

## **Model Name : R3**

### **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:

- DARR83 Wireless Audio Processor
- 2.4GHz/ 5.2GHz/ 5.8 GHz RF Transceiver
- Embedded Antennas
- Digital audio interfaces (I<sup>2</sup>S and/or S/PDIF)
- I<sup>2</sup>C 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: 2400 – 2483.5MHz

5.2GHz: 5150 – 5250MHz

5.8GHz: 5725 – 5875MHz.

### **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				14		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		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		9		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

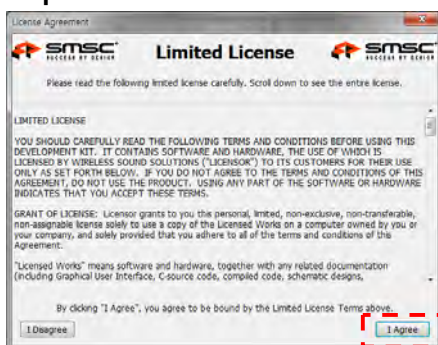
## POWER

- 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.

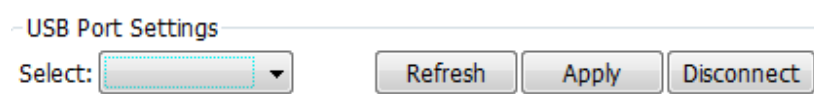
Click **I Agree** to proceed (as shown on the right).

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

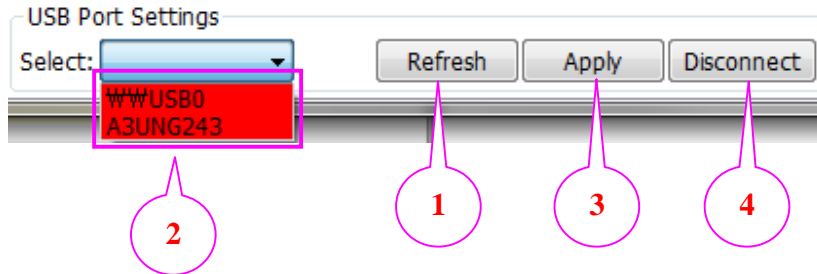
**Step 4:** Connect the USB cable between your notebook/PC and the evaluation board.

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.

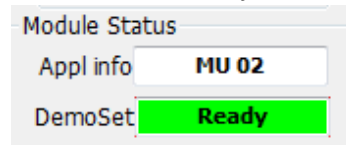


Connect the USB one by one and select each unique USB port setting for each evaluation board.



- 1) Click the [Refresh] button.
- 2) Select the EVK ID, for example "A3UNG243", to access the 4ch EVK connected to the DWAM83 module.
- 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

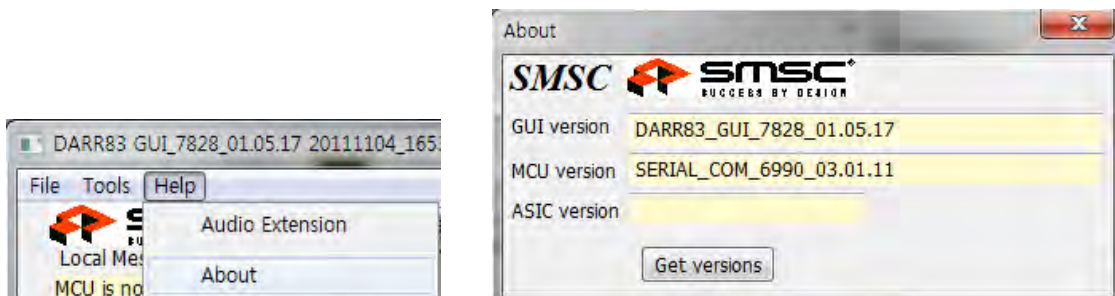
Power is plugged in.



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

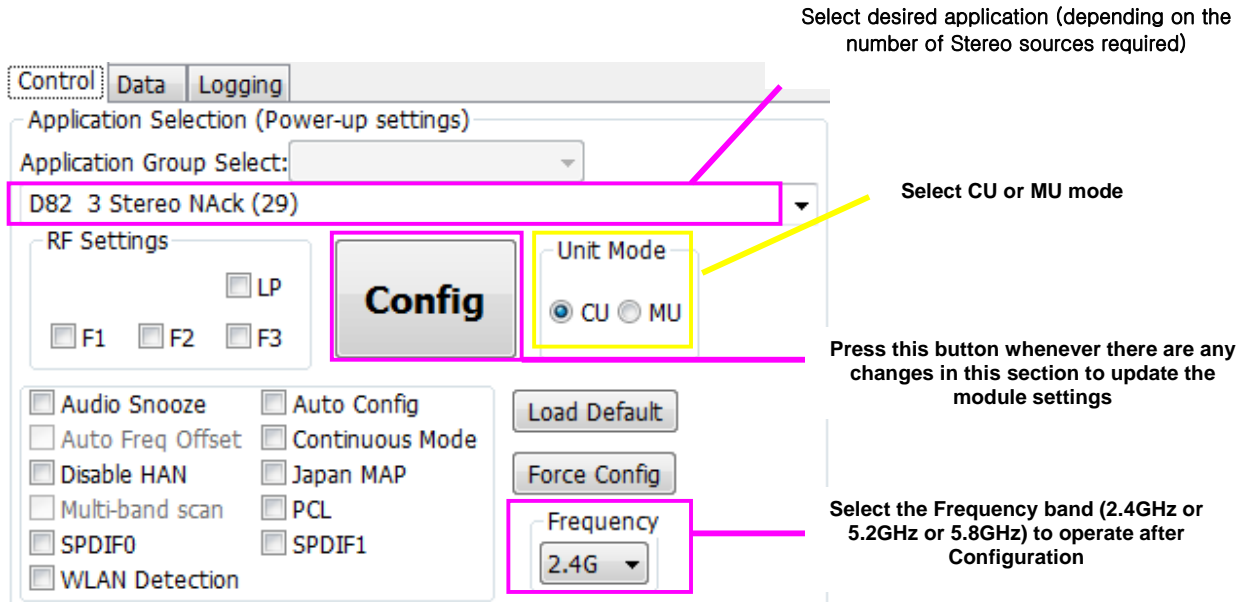
The current firmware version is shown as Evaluation Kit Version X.X.X.

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).



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

## 26Pin 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	BULE_LED	I/O	GPIO_13
5	RED_LED	I/O	GPIO_23
6	SDIO_W (FREQ_BAND)	I/O	GPIO_5
7	SDIO_X (DATA1)	I/O	GPIO_11
8	SDIO_Y (DATA2)	I/O	GPIO_6
9	SDIO_Z (UPLINK DATA)	I/O	GPIO_12
10	I2C_SCL_SLV	I/O	I2C SLAVE (SCL)
11	I2C_SDA_SLV	I/O	I2C SLAVE (SDA)
12	SPI_DI	I/O	SPI DATA IN
13	SPI_DO	I/O	SPI DATA OUT
14	SPI_CLK	I/O	SPI CLOCK
15	SPI_CS	I/O	SPI_MODE
16	SPI_WP	I/O	GPIO_1
17	RESET		RESET
18	P_SENSE	I/O	GPIO_2
19	P_CTL	I/O	GPIO_7
20	PWM_RST	I/O	GPIO_4
21	AMP_PDN	I/O	GPIO_3
22	AMP_SD	I/O	GPIO_14
23	WIRELESS READY	I/O	GPIO_15
24	BCK (ROLE 1)	I/O	GPIO_8
25	GND	Ground	GND
26	LRCK (ROLE 0)	I/O	GPIO_10

# Approval Statements

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

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.

To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product.

**Contains Transmitter module FCC ID: BEJ9QK-DMR'**

This device complies with Industry Canada license-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.

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.

The host device must be labeled to display the Industry Canada certification number of the module.

Contains transmitter module IC: 2703H-DMRH

Le dispositif d'accueil doivent être étiquetés pour afficher le numéro de certification d'Industrie Canada du module.

Contient module émetteur IC : 2703H-DMRH

**Caution:** Any changed or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**Attention:** Toute changé ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'utilisateur `autorité de faire fonctionner cet équipement.

## IMPORTANT NOTE

This device complies with FCC & IC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 20cm between the radiating element of this device and the user. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators and following statements shall be included to host user manual

- 1) The antenna must be installed such that 20cm is maintained between the antenna and users.
- 2) This module may not be co-located with any other transmitters or antennas.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements with this module installed.

In the event that these conditions cannot be met, then the FCC & IC authorizations are no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product including this module and obtaining separate FCC & IC authorizations.

**This module has been designed for indoor used only. Therefore the end-product with this module installed is permitted to use indoors only.**

## NOTE IMPORTANTE

Cet appareil est conforme aux limites de la FCC et IC exposition aux radiations dans un environnement non contrôlé. Cet appareil doit être installé et utilisé avec distance minimum de 20cm entre l'élément rayonnant de cet appareil et l'utilisateur. Cet appareil ne doit pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.

Cet appareil est conçu uniquement pour les intégrateurs OEM et les déclarations suivantes doivent être incluses à accueillir manuel de l'utilisateur

- 1) L'antenne doit être installée de telle sorte que 20cm est maintenue entre l'antenne et les utilisateurs
- 2) Ce module ne peut pas être co-localisés avec les autres émetteurs ou les antennes.

Aussi longtemps que deux conditions précitées sont remplies, le test du transmetteur supplémentaires ne seront pas tenus. Toutefois, l'intégrateur OEM est toujours responsable de tester leurs produits finis pour toutes les exigences de conformité supplémentaires avec ce module installé.

Dans le cas où ces conditions ne peuvent pas être remplies, alors la FCC et IC autorisations ne sont plus considérés comme valides et l'ID de la FCC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera responsable de réévaluer le produit final, y compris l'obtention de ce module et séparée de la FCC et IC autorisations

**Ce module a été conçu pour l'intérieur utilisé seulement. Par conséquent, le produit final avec ce module installé est autorisé à utiliser uniquement à l'intérieur.**

### **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.

•All relevant regulatory user statements regarding FCC and IC on this manual shall be placed into the user manual of the host device.

•Toutes les déclarations pertinentes de réglementation concernant l'utilisateur de la FCC et IC sur ce manuel doit être placé dans le manuel utilisateur de l'appareil hôte.

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。

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，應立即停用，並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。