

PRODUCT SPECIFICATION

BT V4.0 LE Dual Mode Bluetooth Stereo Audio Module

WB117C

CSR 8645

Version 1.7

User Manual

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WB117C

CSR 8645

Version 1.7

Networking B.U.

Lite-on Technology Corporation

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Customer Approval: _____(Signature)

_____(Title)

_____(Company)

_____(Date)

(Please Sign Back by FAX. For Confirming the Spec Only, not an Official Agreement for OEM/ODM Business)

CONTENT

FCC WARING STATEMENT	4
IC WARING STATEMENT	4
CAN ICES-3 (B)/NMB-3(B).....	6
低功率電波輻射性電機管理辦法.....	6
PRODUCT FEATURES	7
PRODUCT SPECIFICATIONS.....	8
MAIN CHIPSET	8
FUNCTIONAL SPECIFICATIONS	8
PIN ASSIGNMENT	9
CONNECTOR SPEC	10
MECHANICAL	11
BLOCK DIAGRAM	11
ANTENNA SPEC	12
LABEL DRAWING.....	13
MODULE PHOTO	14
BT BEHAVIOR	15
LED BEHAVIOR	15
EEPROM INFORMATION	15
ENVIRONMENTAL	15
OPERATING	15
STORAGE.....	15

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.

Industry Canada - Class B This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par l'Industrie.

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.

L'opération est soumise aux deux conditions suivantes: (1) cet appareil ne peut causer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer fonctionnement du dispositif.

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.

Afin de réduire les interférences radio potentielles pour les autres utilisateurs, le type

d'antenne et son gain doivent être choisie que la puissance isotrope rayonnée équivalente (PIRE) est pas plus que celle promise pour une communication réussie.

RF exposure warning: The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Avertissement d'exposition RF: L'équipement est conforme aux limites d'exposition aux RF établies pour un incontrôlés environnement. L'antenne (s) utilisée pour ce transmetteur ne doit pas être co-localisés ou fonctionner en conjonction avec toute autre antenne ou transmetteur

Avertissement d'exposition RF:

1. Cet émetteur ne doit pas n'être coimplante ou

FCC WARNING STATEMENT**FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT**

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 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.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

FCC RF Radiation Exposure Statement: 1. This Transmitter must not be colocated or operating in conjunction with any other antenna or transmitter. 2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Information To Be Supplied to the End User by the OEM or Integrator
The following regulatory and safety notices must be published in documentation supplied to the end user of the product or system incorporating an adapter in compliance with local regulations. Host system must be labeled with "Contains FCCID:PPQ-WB117C ", FCC ID displayed on label.

IC WARNING STATEMENT**Canada, avis d'Industry Canada (IC)**

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

operation en meme temps qu'aucune autre antenne ou emetteur.

2. Cet equipement est conforme aux limites d'exposition de rayonnement de la FCC rf determinees pour un environnement non controle. Cet equipement devrait etre installe et actionne avec une distance minimum de 20 centimetres entre le radiateur et votre corps.

CAN ICES-3 (B)/NMB-3(B)

Information To Be Supplied to the End User by the OEM or Integrator Modular information form OEM Information to Be Supplied to the End User by the OEM or Integrator The following regulatory and safety notices must be published in documentation supplied to the end user of the product or system incorporating an adapter in compliance with local regulations. Host system must be labeled with "Contains IC: 4491A-WB117C "

低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

NCC Warning Statement

Article 12

Without permission, any company, firm or user shall not alter the frequency, increase the power, or change the characteristics and functions of the original design of the certified lower power frequency electric machinery.

Article 14

The application of low power frequency electric machineries shall not affect the navigation safety nor interfere a legal communication, if an interference is found, the service will be suspended until improvement is made and the interference no longer exists.

PRODUCT FEATURES

- Bluetooth V4.0 specification compliant Backwards compatible with BT version of 1.1, 1.2, 2.0, 2.1+EDR
- Dual-mode Bluetooth low energy radio
- 80MHz RISC MCU and 80MIPS Kalimba DSP
- BT using SPI interface
- Bluetooth Profiles:
 - HFP v1.6
 - HSP v1.2
 - A2DP v1.2
 - AVRCP v1.4
- Stereo codec with 2 microphone inputs
- Multipoint HFP connection to 2 phones for voice
- Multipoint A2DP connection enables a headset(A2DP) connection to 2 A2DP source devices for music playback
- Secure simple pairing, CSR's proximity pairing and CSR's proximity connection
- aptX, SBC, MP3 and AAC decoder support
- Reconnect on Power-on
- Fast AGC for enhanced dynamic range
- Memorize up to 8 paired devices
- RoHS compliance
- Low Halogen compliance

PRODUCT SPECIFICATIONS

MAIN CHIPSET

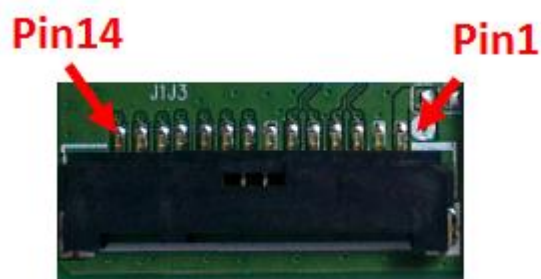
CSR 8645

FUNCTIONAL SPECIFICATIONS

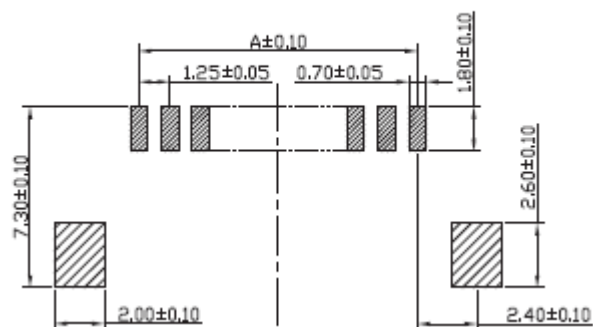
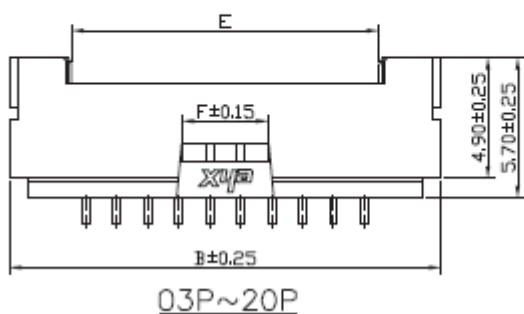
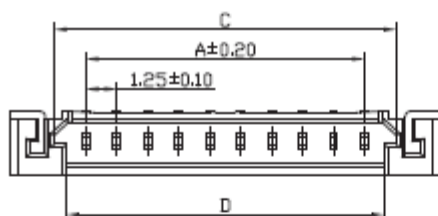
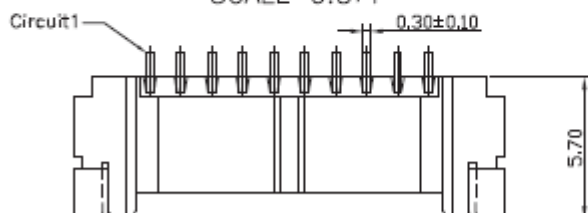
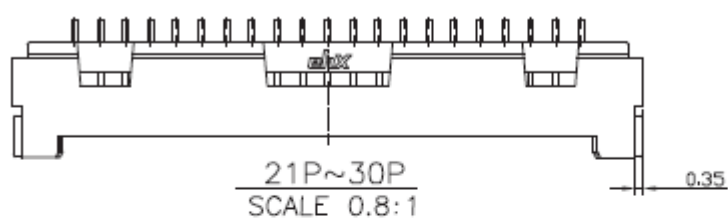
BT Function	
Standard	Bluetooth V4.0 LE
Bus Interface	SPI
Data Rate	1 Mbps, 2Mbps and Up to 3Mbps
Modulation Scheme	GFSK, $\pi/4$ -DQPSK and 8-DPSK
Frequency Range	2.402~2.480 GHz
Transmit Output Power	$-3 \leq \text{Output Power} \leq +3$; Class 2 Device
Receiver Sensitivity	$< 0.1\%$ BER at -80 dBm
Operating Voltage	3.3 V $\pm 9\%$ I/O supply voltage
Power Consumption	Paring Mode: 10 mA
	Stereo high quality SBC: 65 mA
	Associated Idle Mode: 14 mA
Antenna Type	Metal Antenna

PIN ASSIGNMENT

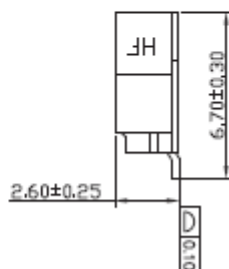
Pin.	Pin Name	Type	Description
1	VBUS	P	3.3V Power supply
2	GND	G	Ground
3	SPKL_P	O	Speaker differential output positive, left
4	SPKL_N	O	Speaker differential output negative, left
5	SPKR_P	O	Speaker differential output positive, right
6	SPKR_N	O	Speaker differential output negative, right
7	GND	G	Ground
8	Paring	I	Active High(1.8V) to enter paring mode
9	LED	O	LED driver, Open-Drain
10	VREGENABLE	I	Active High(3.3V) to enable BT or disable BT
11	MIC1_B	G	Connect to Ground(Black cable)
12	MIC1_R	I	Microphone input(Red cable)
13	MIC1_B	G	Connect to Ground(Black cable)
14	MIC2_R	I	Microphone input(Red cable)



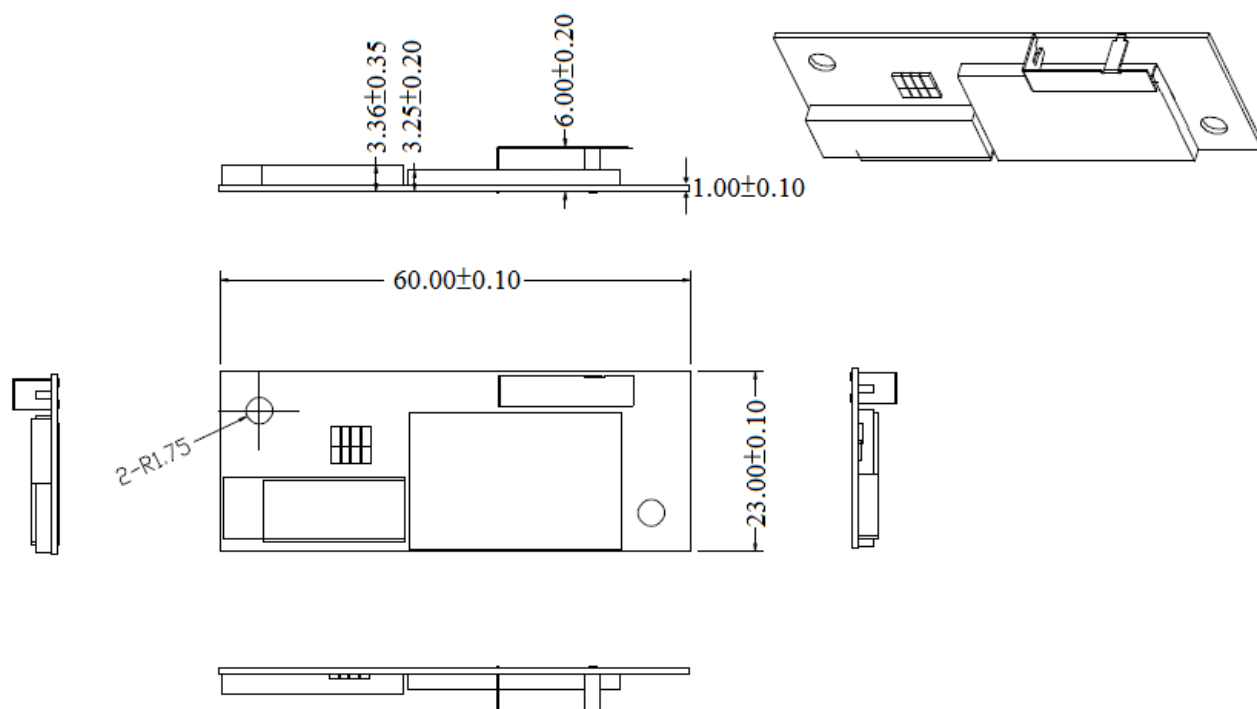
CONNECTOR SPEC



No. of Contacts	DIMENSIONS					
	A	B	C	D	E	F
2	1.25	7.45	3.81	2.83	2.43	3.50
3	2.50	8.70	5.06	4.08	3.68	3.50
4	3.75	9.95	6.31	5.33	4.93	3.50
5	5.00	11.20	7.56	6.58	6.18	3.50
6	6.25	12.45	8.81	7.83	7.43	3.50
7	7.50	13.70	10.06	9.08	8.68	3.50
8	8.75	14.95	11.31	10.33	9.93	3.50
9	10.00	16.20	12.56	11.58	11.18	3.50
10	11.25	17.45	13.81	12.83	12.43	3.50
11	12.50	18.70	15.06	14.08	13.68	5.00
12	13.75	19.95	16.31	15.33	14.93	5.00
13	15.00	21.20	17.56	16.58	16.18	5.00
14	16.25	22.45	18.81	17.83	17.43	5.00
15	17.50	23.70	20.06	19.08	18.68	5.00
20	23.75	29.95	26.31	25.33	24.93	5.00
25	30.00	36.20	32.56	31.58	31.18	6.00
30	36.25	42.45	38.81	37.83	37.43	6.00

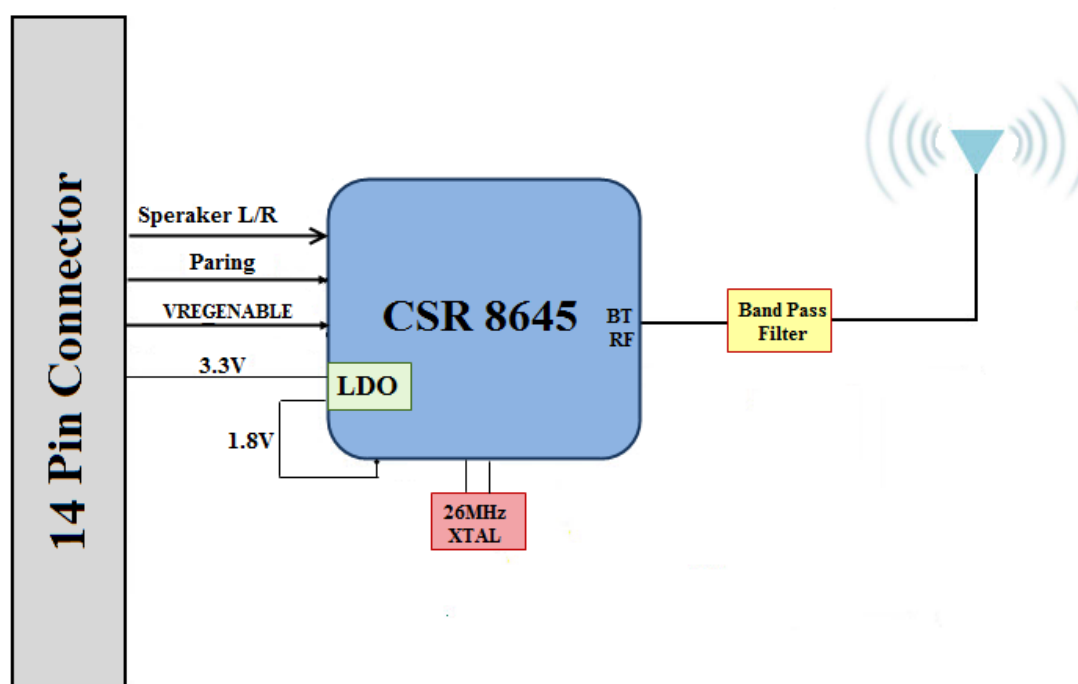


MECHANICAL



Unit: mm

BLOCK DIAGRAM



ANTENNA SPEC

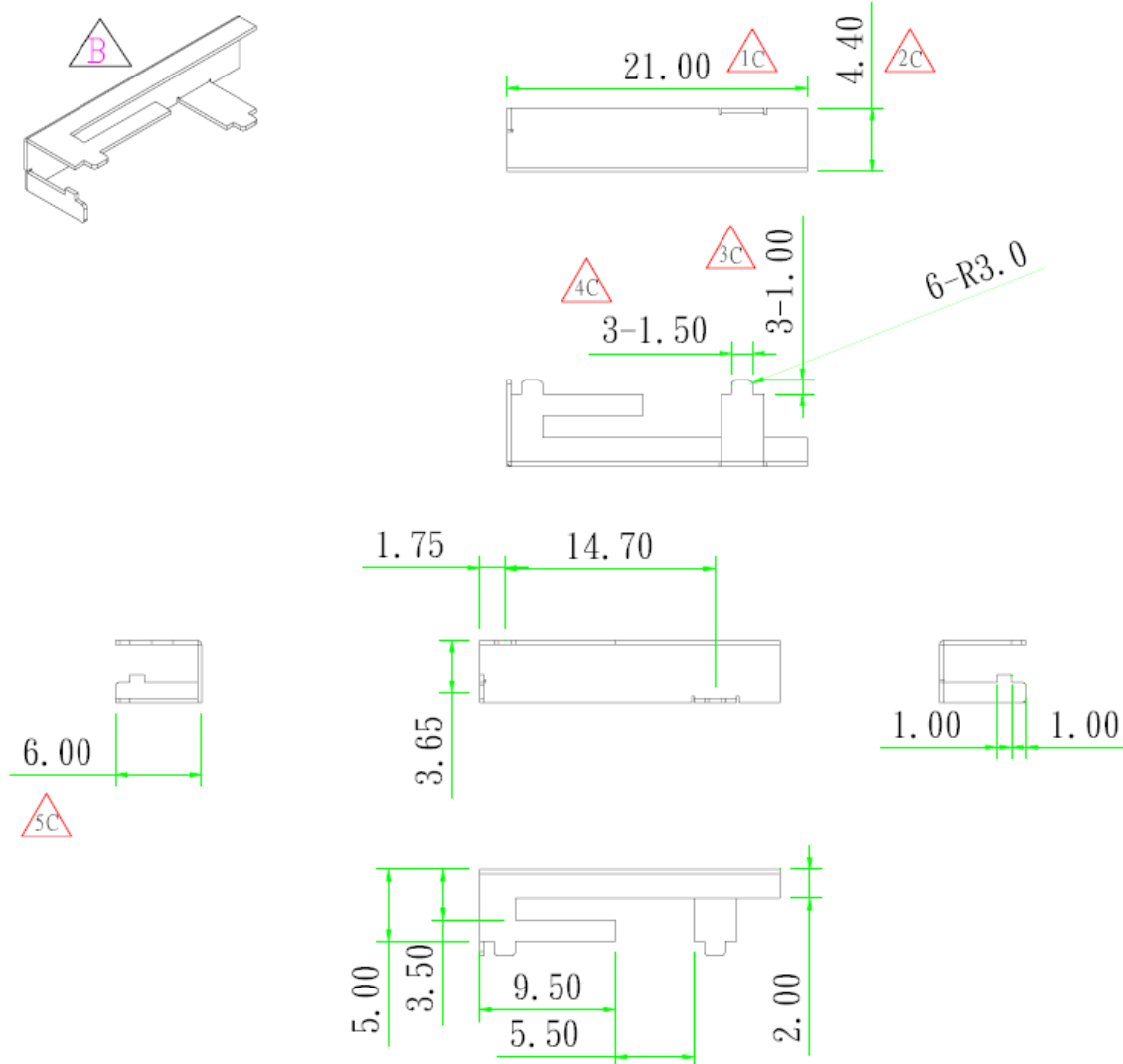
RoHS COMPLIANT

MECHANICAL

Body : SUS430 (鍍鎳) T:0.3mm

ELECTRICAL

Frequency : 2.4 GHz



LABEL DRAWING

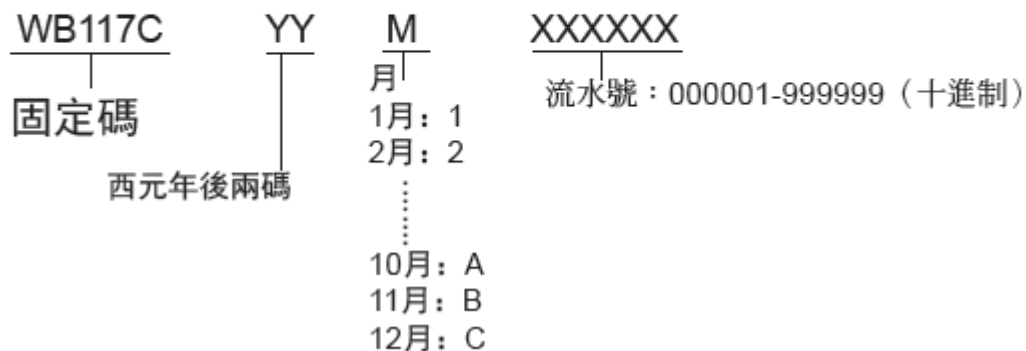


BD ID 编码原则

1.2维条码为:ECC 200

2.2维条码显示内容为:XXXXXXXXXXXX(由业务提供)

S/N編碼原則為: WB117CYMXXXXXX



MODULE PHOTO

Top Side



Bottom Side



BT BEHAVIOR

Item	BT Status	Press Button Timing/Description
1	Power On	500ms~1s
2	Enter Paring Mode	1s~2s. Keep paring status up to 120s
3	Reconnection	BT will reconnect with paired device after Power On.TV FW will turn off BT within 120s if no paired device nearby.
4	Power Off	500ms~1s

LED BEHAVIOR

Item	BT Status	LED Behavior
1	Enable	Steady Off
2	Paring Mode	Steady Off
3	A2DP Streaming	Steady On
4	Associated Idle	Steady On
5	Disable	Steady Off

Noted: TV FW will turn off BT while LED is no emitting

EEPROM INFORMATION

Vendor ID	0x0A12
Product ID	0x0001

ENVIRONMENTAL

OPERATING

Operating Temperature: 0 to 60 °C (32 to 140°F)

Relative Humidity: 5-90% (non-condensing)

STORAGE

Temperature: -20 to 70 °C (-4 to 158 °F)

Relative Humidity: 5-95% (non-condensing)