Technical Description

The EUT is a Professor Einstein Robot. It has a microcontroller with integrated wifi which controls speaking and body movement of the device and communicate with the smartphone application. The EUT is powered by 120VAC adaptor with 5VDC output and 3.7VDC (2 x 3.7VDC Rechargeable battery in parallel).

WLAN portion
Antenna Type: Internal, Integral Antenna
Antenna Gain: 2dBi

Operating mode	Peak Conducted Power	Modulation Type
802.11b	18.0dBm	DSSS
802.11g	21.0dBm	OFDM
802.11n (HT20)	21.0dBm	OFDM

Channel list

	802.11b	**802.11g**	**802.11n(20M)**
No. of channels	**11**		
Type of modulation	**Direct-sequence spread spectrum (DSSS) modulation**	**Orthogonal Frequency Division Multiplexing (OFDM) modulation**	**Orthogonal Frequency Division Multiplexing (OFDM) modulation**
Max. Bit Rate	**11Mbps**	**54Mbps**	**65 Mbps**

RF Channel	**TX/RX (MHz)**
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

The main components are described below:

2.4GHz WiFi module

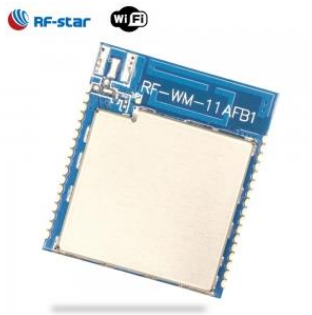
1. U1 (RTL8711AF QFN48) is 2.4GHz WiFi radio core for 802.11 b/g/n (HT20)
2. U1 (GPL326XXB) is the MCU
3. X1 is 40MHz crystal oscillator for Wi-Fi Module.
4. Y1 is 32.768kHz oscillator.
5. Y2 is 12Mhz oscillator.
6. Y3 is 32.768kHz oscillator.
7. U3 and U8 (GPCE2P064A) act as Motor circuit.

Professor Einstein technical description

Professor Einstein is connected to mobile or tablet via 2.4GHz WIFI. Once the WIFI is connected, it will use user's WIFI network to connect Hanson Robotics server for user information registration. Mobile APP will provide game playing.

Professor Einstein has microphone for sound direction detection at both ears. One microphone at body for voice recognition. One speaker at body for voice. These will allow robot interacting with users.

The WIFI is 2.4GHz onboard module with PCB antenna.



Parameters of RF-WM-11AFB1

Chipset	Realtek RTL8711AF
Supply Power Voltage	3.0 V ~ 3.6 V, recommended to 3.3 V
Frequency	2.4 GHz
Crystal	40 MHz
Package	SMT Packaging
Dimension	23.0 mm x 20.0 mm x (2.4 ± 0.1) mm
Type of Antenna	PCB antenna
Operating Temperature	-20 ℃～ +85 ℃
Storage Temperature	-40 ℃～ +125 ℃

Professor Einstein is 3.7V LIPO Battery powered and 5V USB charging.