



EK7105-G2 User Manual

Document Title

EK7105-G2 User Manual

Revision History

<u>Rev. No.</u>	<u>History</u>	<u>Issue Date</u>	<u>Remark</u>
0.0	Preliminary	April 30, 2009	
0.1	Add Hardware description	Aug 10, 2009	
0.2	Modify Direct mode with modulation option	Dec 21,2009	
0.3	Add Evi.RSSI & Sync RSSI function	Jan.22, 2010	
0.4	Change English Company Name	Nov. 30, 2010	

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1. Introduction

This document describes how to use the EK7105-G2. The software enables you to develop and debug firmware and prototype peripheral hardware for wireless applications based on the A7105 RF chip.

2. Software Install/Uninstall

The software is used to program the A7105 device on the evaluation board. By using this software the designer of the radio system can easily evaluate the performance of RF IC in the early stage of the design process. It is further a useful tool during the generation of the configuration data and for finding optimized external component values.

2.1 Software Install/Uninstall

The software is written to run under Windows 2000 or Windows XP operating system. There should be a USB port in the target PC for the device control.

To install EK7105-G2:

- 1) Start Windows, if you have not already done so.
- 2) Place the CD-ROM disk into the CD-ROM drive.
- 3) Select "Install EK7105-G2" item to setup program.

Notes: Administrator privilege is required for installing the EK7105-G2 program on Windows 2000/XP. If the user doesn't have the administrative right, this program may be not work while controlling the device with the USB port.

To uninstall EK7105-G2:

- 1 Click the [Start] button under Windows.
- 2 Select "Control Panel" in Setup.
- 3 Double-click Add/Remove Programs.
- 4 Click Install/Uninstall. Then select EK7105-G2 from the list of programs that can be automatically removed.
- 5 Click the [Remove...] button to uninstall EK7105-G2.

2.2. Driver Install

This software should be install PL2303 USB to Bridge (HX) install shield driver. The Wizard will guide you to complete the installation.

3. Hardware Description

3.1 Evaluation board

The Evaluation board provides two main functions. First, the I/O pin function of A7105 can be set and measured on the evaluation board. Another, user can use A7105's utility software installed on PC to evaluate the A7105. The RF module is plugged into connector J2 on the evaluation board. The connector J1 should be connected to PC's USB port by USB cable. This evaluation board is shown in the Figure 1.

The following describe the function of key parts on the evaluation board (Figure 1)

1. USB B Type female connector (J1): It should be connected to PC's USB port by USB cable
2. RF Module connector: Plug RF module into RF module connector on the evaluation board.
3. Jumper J10,J15: PA & LNA On/Off . Please see below table 3.6 for detail description.
4. I/O pin connector (J3): Please see below table 3.5 for detail description.
5. Jumper J8: RF module supply voltage select. Select system +3.3V on board or extern power .
6. Jumper J7: EK Board power supply select. Select USB power supply or J6 Jack power supply.
7. Power supply (J6): Power supply is fed to the evaluation board through J6 and input range is DC +5.5V to +7V

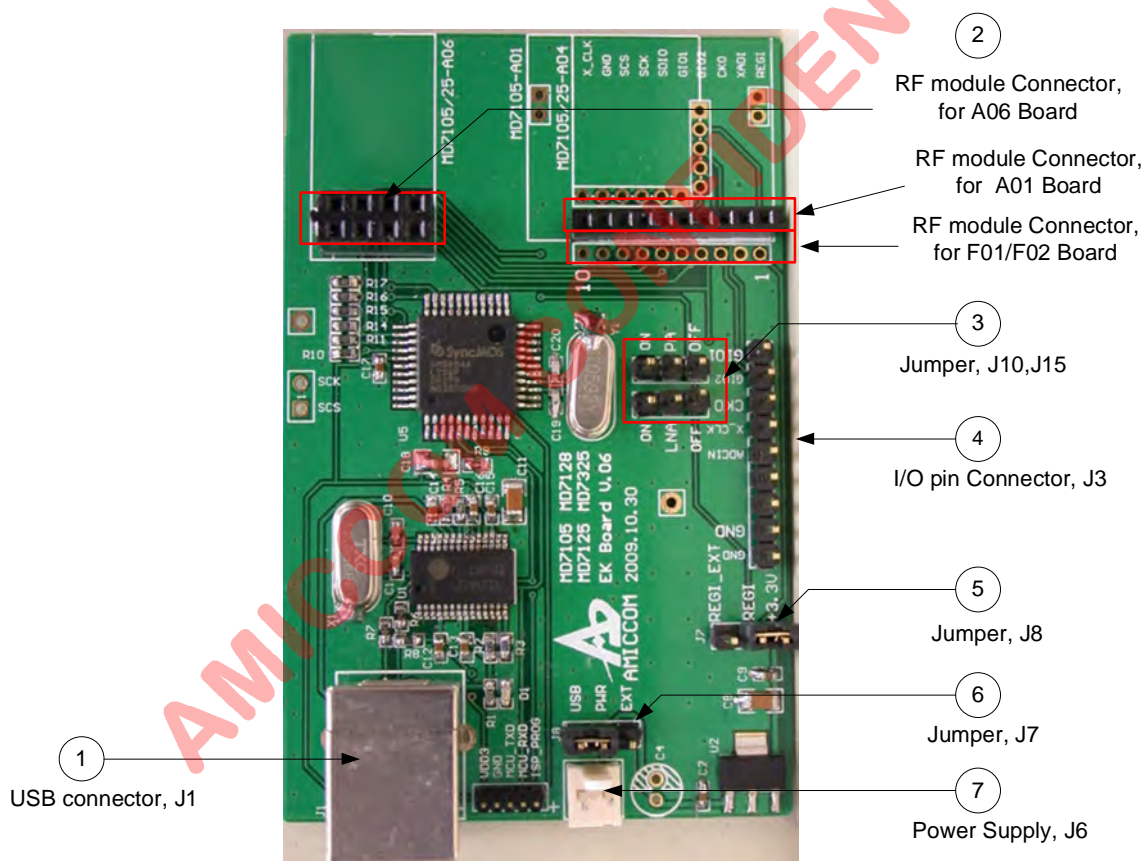


Fig. 1 Topside of evaluation board

3.2 The pin definition of A01

Pin No.	Pin name	Comment
1	VREG_IN	Chip's Regulator input
2	GND	GND
3	CKO	Multi pin CKO
4	GIO2	Multi pin IGPIO 2
5	GIO1	Multi pin IGPIO 1
6	SDIO	SPI data input/output
7	SCK	SPI clock
8	SCS	SPI chip select
9	GND	GND
10	XCLK	External crystal source input

3.3 The pin definition of F01/F02

Pin No.	Pin name	Comment
1	VREG_IN	Chip's Regulator input
2	GND	GND
3	GIO2	Multi pin IGPIO 2
4	GIO1	Multi pin IGPIO 1
5	SDIO	SPI data input/output
6	SCK	SPI clock
7	SCS	SPI chip select
8	TXSW	PA on/off pin
9	RXSW	LNA on/off pin
10	GND	GND

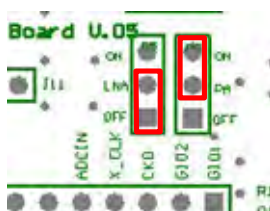
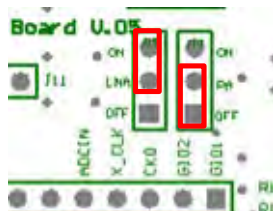
3.4 The pin definition of A06

Pin No.	Pin name	Comment
1	GND	GND
2	VREG_IN	Chip's Regulator input
3	-	NC
4	SCS	SPI chip select
5	SCK	SPI clock
6	SDIO	SPI data input/output
7	GIO1	Multi pin IGPIO 1
8	GIO2	Multi pin IGPIO 2

3.5 The pin definition of J3

Pin No.	Pin name	Comment
1	GIO1	Multi pin GPIO1
2	GIO2	Multi pin GPIO2
3	CKO	Multi pin CKO
4	XO	External crystal source input
5	ADC_IN	ADC input for external signal source
6	-	NC
7	-	NC
8	GND	GND
9	GND	GND

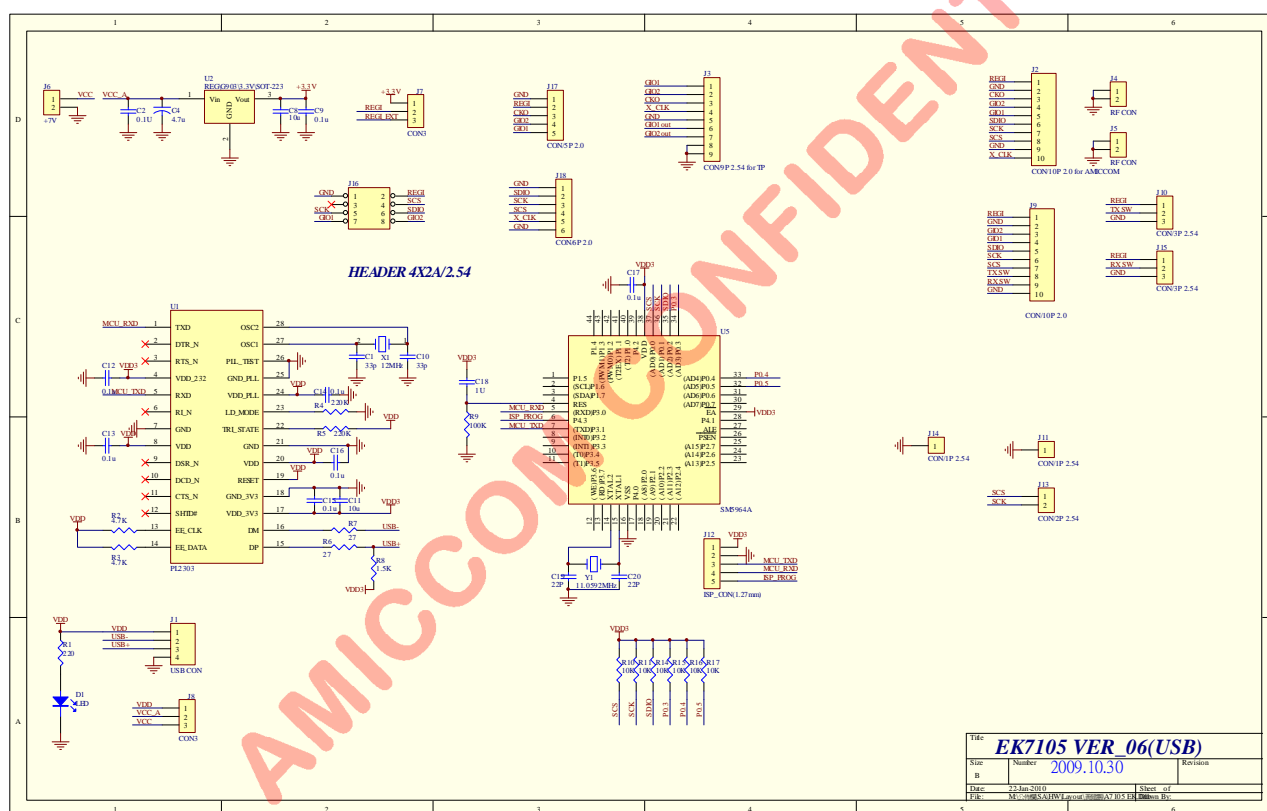
3.6 PA/LNA setting



PA On / LNA Off Setting

PA Off / LNA On setting

3.7 EV Board Schematic



4. Software Introduction

4.1 Using the EK7105-G2 software

The EK7105-G2 program Main Screen appears whenever you execute the program. The screen is shown below. Refer to the A7105 datasheet for detailed information on the register settings.

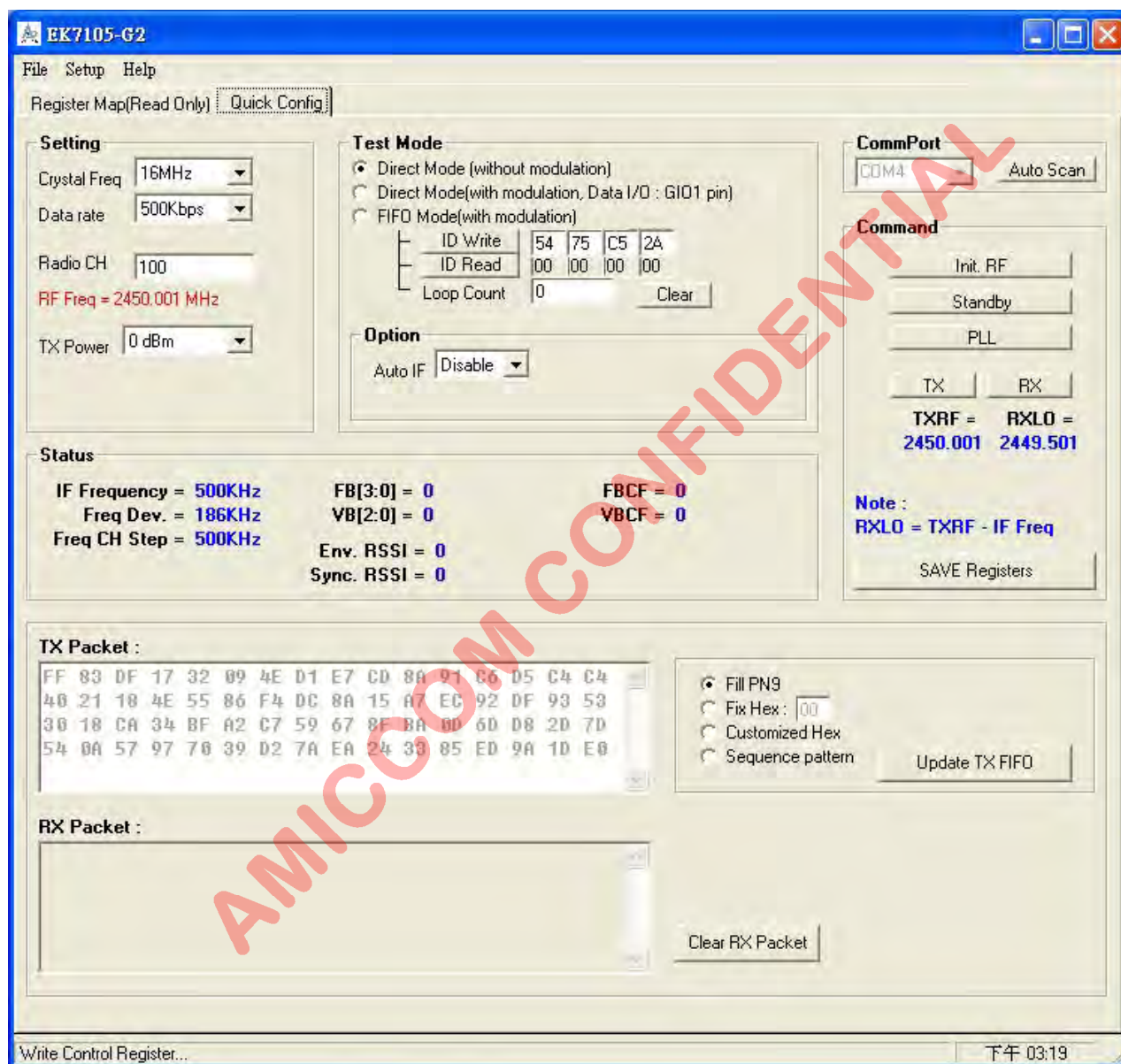


Fig. 2 EK7105-G2 program main screen

4.2 Pull-down menu

4.2.1 File menu options



The File menu offers the following commands:

Open Reserved.

Save As Displays a file selection dialog box that asks you for the name of an CFG-file in which to save the entered system parameters.

Exit Exits EK7105-G2 program

4.2.2 Setup menu option

The Port setup menu offers the following commands.

Port setup



Reserved.

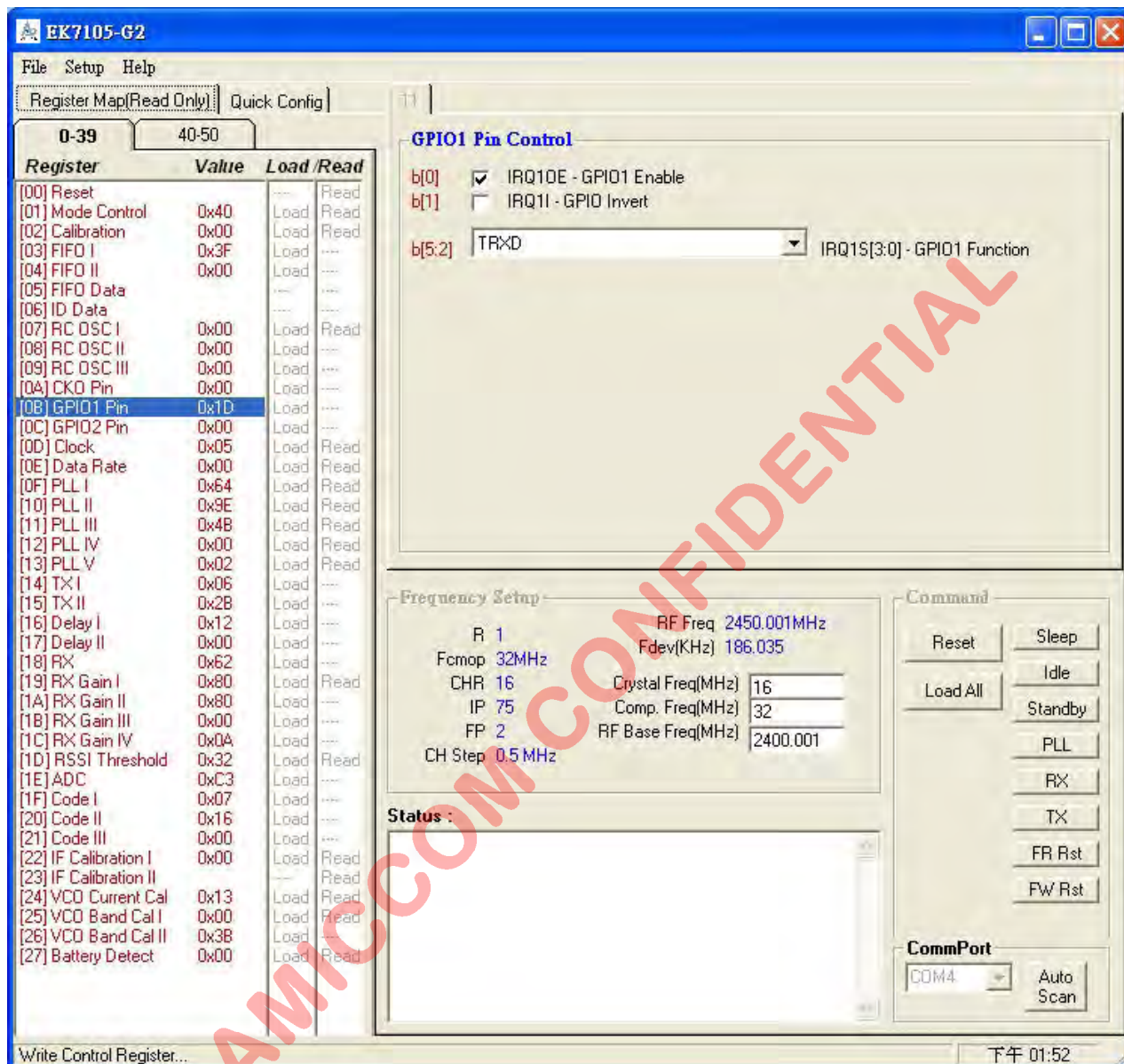
4.2.3 Help menu options



The help menu provides access to useful information about the product.

About brings up a message box with the software revision and copyright information.

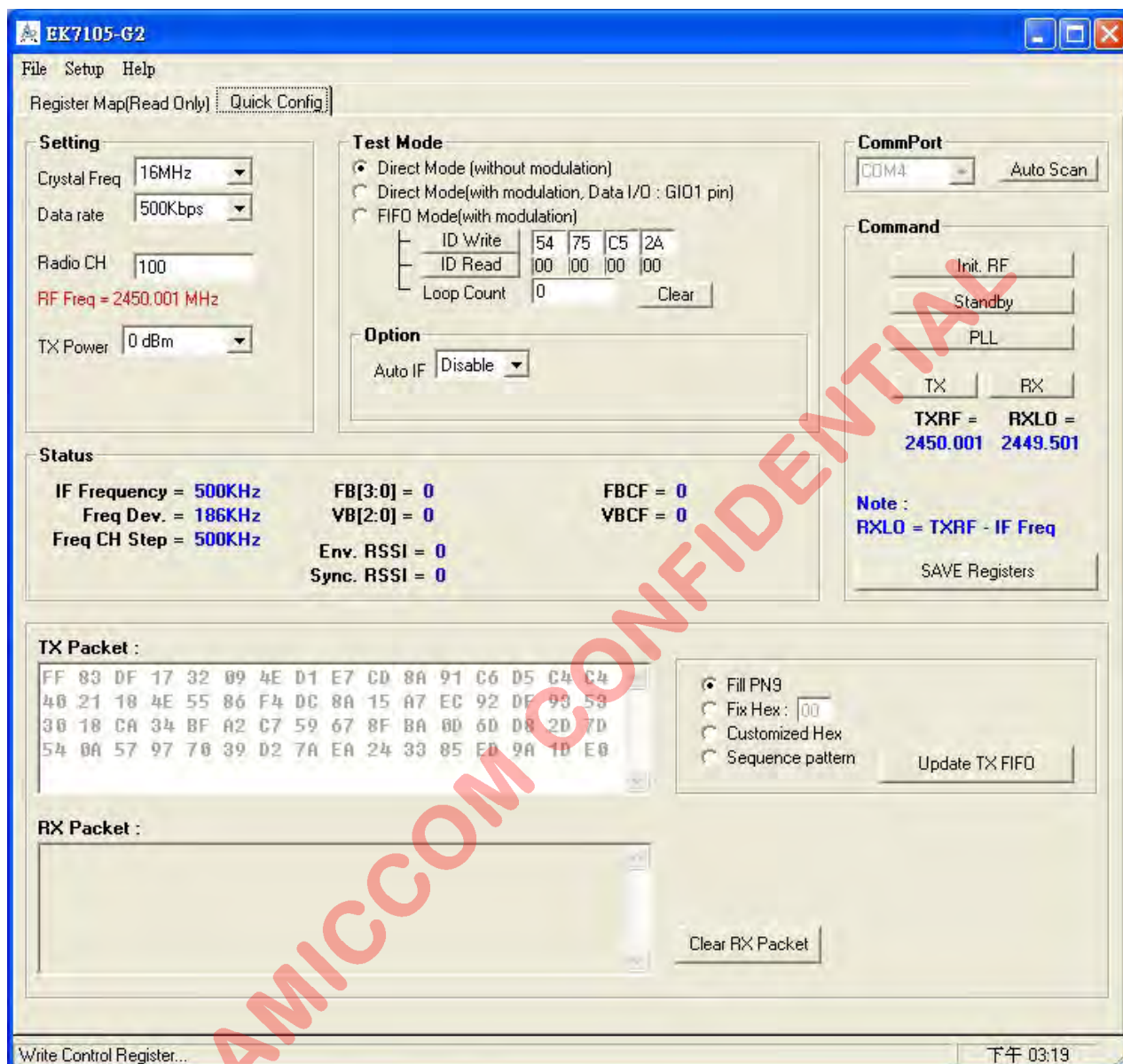
4.3 Register Map (Read Only) Tab



Register list

The register tab only shows the value that the EK7105-G2 is sending to the device, you can't change any parameter or button in the tab. When you change the different parameter value in Quick Config.Tab, the specified register in register Tab will change automatically.

4.4 Quick config. Tab



Setting

Crystal Freq

The crystal frequency of your module board is 16 MHz.

Do not change the crystal frequency parameter when using this module unless the crystal is being replaced.

You can change the X-tal frequency parameter in you needs configure RF module.

Data rate

The data rate can be set between 500Kbps, 250kbps, 100Kbps, 25Kbps, 2Kbps.

CH Number

The A7105 can operate at frequencies between 2400~2483 MHz ISM band. Enter the desired Channel number to set RF frequency



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TX Power

For the A7105 the output RF power can set between 0 dBm to -12dBm.

Test Mode

The test mode can be set in direct mode (without modulation), direct mode(With modulation) or FIFO mode.

Note: Select "Direct mode (with modulation, Data I/O : GIO1 pin)" option, Program set GIO1 pin to transmit/receive data.

Option

Auto IF

The Auto IF option can be set.

CommPort

Pressing "Auto Scan" button, the program can scan available comm. port. If device detected, the button back color becomes orange.

Command

Pressing "Init RF" button, the program can initial A7105 RF module automatically. If initial RF succeeds, the button back color becomes orange.

Pressing "Standby" button, the program can set the A7105 RF module in Standby mode. The button back color becomes green.

Pressing "PLL" button, the program can set the A7105 RF module in PLL mode. The button back color becomes green.

Pressing "TX" button, the program can set the A7105 RF module in TX mode. The button back color becomes green.

Pressing "RX" button, the program can set the A7105 RF module in RX mode. The button back color becomes green.

Save Registers

After completing the test, you may press "Save Register" button to save all register values in *.txt file.

Status

This is Info about A7105 parameter value information.

TX Packet Field

User can be set TX FIFO data pattern. In "TX data Format", you can set in one of three mode.

Choosing "Fill PN9", it will display PN9 code in the TX packet text field.

Choosing "Fill Value", it will display the fixed value in the TX packet text field.

Choosing "Fill Hex", you need enter 1~64 bytes value(Hex value) in the TX packet text field.

After completing the TX data pattern, you may press "Update TX FIFO" button to update the A7105 TX FIFO.

RX Packet Field

After the receiver unit completed a RX packet, the program can update value from RX FIFO read out automatically.

Pressing "Clear RX packet" button, the program can clear the RX packet field.



5. Setup Configuration install

Installation procedures

Step 1: Connect USB cable between PC and EK7105 Board. Plug A7105 RF module on EK7105's socket.

Step 2: Enable EK7105-G2 program.

Step 3: Select "Quick config." Tab

Step 4: Pressing "Auto Scan" button to scan available Comm. Port.

Step 5: Pressing "Init. RF" button to initial RF module. If initial success, the button back color becomes orange and RF module setup into Standby state with "Standby" button back color becomes green.

Step 6: Or press "PLL" button to set RF module into PLL state.

Setup TX:

Step 1: Press "TX" button to set RF module into TX state.

Setup RX:

Step 1: Press "RX" button to set RF module into RX state.

6. References

[1] Refer to the A7105 datasheet for detailed information on the register settings

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