

Model Name : T2

Product Description.

The Module is an OEM module (35x35mm) based on the SMSC DARR83. It is an uncompressed wireless digital audio transceiver operating in the 2.4GHz, 5.2GHz and 5.8GHz bands. The wireless audio link supports up to 4 stereo audio streams and comes together with additional features such as: data encryption, pairing functionality, bi-directional control data messages, low power audio snooze mode, WLAN detection and Automatic Frequency Allocation. The DARR83 chip itself provides the basic functions of Audio Processing and buffering, Data Link Layer and Physical Layer. The module integrates all functionality for a wireless digital audio connection, comprising:

T2 is used for Audio products made by LG Electronics Inc. such as Home Theater.

- DARR83 Wireless Audio Processor
- 2.4GHz/ 5.2GHz/ 5.8 GHz RF Transceiver
- Embedded Antennas
- Digital audio interfaces (I²S and/or S/PDIF)
- I²C control interface
- 26 pins interface connector (FFC) for power, digital audio and control interface and GPIOs
- Built-in 1MB SPI interface Flash 3V 4KB uniform sector

RF Frequency Bandwidth.

2.4GHz: 2412 – 2464MHz

5.2GHz: 5180 – 5240MHz

5.8GHz: 5736 – 5814MHz.

RF Performance.

For 2.4GHz application (VCC=3.3V, 25°C)

Parameter			Min	Typ.	Max	Units
RF Frequency Range			2400		2483.5	MHz
Number of RF -Channels		Carries in the spectrum		3		
Transmission Power				18		dBm
Frequency (dynamic or fixed allocation)	Ch1			2412		MHz
	Ch2			2438		
	Ch3			2464		
Channel Spacing				26		MHz
RF Bandwidth		Null-to-null		22		MHz
Rx Sensitivity				-83		dBm
Antena Diversity		Tx/Rx		ON		

For 5.2GHz application (VCC=3.3V, 25°C)

Parameter			Min	Typ.	Max	Units
RF Frequency Range			5150		5250	MHz
Number of RF -Channels		Carries in the spectrum		3		
Transmission Power		Depending on antenna design		9.5		dBm
Frequency (dynamic or fixed allocation)	Ch1			5180		MHz
	Ch2			5210		
	Ch3			5240		
Channel Spacing				30		MHz
RF Bandwidth		Null-to-null		22		MHz
Rx Sensitivity				-81		dBm
Antena Diversity		Tx/Rx		ON		

For 5.8GHz application (VCC=3.3V, 25°C)

Parameter			Min	Typ.	Max	Units
RF Frequency Range			5725		5875	MHz
Number of RF -Channels		Carries in the spectrum		3		
Transmission Power		Depending on antenna design		16.5		dBm
Frequency (dynamic or fixed allocation)	Ch1			5736		MHz
	Ch2			5762		
	Ch3			5814		
Channel Spacing				26		MHz
RF Bandwidth		Null-to-null		22		MHz
Rx Sensitivity				-81		dBm
Antena Diversity		Tx/Rx		ON		

Air framing.

Addressing : 24Bit.

Data Message Size : 32Bytes

CRC : 16, 24 and 32Bit

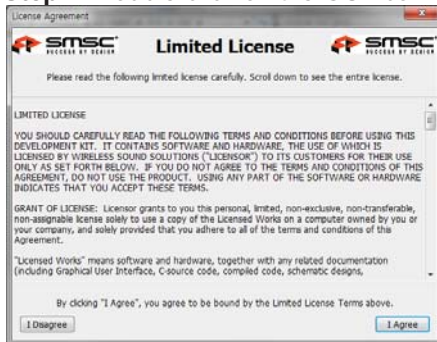
POWER

- Supply Voltage : 3.1V(Min), 3.3V(Typ), 3.5V(Max)
- Peak to Peak Ripple : 100mV(Max).
- Operating Temperature : -10C(Min), 25C(Typ), 60C(Max)

Evaluation Board Usage

The GUI is required to configure the evaluation boards for different applications.

Step 1: Double-click on the GUI Icon or shortcut to run the program.

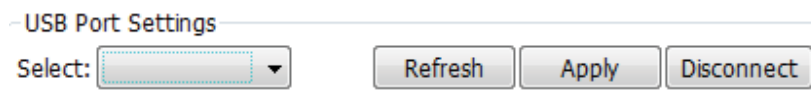


Step 2: Read the limited license carefully.
Click **I Agree** to proceed (as shown on the right).

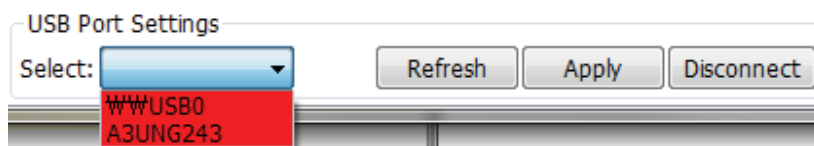
Step 3: Make sure the evaluation boards is turned on..

Step 4: Connect the USB cable between your notebook/PC and the evaluation board.
If USB drivers are required to be installed, use the one provided in the GUI package.

Step 5: Setup your Com Port in Com Port Settings.

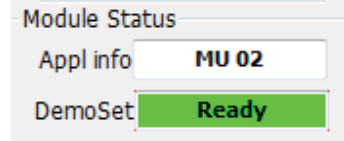


Connect the USB one by one and select each unique USB port setting for each evaluation board.



- 1) Click the [Refresh] button.
- 2) Select the EVK ID, for example "A3UNG243", to access the 4ch EVK connected to the T2.
- 3) Click the [Apply] button.
- 4) (Optional) If the "A3UNG243" option cannot be selected from the drop down menu, click the [Disconnect] button before repeating steps 1 ~ 3.

Once the connection is successful, you should see **READY** in Module Status.



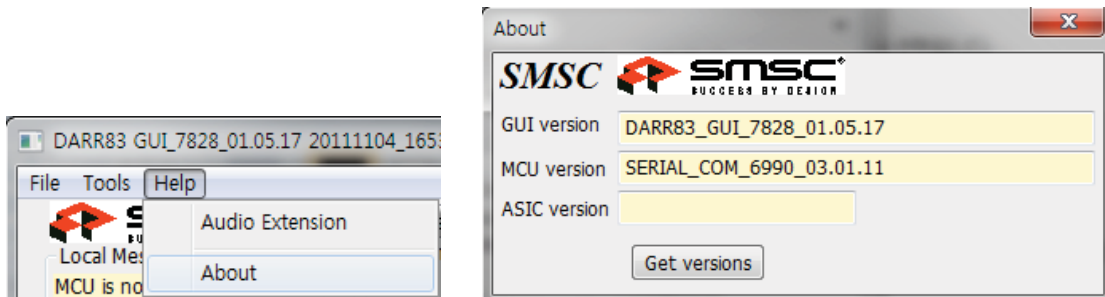
If you see NOT FOUND, please check that the USB cable is properly connected/loose or 5V DC Power is plugged in.



Step 6: At the top-left corner of the GUI, click **Help** and click **About**.

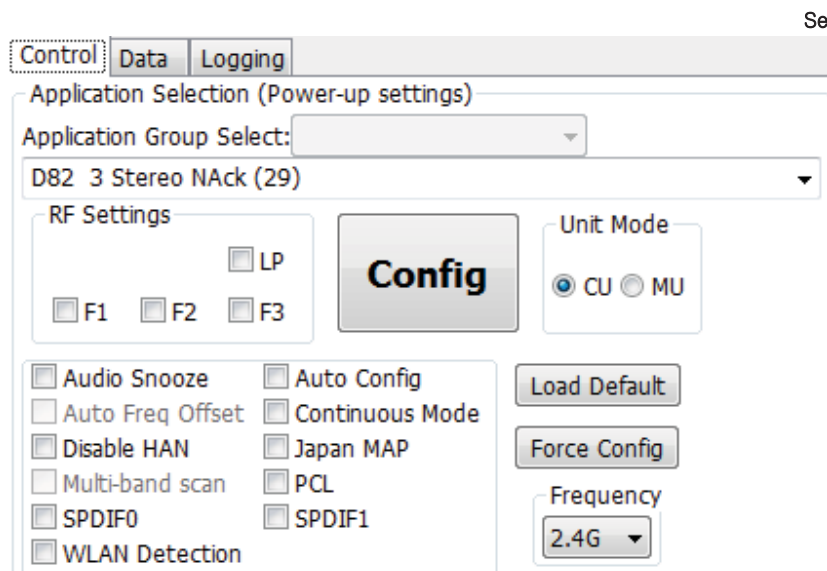
The current firmware version is shown as Evaluation Kit Version X.X.X.

The current GUI version is shown as Configuration Software GUI Version X.X.X.



Step 7: Setup your choice of application in the **Application Selection (Power-up Settings)**

For the explanation for the different kinds of application, you can check the help file that is provided with the Evaluation board (EVK).



Select desired application (depending on the number of Stereo sources required)

Select CU or MU mode

Press this button whenever there are any changes in this section to update the module settings

Select the Frequency band (2.4GHz or 5.2GHz or 5.8GHz) to operate after Configuration

The screenshot shows the 'Application Selection (Power-up settings)' dialog box. It has tabs for 'Control', 'Data', and 'Logging'. The 'Control' tab is active. The dialog contains several sections: 'Application Group Select' (a dropdown menu), 'RF Settings' (checkboxes for LP, F1, F2, F3), 'Unit Mode' (radio buttons for CU and MU), 'Config' (a large button), 'Load Default' (a button), 'Force Config' (a button), and 'Frequency' (a dropdown menu set to 2.4G). There are also checkboxes for 'Audio Snooze', 'Auto Freq Offset', 'Disable HAN', 'Multi-band scan', 'SPDIF0', 'WLAN Detection', 'Auto Config', 'Continuous Mode', 'Japan MAP', 'PCL', and 'SPDIF1'.

Step 8: Click [Config] button (upon every change) to configure the evaluation board.

22Pin Interface

PIN #	PIN NAME	IN/OUT	DESCRIPTION
1	VDD	Power	Input Power : 3.3V.
2	GND	Ground	GND
3	MCLK	In	24.56MHz Master Clock
4	INITIAL	I/O	GPIO_4
5	MESSAGE READY	I/O	GPIO_3
6	I2C_SDA_SLV	-	I2C SLAVE(SDA)
7	I2C_SCL_SLV	-	I2C SLAVE(SCLK)
8	SDIO_Z(UPLINK DATA)	I/O	GPIO_12
9	SDIO_Y(DATA2)	I/O	GPIO_6
10	SDIO_XDATA1)	I/O	GPIO_11
11	SDIO_WDATA0)	I/O	GPIO_5
12	MUTE INTERRUPT	I/O	GPIO_2, MUTE INTERRUPT
13	RESET	-	RESET
14	BCK	I/O	GPIO_8
15	GND	Ground	GND
16	LRCK	I/O	GPIO_10
17	MON_TXD	I/O	GPIO_24. MONITERING
18	RED_LED	I/O	GPIO_23
19	BULE_LED	I/O	GPIO_13
20	GND	Ground	GND
21	N.C		N.C
22	N.C		N.C

FCC (Federal Communications Commission)

WARNING: This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

This device complies with Part 15 of the FCC's 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 undesirable operation.

The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna. End users cannot modify this transmitter device. Any Unauthorized modification could void the user's authority to operate this device.

CE

Hereby, **LG Electronics Inc.** declares that this **T2** is in compliance with the essential requirements and other relevant provisions of directive 1999/5/EC.

Industry Canada(IC) Statement

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.

This equipment complies with IC radiation exposure limits for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20Cm between the user and the radiating element of the device.

Note: The manufacturer is no responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modification could void the user's authority to operate the equipment.

Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). 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 les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

Cet équipement est conforme aux limites IC exposition au rayonnement pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec distance minimum de 20cm entre l'utilisateur et l'élément rayonnant de l'appareil.

Remarque: le fabricant n'est pas responsable des interférences radio ou télévision causé par des modifications non autorisées de cet équipement. Une telle modification pourrait annuler l'autorité de l'utilisateur d'exploiter cet équipement.

FCC Radio Frequency Interference Requirements

This device is restricted to indoor use due to its operation in the 5.15-5.25GHz frequency range. We will not use this module in devices that may be used outdoors.

IC Radio Frequency Interference Requirements

Cet appareil est restreint à une utilisation intérieure en raison de son fonctionnement dans la gamme de fréquence de 5,15-5,25GHz. Nous n'allons pas utiliser ce module dans des appareils qui peuvent être utilisés à l'extérieur.