

User Guide_{V1.2}

BK4811B Demo Board

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Getting Started

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User Interface

Hardware Description

BK4811B Demo Board

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User Interface in RX mode

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FSK PER Test

Register Operation

Personal Computer Requirements

Computer	IBM PC AT or compatible
Processor	Pentium 500 or better
Operating Systems	Windows XP, Windows 7
System Memory Required	>128MB
Hard Disk Space Required	>100MB
Video Standard	SVGA (1024 x 768 min.)
Mouse	Microsoft Compatible



Hardware Description

The BK4811B is a walkie-talkie transceiver, and must work together with a MCU. The BK4811B demo board should be mounted onto a MCU board through connector(CON1).

The MCU has a built-in regulator to convert the 5V USB voltage to 3.3V voltage as the power supply of BK4811B demo board. Therefore, additional power supply is not necessary.



Test Setup



Proprietary and Confidential

Status indicator: Discon	nected	 User Interface Initial user interface of test software before connecting board set to computer. All buttons and select boxes are in gray, and can't be operated.
Frequency 409.75 NGZ Sub-Audible 0 1 2 CDCSS D023H 0 8 9 A CDCSS D023H 0 0 1 2 CDCSS D023H 0 0 1 2 CDCSS D023H 0	3 4 5 6 7 22 BK4811 Demo V1.5.2 Eile Eile Eile Setting Help I USB Port Connected, Active Demo FSK FER Test Register TX/RX Switch InBand G EX TX Frequence IV Speec Frequence IV Speec	Vox Dirable Volume RX 3 KSI Threshold 20 0 1 2 3 4 5 6 7
User interface activated after connecting board set to computer. All buttons and select boxes are lighted, and can be operated.	Sub-Audible CDCSS D023N CDCSS D023N CCTSS 02.5 Control V AGC Enable PowerDown Crystal 21.7 Crystal 21.25	B 9 A B C D E F Addr: 0 Syncfford: c447 Type: 1 Air: Disable (DEX) 0 DEX) Receive Clear Window ESSI:34 SNR:33 Avdio ESSI:30

Status indicator: 1 USB port Connected. Active



User Interface in TX mode

Software Description The user interface in RX mode is almost the same with that in TX Mode

The user interface in RX mode is almost the same with that in TX Mode except two areas given below.

	対BK4811 Demo V1.5.2	i i i i i i i i i i i i i i i i i i i
	<u>F</u> ile Setting <u>H</u> elp	
	1 USB Port Connected, Active	
	Demo FSK PER Test Register	
Signal selection	TX/RX Switch	
~	VOX Disable Volume TX -2 VSNR Threshold 10 Mute Disable V	
The single select box in TX mode changes to	Frequence TOT Disable Volume RX -3 RSSI Threshold 80 dec:0-53 dec:0-53 dec:0-53	
multi-select box in RX		IF Received Signal
mode. By selecting	Frequency 409.75 MHZ 0 1 2 3 4 5 6 7	Strength Indicator
partially or all boxes,	DIMF 8 9 A B C D E F	
automatically identify		IF Signal to Noise
the received signal		Patio Indicator
type.	Sub-Audible Addr: D SyncWord: c4d7 Type: 1 Air: OFFX1 (HEX) (HEX) (HEX) (HEX)	Ratio Indicator
	Receive	Audio Signal
	CTCSS 62.5	Strength Indicator
	Control	
	Clear Window	
	© Crystal 21.7 © Crystal 21.25	
	RSSI:34 SNR:33 Audio RSSI:30	
		J

User Interface in RX mode

SyncWord: c4d7 Type: 1 Air: Disable -

Receive

Clear Window

Audio RSSI:0

Link Test

Transmit audio, DTMF, SELCAL method 2 described in page 6.

Test Procedure:

₩ BK4811 Demo ¥1.5.2 <u>F</u>ile Setting <u>H</u>elp

> 💽 RX С ТХ Frequence

-Sub-Audible-

CDCSS DO23N 💌

🗸 AGC Enable 📃 PowerDown

Crystal 21.7 Crystal 21.25

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CTCSS 62.5

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1 USB Port Connected, Active

Frequency 409.75 MHZ

Demo FSK PER Test Register TX/RX Switc

- 1. Choose RX mode in windo
- 2. The default frequency is 4 frequency, then click "Ent
- 3. Select "Speech", "DTMF",

InBand-

🔽 FSK

Messac

FSK Received:0358ADF

SELCALL receive:F

RSSI:91

DTEF receive:A

Addr:

(HEX)

(HEX)

SNR:63

4. Turn to window 1. Choose

	∰BK4811 Demo V1.5.2	
	File Setting Melp	Window 1. User interface corresponds to
LCALL and FSK signal using the setup ge 6.	Demo FSK FER Test Register	InBand
rindow 2. y is 409.75MHz. You can set to other "Enter" on key board. MF", "SELCALL" and "FSK". oose TX mode.	Frequence	VOX Dirable Volume IX 2 SHE Threshold 10 Mute Dirable V dec:0-63 TOT Dirable Volume EX -3 ESSI Threshold 30 dec:0-127 C ETHF C SELCALL
Window 2: User interface corres demo board in RX mode	ponds to	Addr: p SyncFord: c+d7 Type: 1 Air: pixable OEX) 0EX) Type: 1 Air: pixable Fransit FSK send: 0358ADF SELCALL send: f DTEF send: a Clear Window
VOX Disable Volume IX 2 SHE Threshold 10 Hm dec:0-63 TOT Disable Volume EX -3 RSSI Threshold 80 dec:0-127	ate Disable 💌	
0 1 2 3 4 5 0 IF 0 1 1 1 1 1 1 IF 0 1 1 1 1 1 IF 0 <td>5. ⁸ ⁷ ⁶</td> <td>Set the frequency equals to that in RX mode, then click "Enter" on key board. Select "FSK". Input a string in blank area, such as "0358ADF", then click "Transmit" button. You can find</td>	5. ⁸ ⁷ ⁶	Set the frequency equals to that in RX mode, then click "Enter" on key board. Select "FSK". Input a string in blank area, such as "0358ADF", then click "Transmit" button. You can find

window 2. 7. Select "SELCALL" in window 1. Click a symbol button, such as "F". Then you can find symbol "F" displayed in the message area of window 2.

that the same string is displayed in the message area of

Select "DTMF" in window 1. Click a symbol button, such 8. as "A". Then you can find symbol "A" displayed in the message area of window 2.

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File Sett

Demo

FSK PER Test

PER: Package Error Rate

Using the setup method 2 described in Page 6.

Operating Instructions

BK4811 Demo V1.5.2 File Setting Help

Demo

1 USB Port Connected, Active

- 1. Definitions of Sync Word, Scramble, Address and Length can be found in the datasheet of BK4811B (Page 12).
- 2. Air Enable: FSK packet transmit directly through FM modulation
- 3. Air Disable: FSK packet transmit through MSK modulated subcarrier
- 4. TX/RX: Demo board operating mode selection.

Window 2: User interface corresponds to
demo board in RX mode

Messages	Command		
	Sync Word: (HEX)	C4D7	Air: Disable 💌
Start to receive	Scramble.		
Stop	Scramble Value:	0	
Receive Packet 10	0-127		
	Address:	0	Length: 64
	(HEX)	1-	0-254
	Type:	1	Delay: 10
	0-4		
	Threshold:		Times:
	0-7	4	0-255 10 0:infinite
	-Direction-	,	
	(R	ζ.	Start
Sava Window Clear Window Hex Display			

emo ¥1.5.2 Help				
Port Connected, Active	<mark>Window 1: เ</mark>	Jser interfa	ice co	rresponds to
PER Test Register	demo board	in TX mod	e	
		Command		
		Sync Word: (HEX)	C4D7	Air: Disable 💌
rt to send d Packet 0 d Packet 1		└── Scramble Scramble Value: 0-127	0	
d Packet 2 d Packet 3 d Packet 4 d Packet 5		Address: (HEX)	O	Length: <mark>64</mark> 0-254
d Packet 6 d Packet 7		Type: 0-4	1	Delay: 10
d Packet 8 d Packet 9 P		Threshold: 0-7	4	Times: 0-255 10 0:infinite
to		-Direction-		Start
Window Clear Win	dow 🦳 Hex Display		·	

Test Procedure:

- Choose RX mode in window 2. Then click "Start". The demo board in RX mode is ready to receive packets.
- Turn to window 1. Choose TX mode. Then click "Start". The demo board in TX mode will send 10 packets.
- 3. Click "Stop" in window 1.
- 4. Turn to window 2. Click "Stop". Then the number of packets received will be shown in message area.

e Setting Help	ctive						
emo FSK PER Test Regis	ter						
Control	Load Value	Sav	e Value	(RAMP	Read All	ио_хт 🗍
Flush All Reg Config File: E:\vss60	Read Reg	Wri T\BK4811\BK4811 Ap	te Reg	Design Kit\C	R_UpDown	11 Design R2012Jul	J RX_ON
REGI	Values Name: REGO	Address	Oh		Dir: R	Type:	Normal
REG2 REG3 BEC4	C Binary Value	000000100000000)		💽 Hex Value	0200	
REGS	Dir	Name	Bits	Values	Description		
REG6 REG7	R	chip_id	15:0	200h	Device ID		
REG8							
REG10							
REG11							
REG12 REG13							
REG14 REG15							
REG16							
REG17							
REG19							
REG20							
REG22							
REG23							
REG24 REG25							
hE02J							_
REG26							
REG25 REG26 REG27 REG28	<						
REG26 REG27 REG28	<						
REC25 REC25 REC27 REC28	<						
Register List	<					Reg	ister Deta
Register List						Reg	ister Deta

LoadConfig

The test software will automatically load "config_4811.ini" in the same folder at initial start. You can choose other config file by click this button.

Load Value

Load register values saved previously (TXT format).

Save Value

Save register value in TXT format.

Read Reg

Read the updated register value. Only the selected register value will be refreshed.

Read All

All register values will be refreshed.

Write Reg

Write the input value into the selected register.

Flush All

Write input values to all registers. For example, you can click "Load value" first to load a saved value, then click "Flush All".