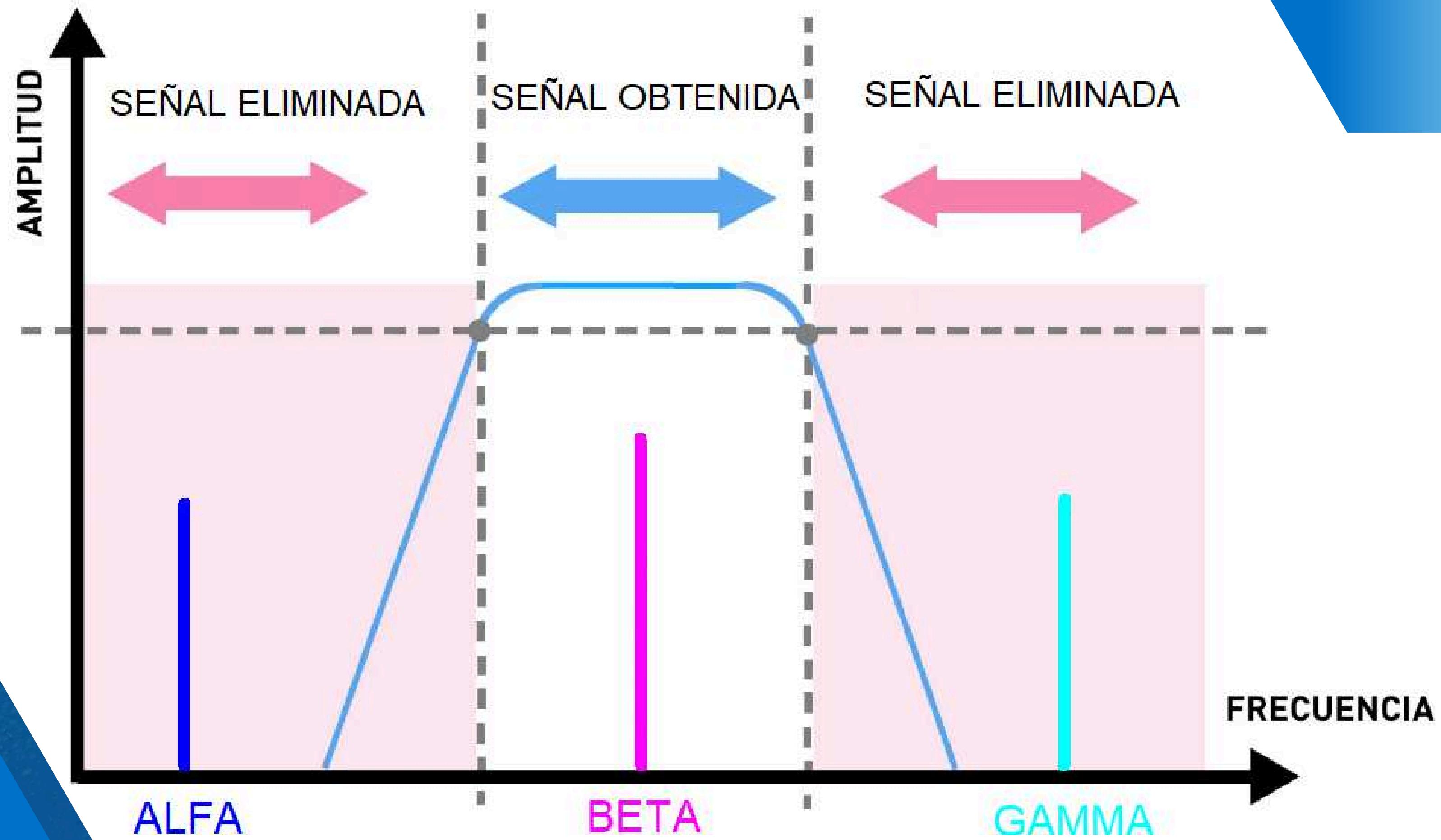


2.



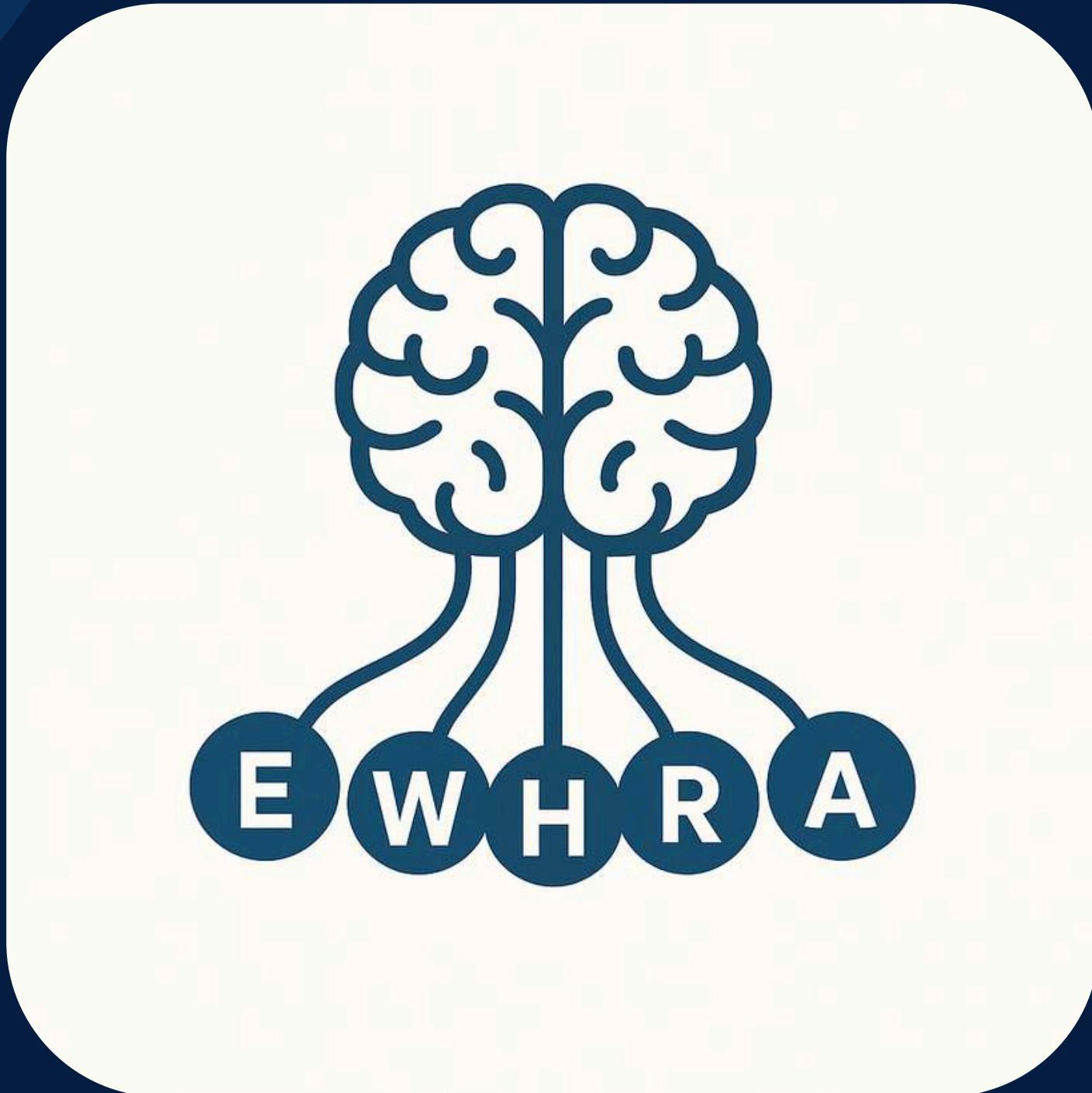


FILTRO PASA-BANDA





INTERFAZ GRÁFICA

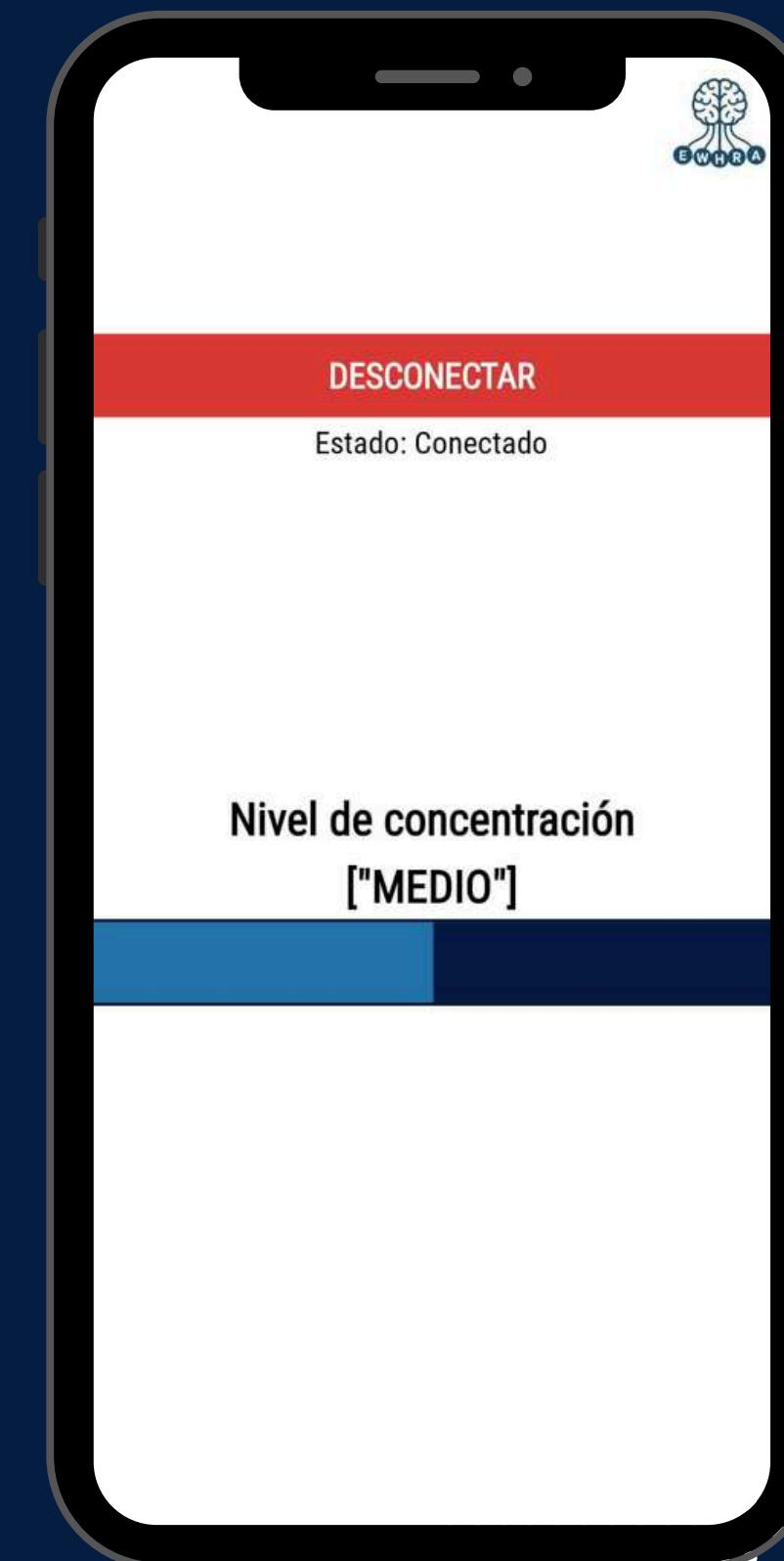
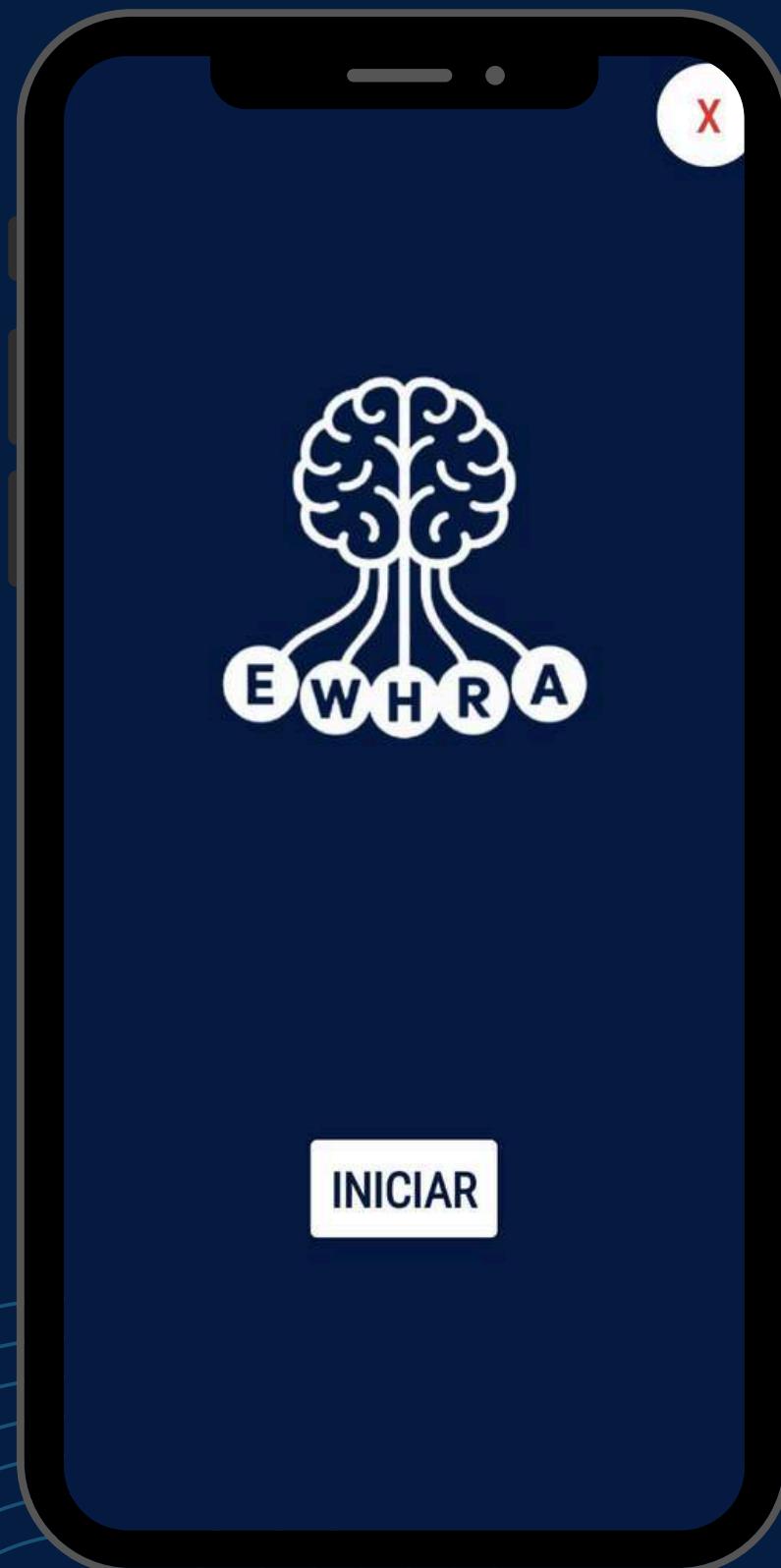


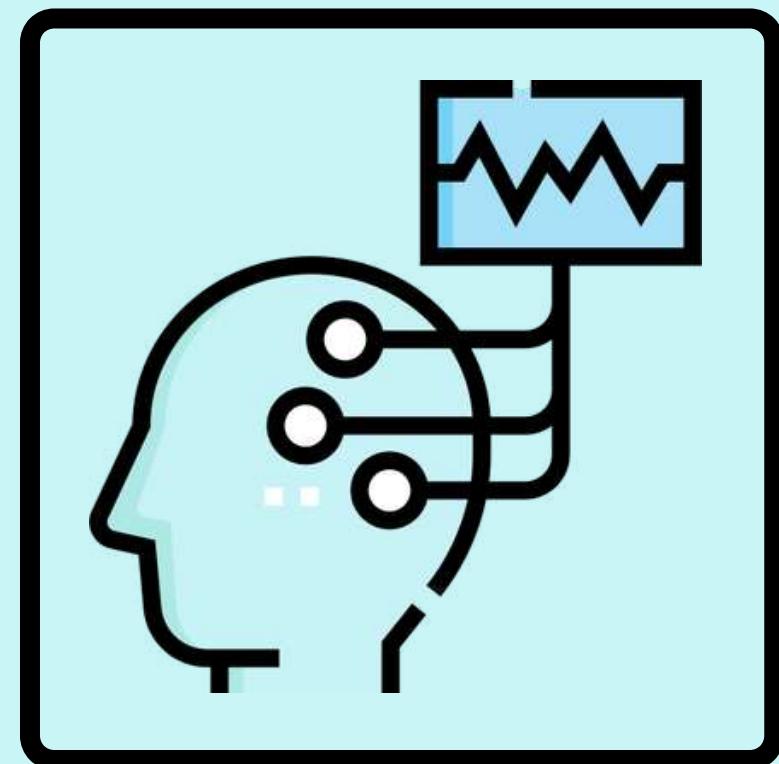
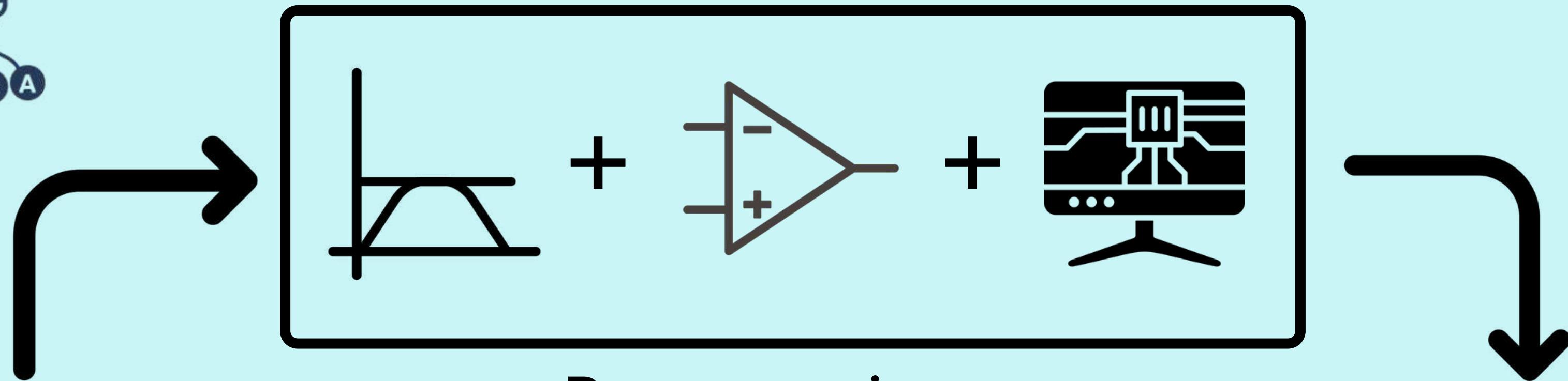
APP EWHRA

MONITOREO
EN TIEMPO REAL



APP EWHRA





Adquisición

Procesamiento

=

Filtro

+

Amplificación

+

Digitalización



Interfaz Gráfica



MEJORAS A FUTURO

RED DE
ALMACENAMIENTO
DE INFO

MONITOREO
REMOTO

CARGADOR
DEL
DISPOSITIVO

MAYOR
COMODIDAD



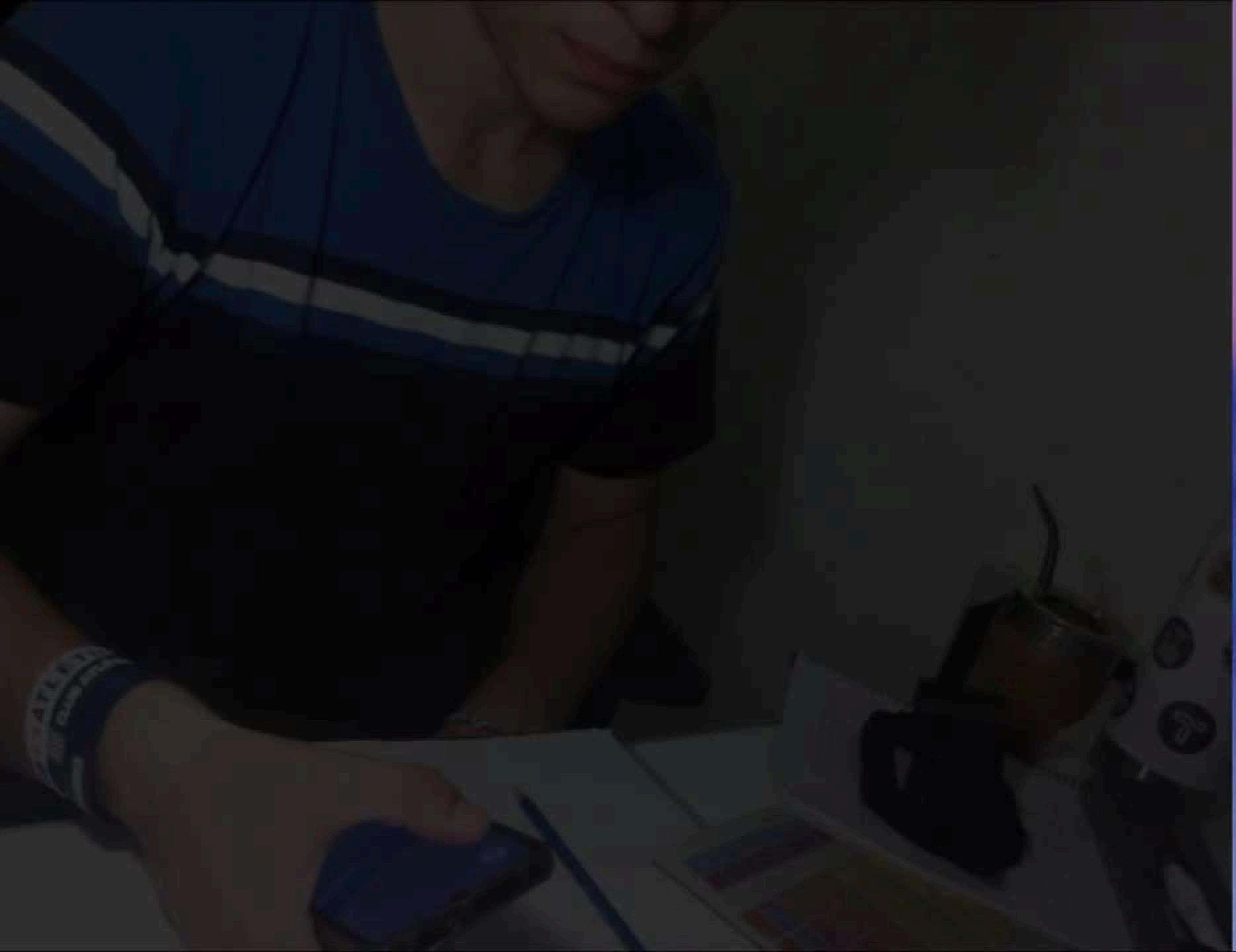
Complejidad EWHRA

Señales
diminutas

Sensibilidad
al entorno

Nivel de
tecnología

Tiempo
necesario



ESPAZO DE PREGUNTAS

