

OEM/Integrators Installation Manual

Module name : DBWA

Product Name : WIRELESS ADAPTER

Project : IA9QH5 SY5-U09 (USB Dongle)

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1. Features

- **SYNIC Solution I2S Digital Audio Signal over USB3.0 connector**
- **5.2GHz/5.8GHz ISM Band**
- **GFSK modulation**
- **Low BOM cost**
- **Long distance > 30m (Line of sight)**
- **Support 1-1/1-2/1-3 duplex mode**
- **Digital I2S audio interface**
- **Support no audio detection function**
- **Short delay time variation**
- **Audio format 16/24 bit, 32/44.1/48K/96KHz sampling rate**
- **Robust Packet error correction**
- **Low power consumption**
- **No RF induced audio noise**
- **Audio latency time < 20ms**
(Programmable according customized spec.)

2. Application

- **Wireless HTiB Rear Speaker**
- **Wireless Outdoor Speaker**
- **Wireless TV theater**
- **Wireless Audio Sender**

3. RF Specification

Item	Min	Typ	Max	Unit	Note
Channel Range	5160	—	5240	MHz	
-20dB bandwidth	—	2.5	—	MHz	2M Mode
RF Output Power		12		dBm	Peak power at Antenna port
Sensitivity	—	-92	—	dBm	The smaller, the better

Table 1 5.2GHz RF Specification

Item	Min	Typ	Max	Unit	Note
Channel Range	5735	—	5840	MHz	
-20dB bandwidth	—	2.5	—	MHz	2M Mode
RF Output Power		12		dBm	Peak power at Antenna port
Sensitivity	—	-92	—	dBm	The smaller, the better

Table 2 5.8GHz RF Specification

4. Electrical Specification

Item	Min	Typ	Max	Unit	Note
USB Supply Voltage	4.5	5	5.5	V	
Operating Temperature	0	25	40	°C	
2.1CH Audio Mode					
Consumption Current (TX_MODE)		180		mA	RF Power :11dBm No GPIO driving
Consumption Current (RX_MODE)		100		mA	
0.1CH Audio Mode					
Consumption Current (TX_MODE)		130		mA	RF Power :11dBm No GPIO driving
Consumption Current (RX_MODE)		86		mA	

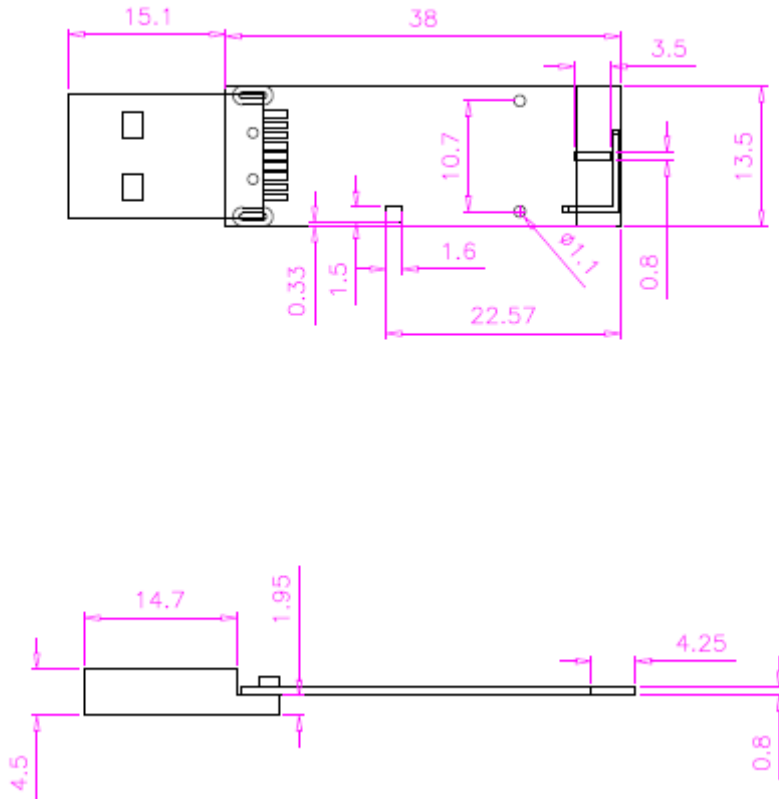
Table 4

Item						
Symbol	Parameter	Min	Typ	Max	Unit	Conditions
V _{IH}	Input High Threshold	2.0	—	3.33	V	LDO_OUT=3V
V _{IL}	Input Low Threshold	-0.3	—	0.8	V	LDO_OUT=3V
V _{OH}	Output High Threshold	2.4	—	—	V	LDO_OUT=3V
V _{OL}	Output Low Threshold	—	—	0.4	V	LDO_OUT=3V

Table 5

5. Mechanical Specification

- Dimension : 53.1 * 13.5 * 4.5 mm
- PCB 4 Layers
- Mechanical Drawing :



Tolerance Range Spec (mm)			
DIM	0 - 5	5 - 10	10 - 50
Tolerance	±0.15	±0.20	±0.30

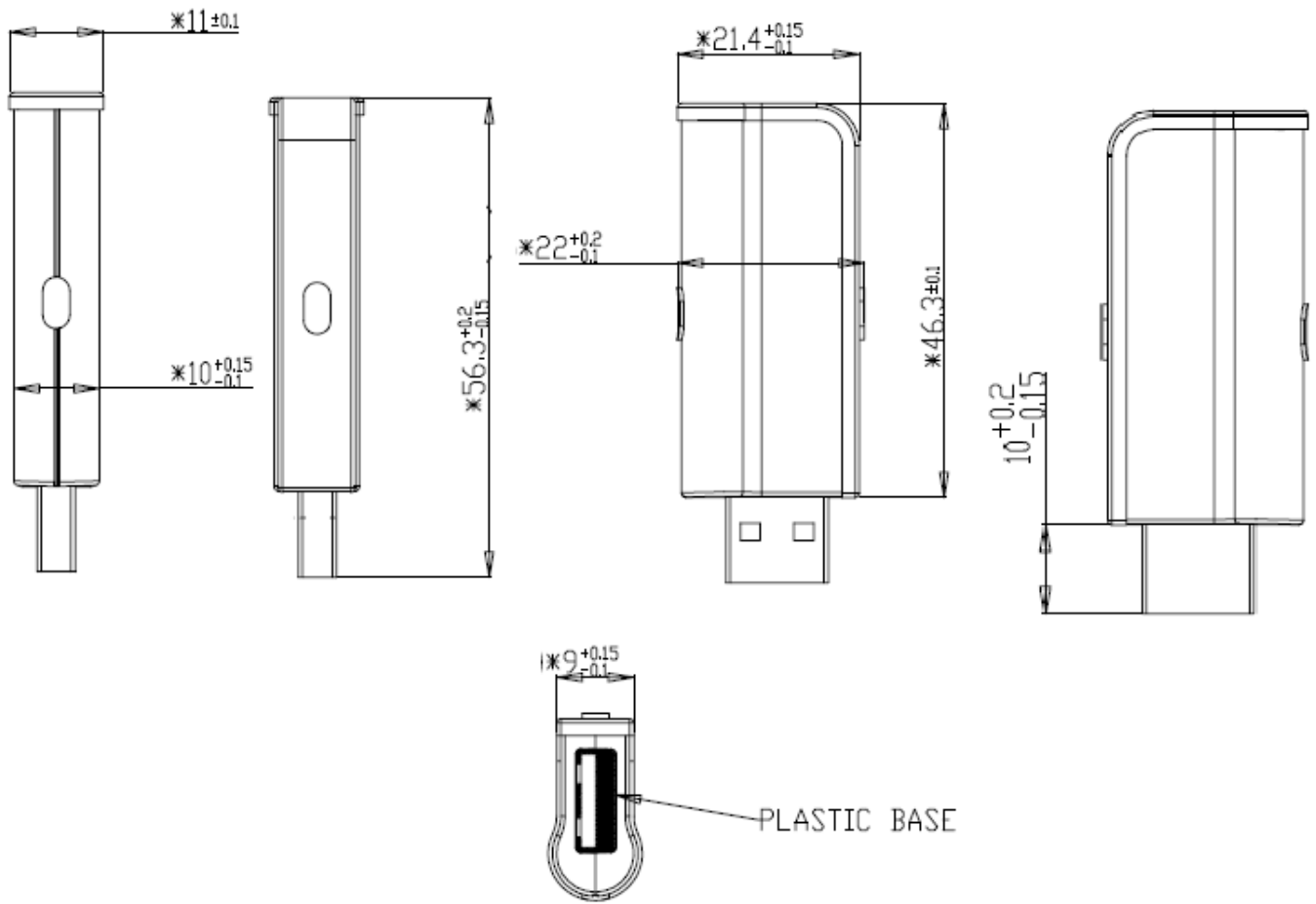
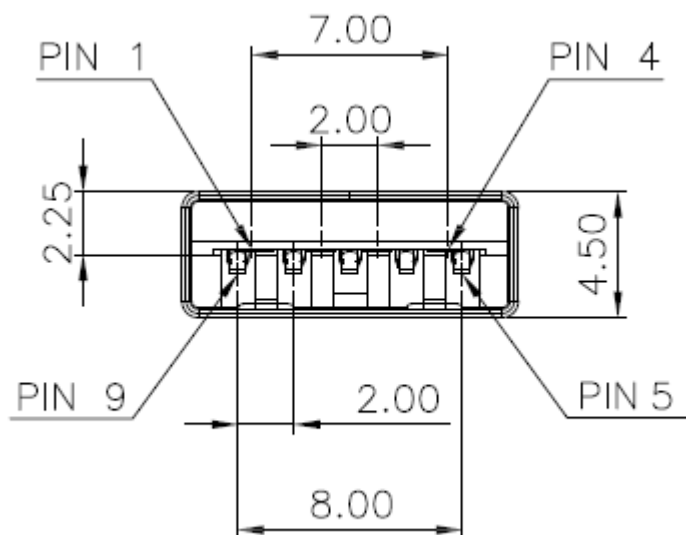


Fig 6.1 Mechanical Drawing of IA9QH5 SY5-U09

6. Pin Definitions

Pin	Name	I/O	Description
1	VUSB	P	DC 5V IN
2	I2C_CLK	I/O	I2C Master/Slave clock signal
3	I2C_DATA	I/O	I2C Master/Slave data signal
4	GND	P	Digital GND
5	I2S_MCLK	I/O	I2S audio MCLK
6	I2S_BCK	I/O	I2S audio BCK
7	SPB_I2S_DATA	I/O	SPB I2S audio Data
8	I2S_LRCK	I/O	I2S audio LRCK
9	SPA_I2S_DATA	I/O	SPA I2S audio Data



7. FCC Statement

COMPLIANCE INFORMATION

15.19

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- A. This device may not cause harmful interference, and
- B. This device must accept any interference received, including interference that may cause undesired operation.

2. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.21

Note: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

15.105(b)

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- . Reorient or relocate the receiving antenna.
- . Increase the separation between the equipment and receiver.
- . Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- . Consult the dealer or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement

1. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
3. FCC RF Warning.

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

8. IC Statement

This device complies with the Canada portable RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

Canada, Industry Canada (IC) Notices

This Class B digital apparatus complies with Canadian ICES-003. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

For Canadian customers : CAN ICES-3(B)/NMB-3(B)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements de la IC établies pour un environnement non contrôlé. Cet équipement

IC labeling requirement for the final end product: The final end product must be labeled in a visible area with the following "Contains IC: **7956A-DBWA**" The Host Marketing Name (HMN) must be indicated at any location on the exterior of the host product or product packaging or product literature, which shall be available with the host product or online.

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems

9. Important Safety Instructions

1. Do not use this apparatus near water.
2. Clean only with dry cloth.
3. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
4. The equipment could be used at maximum 40 degree C ambient temperature.
5. Do not open the equipment to reduce the risk of electrical shock. For safety reasons it is only allow to the opened by qualified service personnel.
6. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. And the apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
7. Do not install this equipment in a confined or building-in space such as a book case or similar unit, and keep well ventilation conditions at open site. The ventilation should not be impeded by covering the ventilation openings with items such as newspaper, table-cloths, curtains etc.No naked flame sources, such as lighted candles, should be placed on the apparatus.

10. Instructions to the OEM/Integrator

This module has been granted modular approval for mobile applications. OEM integrators for host products may use the module in their final products without additional FCC/ISED (Innovation, Science and Economic Development Canada) certification if they meet the following conditions. Otherwise, Additional FCC/IC approvals must be obtained.

- The OEM must comply with the FCC labeling requirements. If the module's label is not visible when installed, then an additional permanent label must be applied on the outside of the finished product which states: "Contains transmitter module FCC ID: **WLQDBWA**".

Additionally, the following statement should be included on the label and in the final product's user manual:

"This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interferences, and (2) this device must accept any interference received, including interference that may cause undesired operation."

- The user's manual for the host product must clearly indicate the operating requirements and conditions that must be observed to ensure compliance with current FCC / IC RF exposure guidelines.

- The final host / module combination may also need to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device.

- This Module is full modular approval, it is limited to OEM installation ONLY.

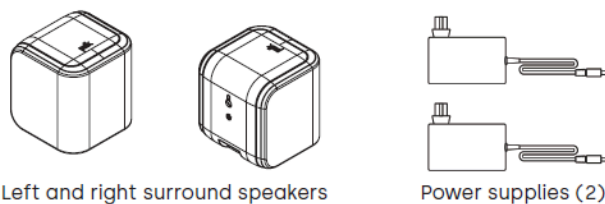
- The module is limited to installation in mobile application.

- A separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and difference antenna configurations.

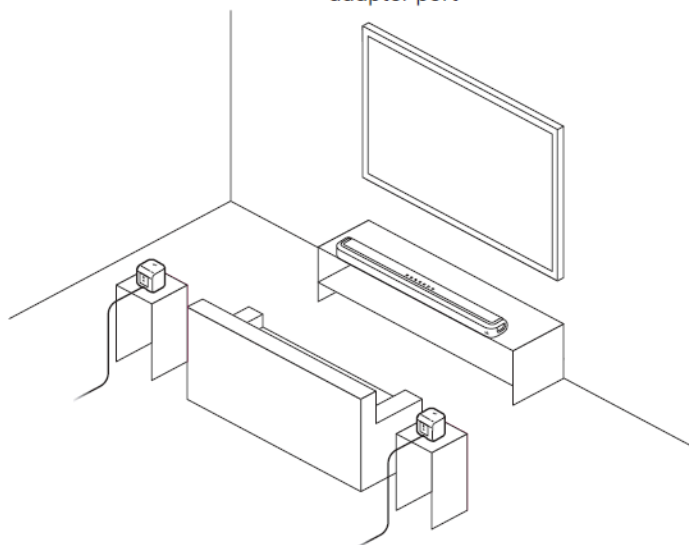
- The Grantee will provide guidance to the Host Manufacturer for compliance with the Part 15B requirements if requested.

CONNECT THE WIRELESS SURROUND SPEAKERS

1. Unpack the two surround speakers, two power supplies, and one wireless adapter.
2. Insert the wireless adapter into the Wireless Adapter port on the back of the sound bar (if not already installed for the subwoofer).



3. Place the surround speakers on the left and right sides and equidistant from the main listening position.
4. Make sure you place the speaker marked LEFT on the left and the speaker marked RIGHT on the right.
5. Plug the power supply into the speaker and then into a power outlet.



Enter pairing mode on the sound bar

1. Press and hold the CONNECT button located on the back of the sound bar for about four seconds.

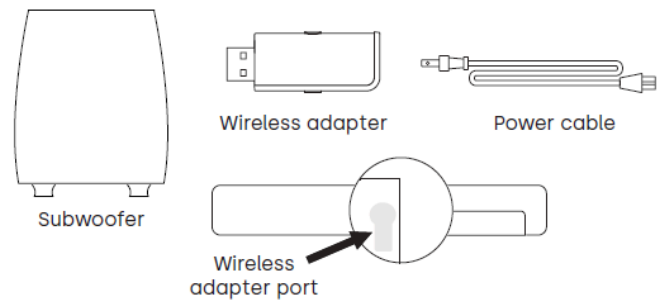


Connect the surround speakers

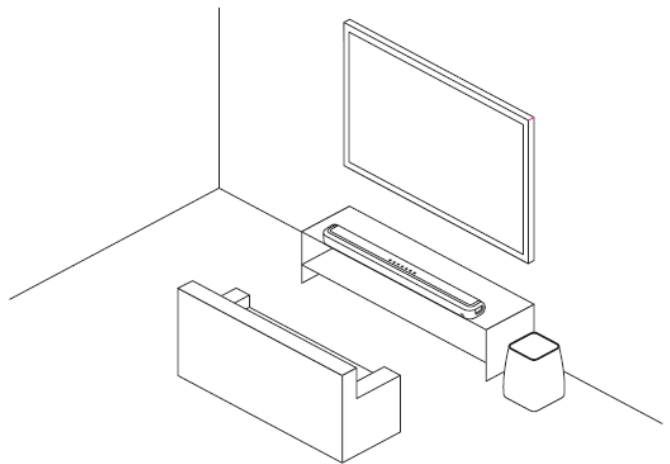
2. Press and hold the CONNECT button on the back of the surround speaker for about four seconds.
3. Repeat step 2 for the other surround speaker.
4. Press and release the CONNECT button on the back of the sound bar to complete pairing.

CONNECT THE SUBWOOFER

1. Unpack the subwoofer, wireless adapter, and power cable.
2. Insert the wireless adapter firmly into the Wireless Adapter port on the back of the sound bar.



3. Place the subwoofer along the same wall as the TV, no more than 30 ft (10m) from the sound bar.
4. Connect the power cord to the POWER port on the back of the subwoofer.
5. Connect the other end of the power cord into an AC power outlet.



Enter pairing mode on the sound bar

1. Press and hold the CONNECT button on the back of the sound bar for about four seconds.



Connect the subwoofer

2. Press and hold the CONNECT button on the back of the subwoofer for about four seconds.
3. Press and release the CONNECT button on the back of the sound bar to complete pairing.