User's manual

CY-WDCB7UR

V1.0

CONTENT

IMPORTANT SAFETY INSTRUCTUIONS

Please read and observe all warnings and instructions given in this manual and those marked on the unit before use of the unit.

⚠ DANGER

- Avoid direct contacts to water, moisture, any sorts of beverages, excessive heat and magnetic sources.
- Do not handle the unit in with wet hands, especially when plugging or unplugging, to avoid electric shocks.

⚠ WARNING

- Do not disassemble, modify, tamper or repair the unit yourself. Refer all servicing to qualified service personnel.
- Do not drop or expose the unit to excessive shock.
- Keep the device out of direct sun light, wind, high-humidity and dusts.
- Plug in USB Transmitter properly. If reversely plugged, that may cause harmful damages.
- Do not place the unit on hot area or block the ventilator of the unit to avoid overheat.

⚠ CAUTION

- Do not relocate the unit while in use. That may cause malfunctioning of the unit.
- Use the correct power source only.
- Never place the unit or AC adapter on a heat sensitive surface
- Never allow any liquids to spill into any part of your product, and never expose the product to rain, water, seawater or moisture
- Never operate the unit during a thunderstorm.

FCC information

The following information must be included in the User Manual for the Final End Product (Host Product):

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 interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
This device is authorized under Title 47 CFR 15.519 (the FCC Rules and Regulations).
The operation of this device is subject to the following restriction:

Changes or modifications made to this equipment not expressly approved by SAMSUNG or parties authorized by SAMSUNG could void the user's authority to operate the device under the FCC Equipment Authorization. This includes changes or substitutions of the antennas which are furnished with the device.

UWB devices may not be employed for the operation of toys. Operation onboard an aircraft, a ship or satellite is prohibited.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following

Contains FCC ID: A3LCYWDCB7UR

This device complies with Part 15 of FCC rules. 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.

1. Package Components

RF module with antenna

Anti-shielding bag

Driver CD

2. How to install the CY-WDCB7UR?

2.1 UWB RF module applications

This is the UWB module for OEM usage in the application of high speed data transmission. This module follows standard Half miniCard mechanical dimension which is used in the commercial area. This module is used primarily inside set-top box, wireless monitor or A/V receiver box for wireless connection of A/V signal and data line as like USB signal.

2.2 Interface signals

This module is based on USB 2.0 interface. Pins of connector have USB and GPIO signals and power.

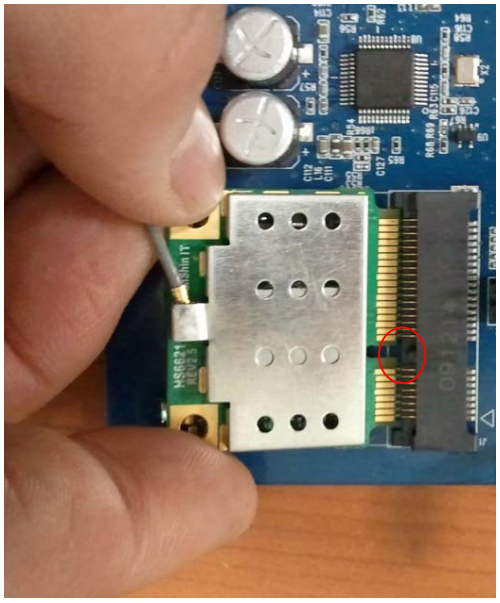
GPIO signals can be programmed for I2C signal line for device control. Power 3.3V is supplied to the module. In the module, 1.2V, 2.4V DC are made for the circuit and 3.3V is used for I/O part. The power consumption is about 1W.

2.3 Module Installation

The mother board which is installed with the UWB module should have a miniCard connector and latch parts.

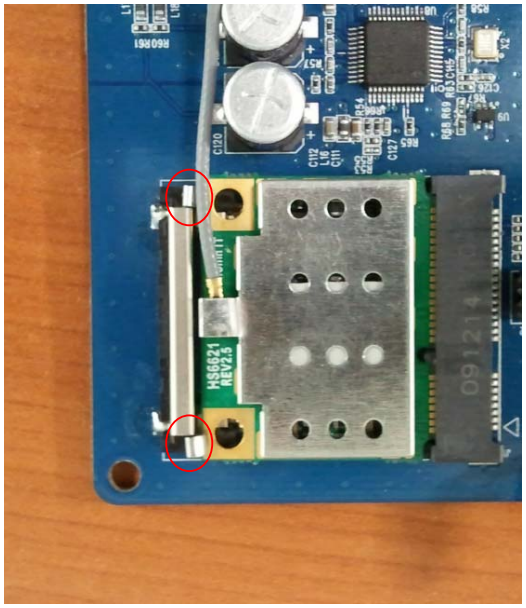
This module is half size mini-card and the connector and latch on the mother board should be spaced with the distance for half size miniCard.

The installation procedure is as follows.



Prepare the module and align the module to the miniCard connector as the picture.

If the alignment is done, insert the module into the connector, press down the top center of module. Then you can hear the sound of locking by latch part.



This is the picture which is installed with the module. Check that the latch's clip is locked properly.

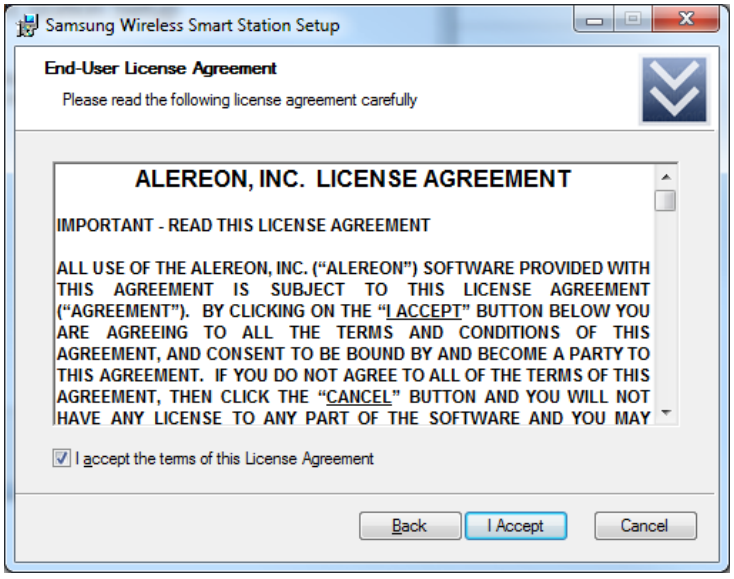
3. S/W installation

This module needs Driver installation in PC side. The S/W in CD includes Wireless connection manager s/w and driver for **CY-WDCB7UR.**

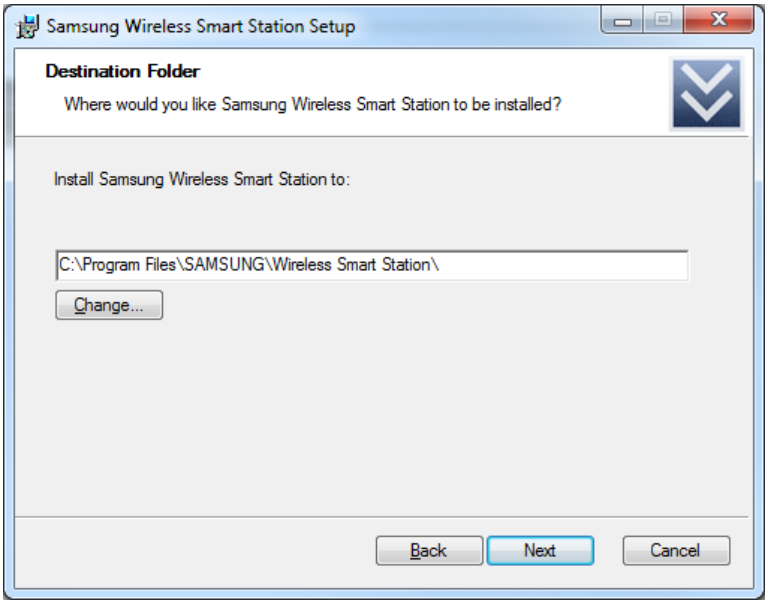
- Put the CD to computer CD driver which is provided.

- Click the installation program in the CD
- Install Wireless USB driver. Click Next

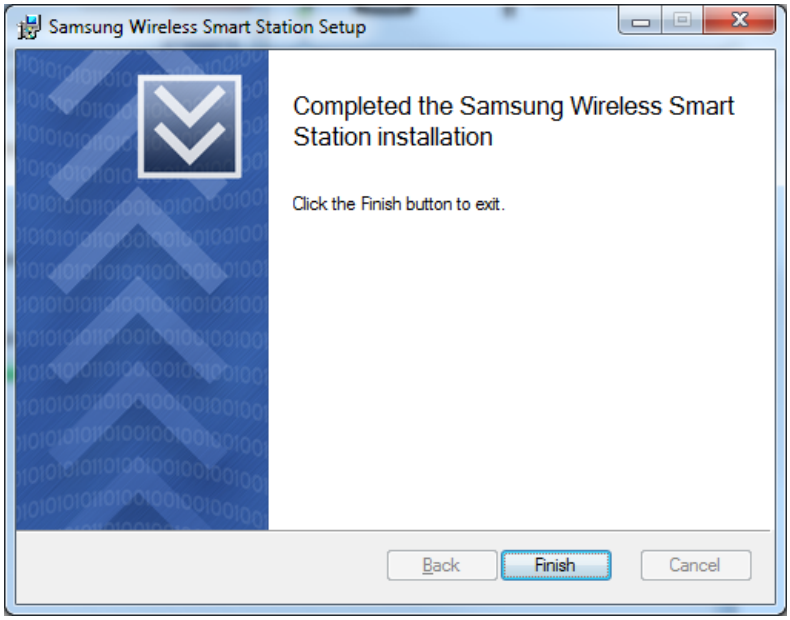
- If you agree the agreement, click the "I Accept".



- Click the Next after addressing the installation path.



- Click the finish and complete the wireless manager program.



- Reboot the computer after finishing the installation.

4. Connecting Wireless USB dongle to USB port

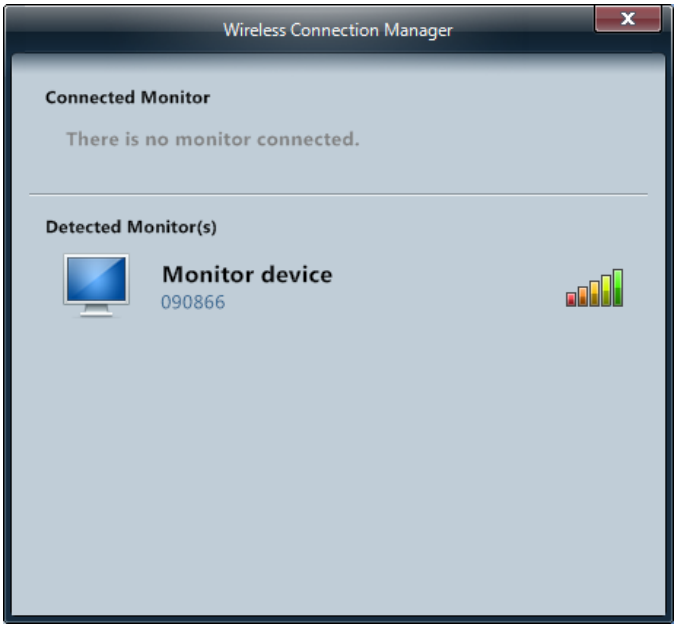
You need to use Wireless USB dongle to run **CY-WDCB7UR.**

- Plug the USB dongle to the USB port in computer.

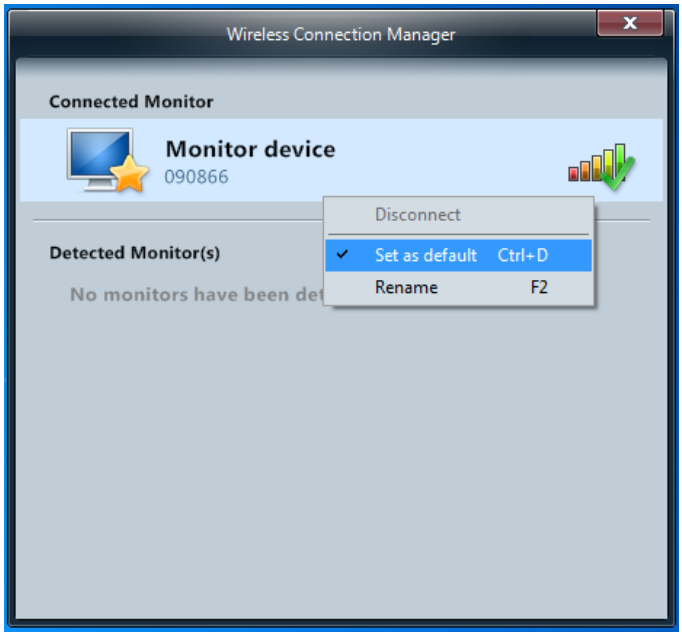
NOTE: you can use USB extension cable if your computer is desktop PC. Be careful there is no object between USB dongle and receiver.

- New hardware device installation message is showed in the tray. Please wait until completing of the installation.
- If new device installation is completed, click the "wireless Connection Manager" for running the program. Then you can see the connectable monitors.

(Wireless Connection Manager icon)

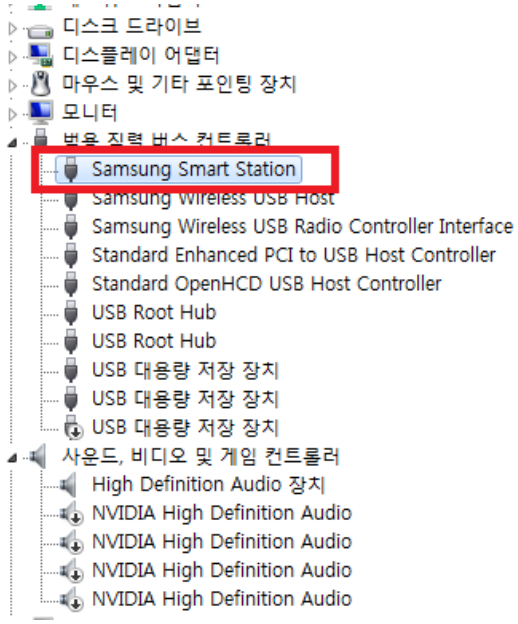


If you select and click the monitor device and it becomes Connected Monitor. If you want automatic connection, click the right button of mouse and select "Set as default".



5. How to check the proper installation of CY-WDCB7UR?

When you complete the s/w installation and connect the monitor device which **CY-WDCB7UR** is included, you can check whether the driver is properly installed or not in the device manager in PC. You can find "Samsung Smart Station" device in USB device list if it is installed without problem.



6. Cautions

This device uses ultra high frequency radio. Therefore if there's an object like concrete wall or furniture etc, between USB dongle and receiver device, the radio performance will be decreased much. Any obstacle objects should not be between USB dongle and receiver. The operating range is 5~10m and it can be varied according the environment.

7. HARDWARE SPECIFICATIONS

7.1 GENERAL

Wireless circuit compatible with IEEE 802.15.3a standard and provide maximum speeds up to 480 Mbps.

7.2 PRODUCT CHACTERISTICS

The CY-WDCB7UR is designed for PC monitor UWB module product. It provides the fast data transportation between user and PC monitor via wireless network. The device is intended for use in a wide range of system types with extensive communication and connectivity requirements.

Radio technology: Compliance with 802.15.3a standards
Operating frequency: 3.16GHz ~8.97GHz, BG1, BG3, BG6
Modulation Schemes: Multiband OFDM

Data rate(Mbps)

53.3, 80, 106.7, 160, 200, 320, 400, 480 in BG1, BG3, BG6.

7.3 ENVIRONMENT

7.3.1 Temperature

Operating Temperature Conditions

The product shall be capable of continuous reliable operation when operating in ambient temperature of 0℃ to +60℃.

Non-Operating Temperature Conditions

Neither subassemblies shall be damaged nor shall the operational performance be degraded when restored to the operating temperature when exposed to storage temperature in the range of -10℃ to +75℃.

7.3.2 Humidity

Operating Humidity Conditions

The product shall be capable of continuous reliable operation when subjected to relative humidity in the range of 10% and 85% non-condensing.

Non-Operating Humidity conditions

The product shall not be damaged nor shall the performance be degraded after exposure to relative humidity ranging from 5% to 90% non-condensing.

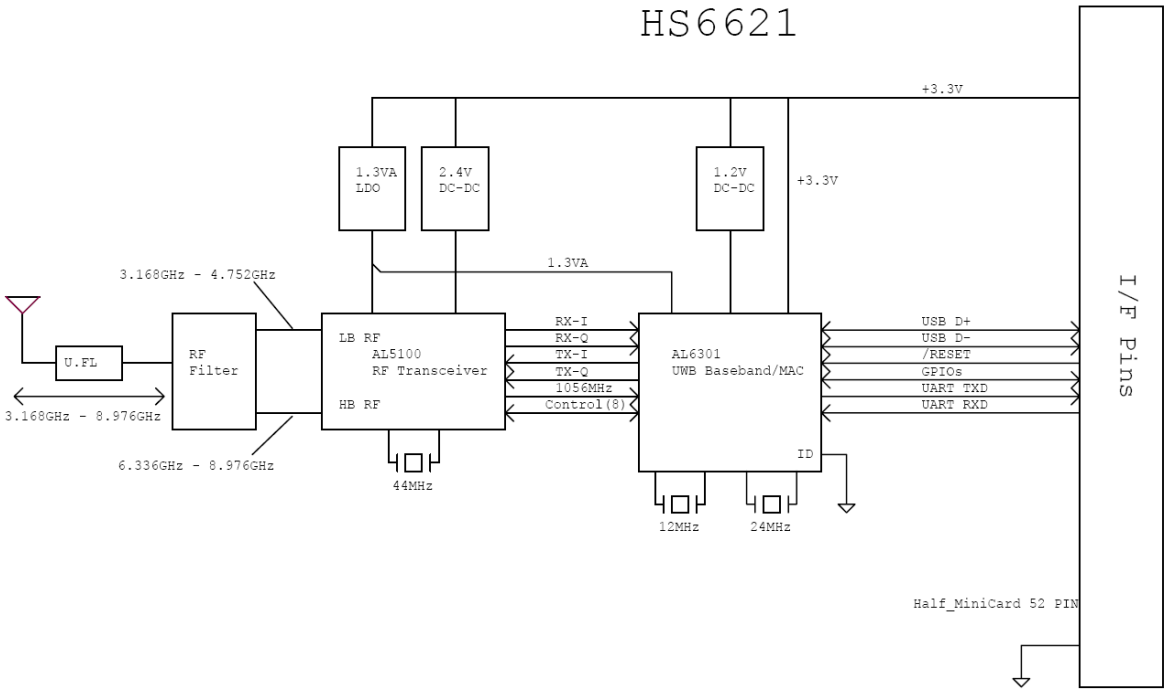
7.4 PRODUCT PHOTOGRAPH

PCB TOP and BOTTOM SIDE

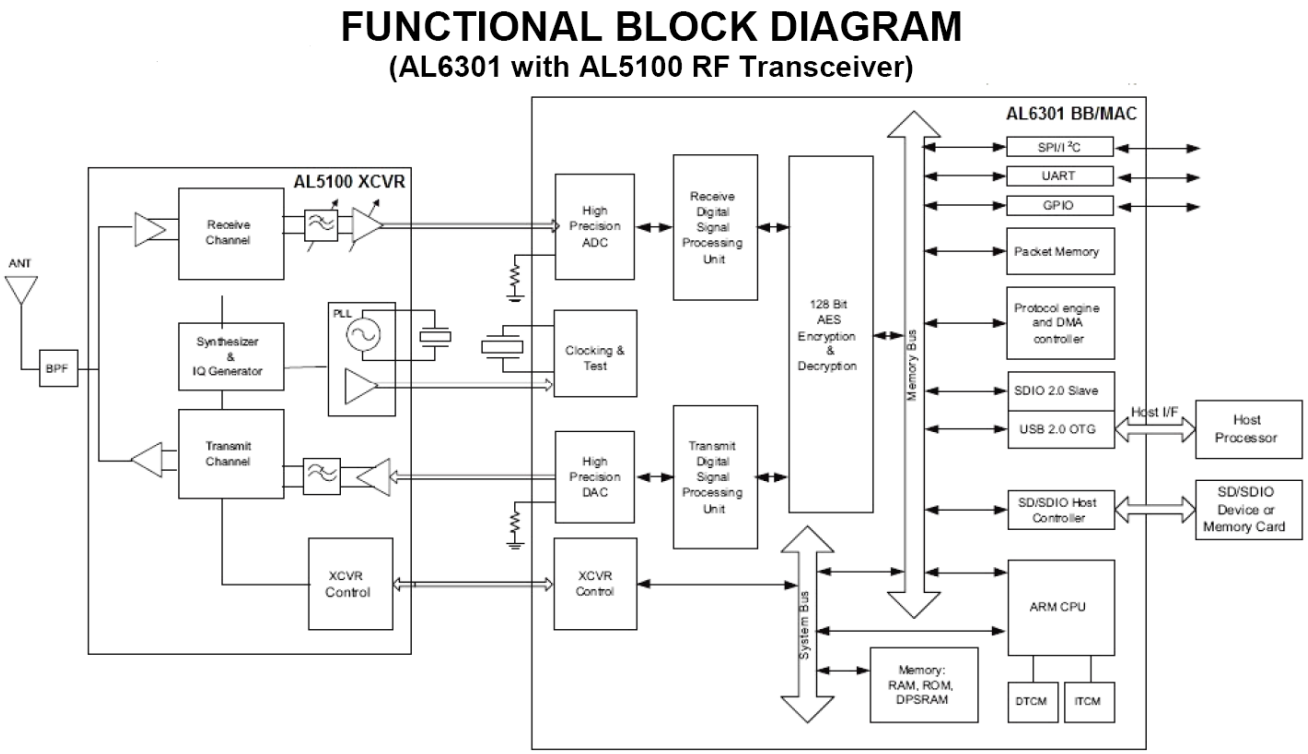
8. HARDWARE REQUIREMENTS

8.1 FUNCTIONAL BLOCK DIAGRAM

The hardware design of CY-WDCB7UR is based on AL6301/AL5100 reference circuit.



8.2 AL6301/AL5100 CHIPSET ARCHITECTURE



8.3 IO CONNECTOR PIN DEFINITION

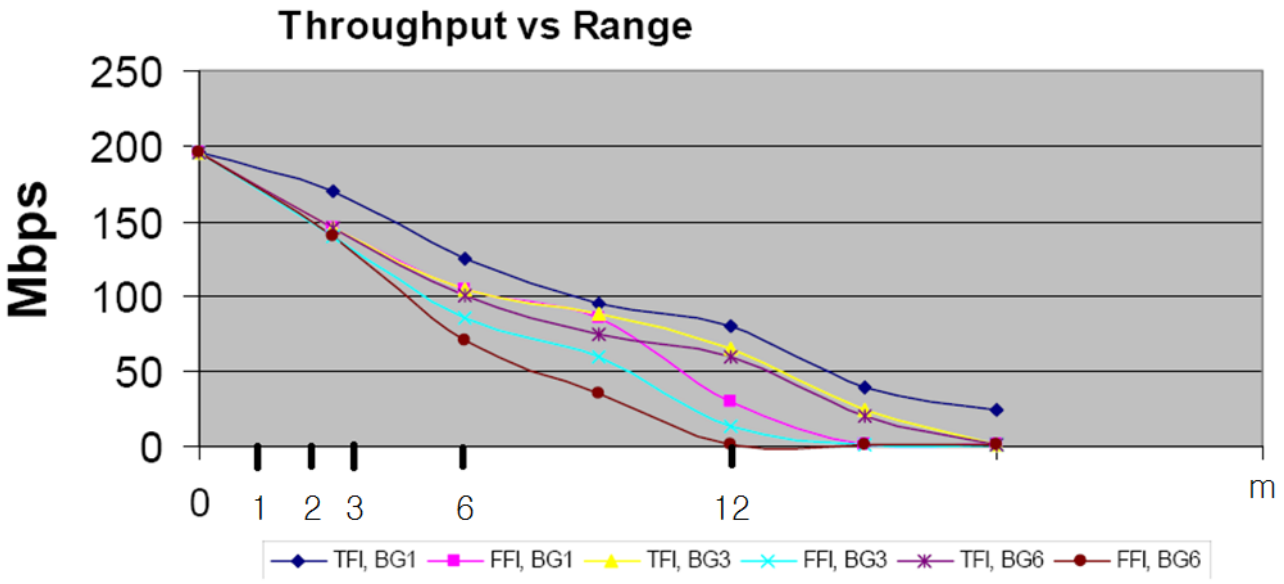
HS6621(Rev2.5) Half_MiniCard Edge Connector Signal Assignments			
Function	Pin#	Pin#	Function
NC	1	2	3.3V
NC	3	4	GND
NC	5	6	NC
NC	7	8	NC
GND	9	10	NC
NC	11	12	NC
NC	13	14	NC
GND	15	16	USB VBUS
NC	17	18	GND
NC	19	20	W_Disable#
GND	21	22	NC
NC	23	24	3.3V
NC	25	26	GND
GND	27	28	NC
GND	29	30	NC
UART_RX	31	32	Assoc. VBUS
UART_TX	33	34	GND
GND	35	36	USB D-
NC	37	38	USB D+
NC	39	40	GND
AL_GPIO_2	41	42	Dock_LED(AL_GPIO_0)
AL_GPIO_4	43	44	Security_LED(AL_GPIO_1)
AL_GPIO_5	45	46	Data_LED(AL_GPIO_3)
AL_GPIO_7	47	48	NC
Host_Connect_LED(AL_GPIO_6)	49	50	GND
NC	51	52	3.3V

8.4 PERFORMANCE TEST RESULTS

8.4.1 Current Consumption

Maximum Current Consumption (mA)							
Mode	Stand-by	BG1		BG3		BG6	
		Transmit	Receive	Transmit	Receive	Transmit	Receive
Current	160~280	185	210	185	220	187	223

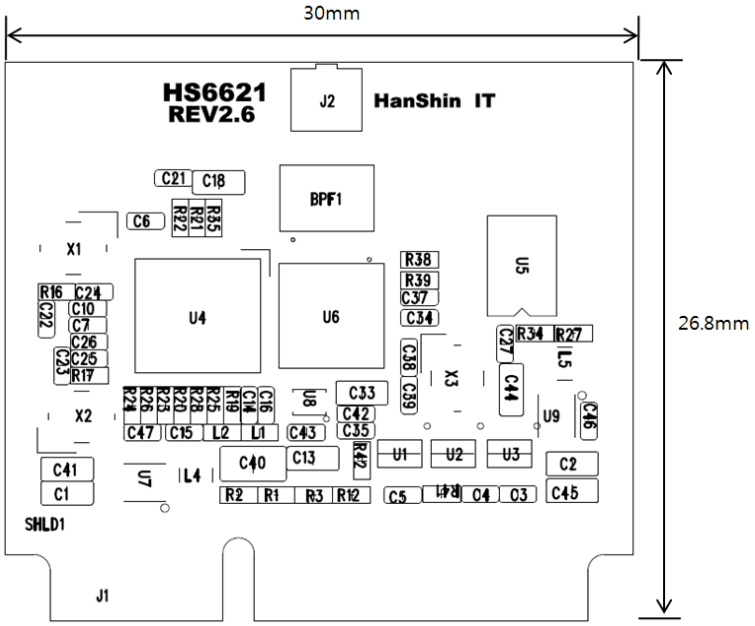
8.4.2 Indoor Range Throughput



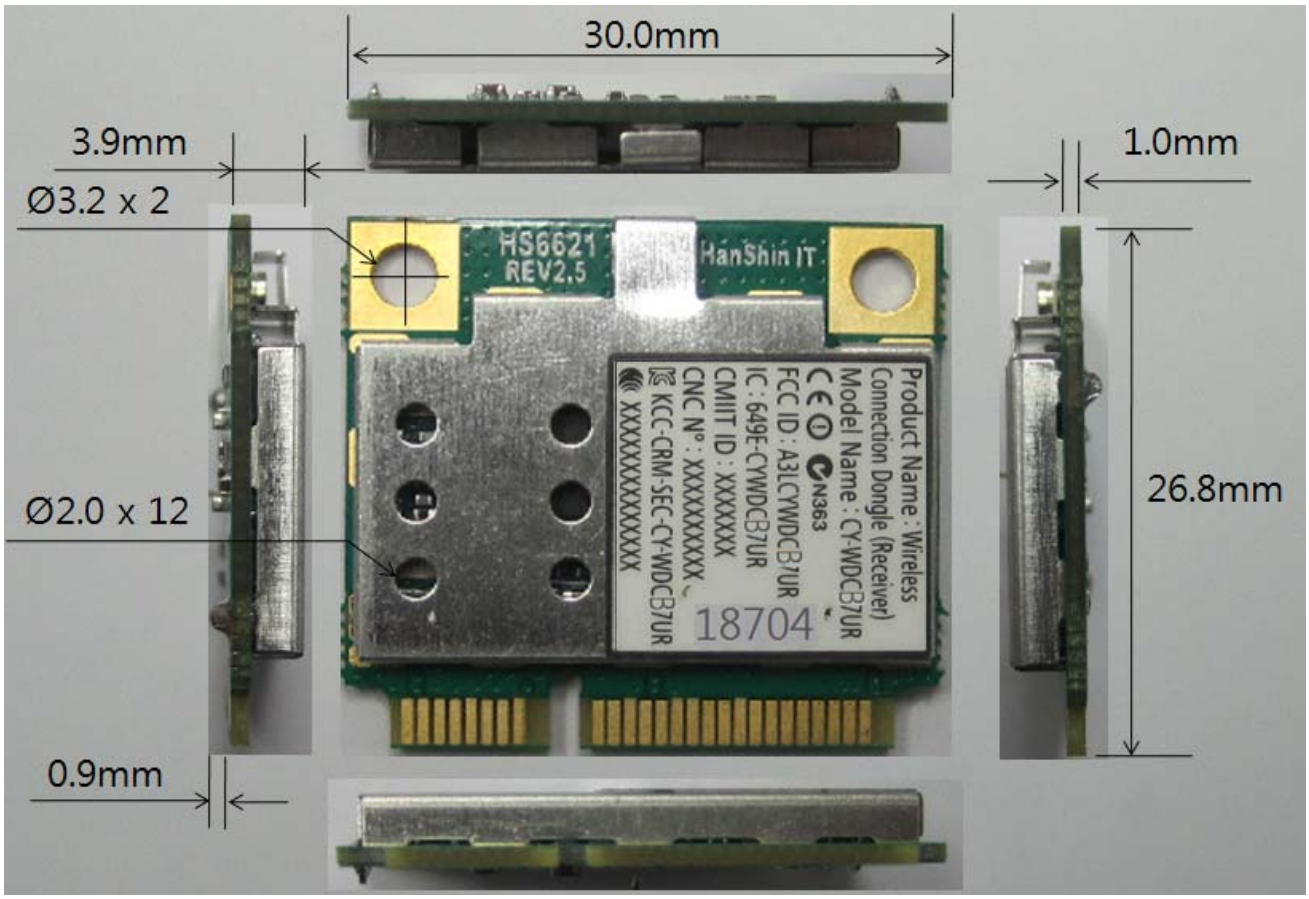
9. DIMENSION INFORMATION

9.1 PCB DIMENSION

PCB Dimension (W x L): 30 x 26.8mm, Thickness 1.0mm ±0.1mm



9.2 ASSEMBLY DIMENSION



Array number : 3 x 2 pcs

Cutting type : Routing

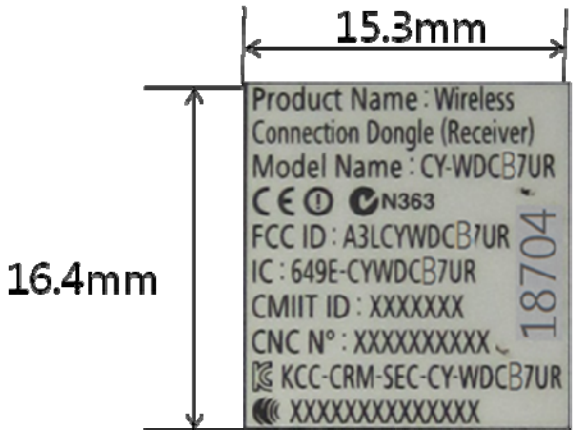
Array Size : 118.0mm X 55.6mm

10. PACKAGE DIMENSION

10.1 LABEL DIMENSION

Label, pasted on the bottom of cover

Material: PP MATIC/S692N/GB



10.2 LABEL STICK

Regulation Label

11. ANTENNA SPECIFICATIONS

11.1 Summaries

11.1.1 Function and Features

This specification of approval is explained information of UWB(Ultra Wide Band) Antenna (BWT-UWB/HSM-L001/IN) including general information, general specification, result of examination, examination procedure and assembling.

11.2 Specification

11.2.1 Applicable Boundary

This specification data is applicable to define the patch antenna's specification of Ultra Wide Band Antenna for Video data transmitting and receiving.

11.2.2 Electrical Specification

Model	BWT-UWB/HSM-L001/IN		
Type	**Micro-strip Patch Type**		
Characteristic	Electrical Char.	Frequency Range	3.1GHz ~ 10.6GHz
		Polarization	Linear (Vertical)
		Gain	3.1 dBi (max.)
		V. S. W. R	1 : 3.3
		Power Capability	≤5 Watt
		Impedance	50 Ω

	Physical Char.	Radiation Element Material	Copper
		Dimension	13 × 36 × 0.6 mm
		Weight	0.5 g
		Input Connector	MHF(F)

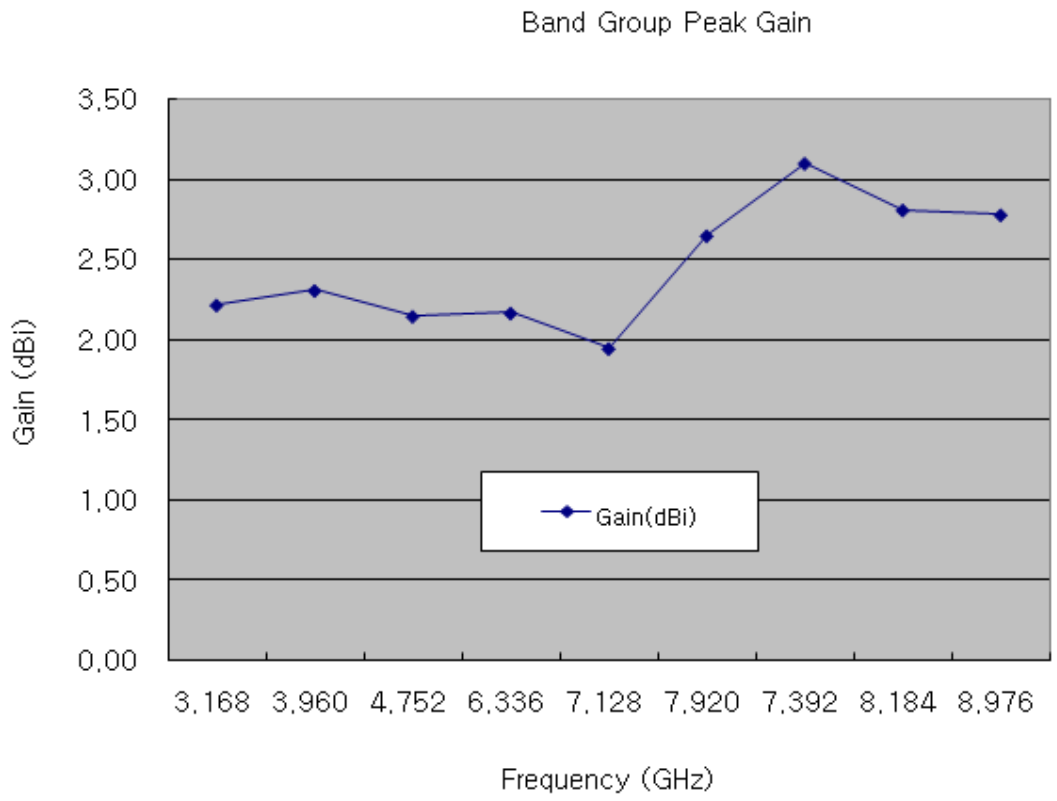
11.3 Results of Antenna Measurement

11.3.1 Antenna Peak Gain

Band Group Peak Gain

BWT-UWB/HSM-L001/IN

Band Group	Frequency (GHz)	Gain(dBi)
BG 1	3.168	2.22
	3.960	2.31
	4.752	2.15
BG 3	6.336	2.17
	7.128	1.95
	7.920	2.65
BG 6	7.392	3.10
	8.184	2.81
	8.976	2.78



12. HANSHIN IT CONTACT INFORMATION

Headquarter Address	#201 IT Venture Town, 694 Tamnip-dong, Yusung-gu, Daejeon, Korea
Headquarter Telephone Number	+82-42-9338507
Factory Address	#209 IT Venture Town, 694 Tamnip-dong, Yusung-gu, Daejeon, Korea
Factory Telephone Number	+82-42-9338507(Ext.26)

13. IC Statement

This UWB RF module apparatus complies with RSS-GEN.

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 interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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.

RF exposure

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

A minimum of 0.29 mm separation is required between the antenna and persons when the device is operating.

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