



## Product Specification

**CLASS II**

**BC05 Flash MODULE**

<b>DRAWN BY :</b>	ZengHuiWen		<b>MODEL :</b> DK-209
<b>CHECKED BY :</b>	LinDa		<b>DESCRIPTION :</b> BC05+16M Flash Module
<b>APPD. BY:</b>	Zed Zeng		<b>REV :</b> 1.0

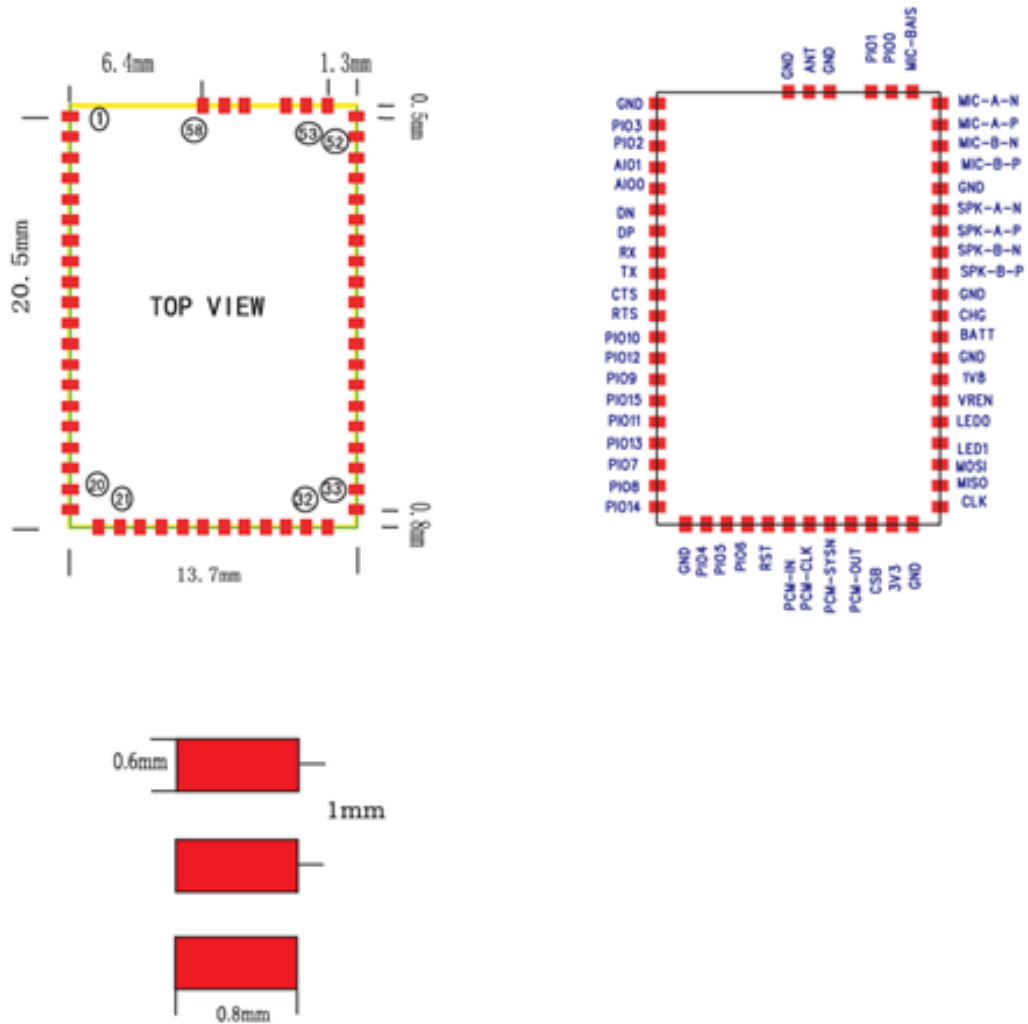


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1. Product Photo





## 2. Feature

- Radio Transceiver
  - Typical -82dBm sensitivity
  - Up to +2dBm RF transmit power with power level control
- Baseband
  - Fully Qualified Bluetooth V2.0+EDR
  - Integrated Audio CODEC in one chip
  - Built-in link controller, link manager protocol and flash
  - Low Power 3.3V Operation
  - Full speed USB interface, compliant with USB 1.1
  - Integrated Battery Charger With Programmable Current
  - PIO control
  - Standard HCI(UART or USB)
  - UART interface with programmable baud rate
  - Basic module without antenna
  - Basic module as SMD type
  - With Audio Out & Audio in
- Package option
  - Edge connector

## 3. Summary of Benefit

- Complete Bluetooth Solution
  - Complete 2.4GHz radio transceiver and baseband
  - CSR Bluecore 05- BT MultiMedia, single chip bluetooth system with CMOS technology
  - Adaptive frequency hopping feature (AFH)
  - Smallest footprint, 20.5mmX13.7mm
  - Simplify overall design/development cycle
  - Full speed Class 2 bluetooth operation
  - Class I support using external power amplifier
- Low power standby modes to enable high efficient power management
- High performance radio transceiver
- Low overall system cost



- Application
  - Stereo Headphone
  - Automotive Hands-Free Kits
  - Handsfree headset
  - Stereo (AV) Transmitter
  - Bluetooth Sound Box
  
- Software
  - Support CSR bluetooth stack
  - Design for Client

#### 4. Device Terminal Function

PIN Name	PIN #	Pad type	Description	Note
<b>GND</b>	1.21.32.40 43.4856.5 8	VSS	Ground pot	
<b>1.8V</b>	39	VDD1.8V	Integrated 1.8V (+) supply with On-chip output within 1.7-1.9V	
<b>3.3V</b>	31	VDD3.0V	Integrated 3.3V (+) supply with On-chip I output within 3.0.-3.3V	
<b>BATT</b>	41	Battery terminal+ve	Lithium ion/polymer battery positiveterminal.	
<b>CHG</b>	42	Charger input	Lithium ion/polymer battery charger input	
<b>VREN</b>	38	Analogue	High-voltage linear regulator and switch-moderegulator	
<b>AIO0</b>	5	Bi-Directional	Programmable input/output line	
<b>AIO1</b>	4	Bi-Directional	Programmable input/output line	
<b>PIO0</b>	54	Bi-Directional RX EN	Programmable input/output line, control output for LNA(if fitted)	
<b>PIO1</b>	55	Bi-Directional TX EN	Programmable input/output line, control output for PA(if fitted)	



<b>PIO2</b>	<b>3</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO3</b>	<b>2</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO4</b>	<b>22</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO5</b>	<b>23</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO6</b>	<b>24</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO7</b>	<b>18</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO8</b>	<b>19</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO9</b>	<b>14</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO10</b>	<b>12</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>PIO11</b>	<b>16</b>	<b>Bi-Directional</b>	<b>Programmable input/output line</b>	
<b>RET</b>	<b>25</b>	<b>CMOS Input with weak internal pull-down</b>	<b>RESET</b>	
<b>UART_RT S</b>	<b>11</b>	<b>CMOS output, tri-stable with weak internal pull-up</b>	<b>UART request to send, active low</b>	
<b>UART_CT S</b>	<b>10</b>	<b>CMOS input with weak internal pull-down</b>	<b>UART clear to send, active low</b>	
<b>UART_R X</b>	<b>8</b>	<b>CMOS input with weak internal pull-down</b>	<b>UART Data input</b>	
<b>UART_TX</b>	<b>9</b>	<b>CMOS output, Tri-stable with weak internal pull-up</b>	<b>UART Data output</b>	
<b>SPI_MOSI</b>	<b>35</b>	<b>CMOS input with weak internal pull-down</b>	<b>Serial peripheral interface data input</b>	
<b>SPI_CSB</b>	<b>30</b>	<b>CMOS input with weak internal pull-up</b>	<b>Chip select for serial peripheral interface, active low</b>	
<b>SPI_CLK</b>	<b>33</b>	<b>CMOS input with weak internal pull-down</b>	<b>Serial peripheral interface clock</b>	
<b>SPI_MISO</b>	<b>34</b>	<b>CMOS input with weak internal pull-down</b>	<b>Serial peripheral interface data Output</b>	

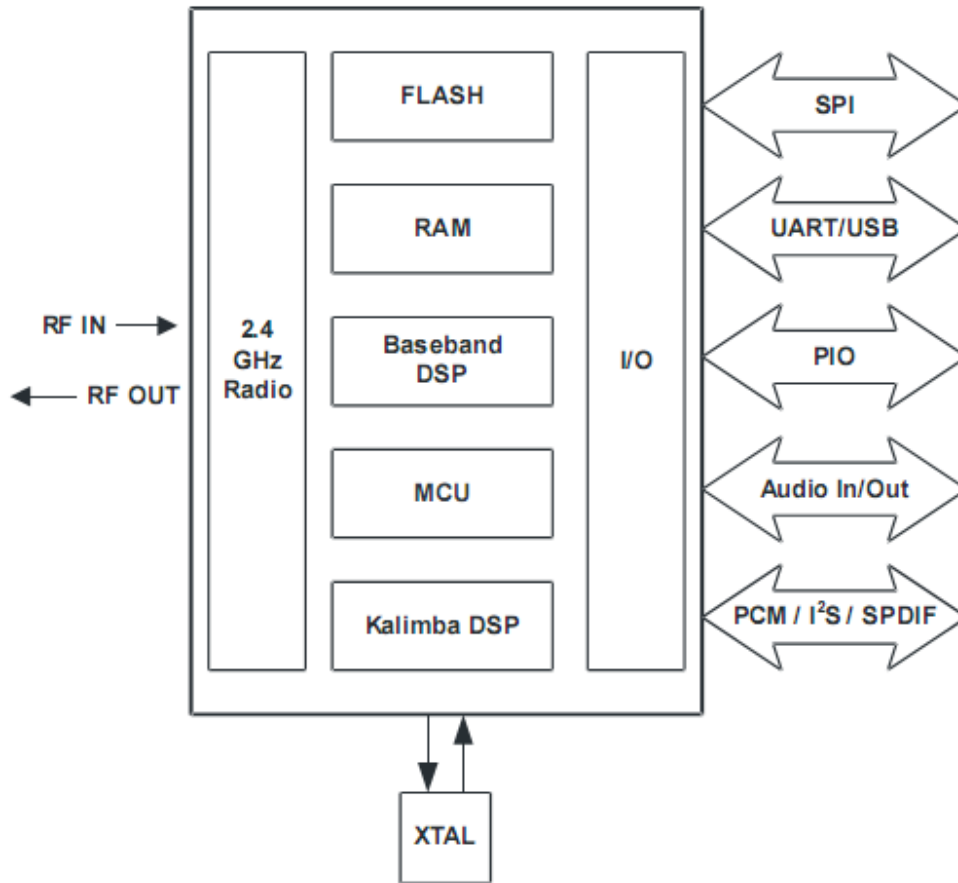


<b>USB_DN</b>	<b>6</b>	<b>Bi-Directional</b>	<b>USB</b>	
<b>USB_DP</b>	<b>7</b>	<b>Bi-Directional</b>	<b>USB</b>	
<b>MIC_A_P</b>	<b>51</b>	<b>Analogue input</b>	<b>Microphone input L positive pot</b>	<b>Microphone Left Positive</b>
<b>MIC_A-N</b>	<b>52</b>	<b>Analogue input</b>	<b>Microphone input L negative pot</b>	<b>Microphone Left Negative</b>
<b>MIC_B_P</b>	<b>49</b>	<b>Analogue input</b>	<b>Microphone input R positive pot</b>	<b>Microphone Right Positive</b>
<b>MIC_B_N</b>	<b>50</b>	<b>Analogue input</b>	<b>Microphone input R negative pot</b>	<b>Microphone Right Negative</b>
<b>SPK_A_P</b>	<b>46</b>	<b>Analogue output</b>	<b>Speaker output L negative</b>	<b>Left Negative</b>
<b>SPK_A_N</b>	<b>47</b>	<b>Analogue output</b>	<b>Speaker output L positive</b>	<b>Left Positive</b>
<b>SPK_B_P</b>	<b>44</b>	<b>Analogue output</b>	<b>Speaker output R negative</b>	<b>Right Negative</b>
<b>SPK_B_N</b>	<b>45</b>	<b>Analogue output</b>	<b>Speaker output R positive</b>	<b>Right Positive</b>
<b>PCM_IN</b>	<b>26</b>		<b>Synchronous PCM data input</b>	
<b>PCM_SY NC</b>	<b>28</b>		<b>Synchronous PCM data strobe</b>	
<b>PCM_CL K</b>	<b>27</b>		<b>Synchronous PCM data clock</b>	
<b>PCM_OU T</b>	<b>29</b>		<b>Synchronous PCM data output</b>	
<b>ANT</b>	<b>57</b>	<b>Analogue</b>	<b>RF In/Out</b>	
<b>LED0</b>	<b>37</b>	<b>Open drain output</b>	<b>LED driver</b>	
<b>LED1</b>	<b>36</b>	<b>Open drain output</b>	<b>LED driver</b>	



MIC_BAI S	53	Analogue	Microphone bia	
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### 5. Block Diagram



**System Architecture**

### 6. Electrical Specification:

- Eecommended Operating condition

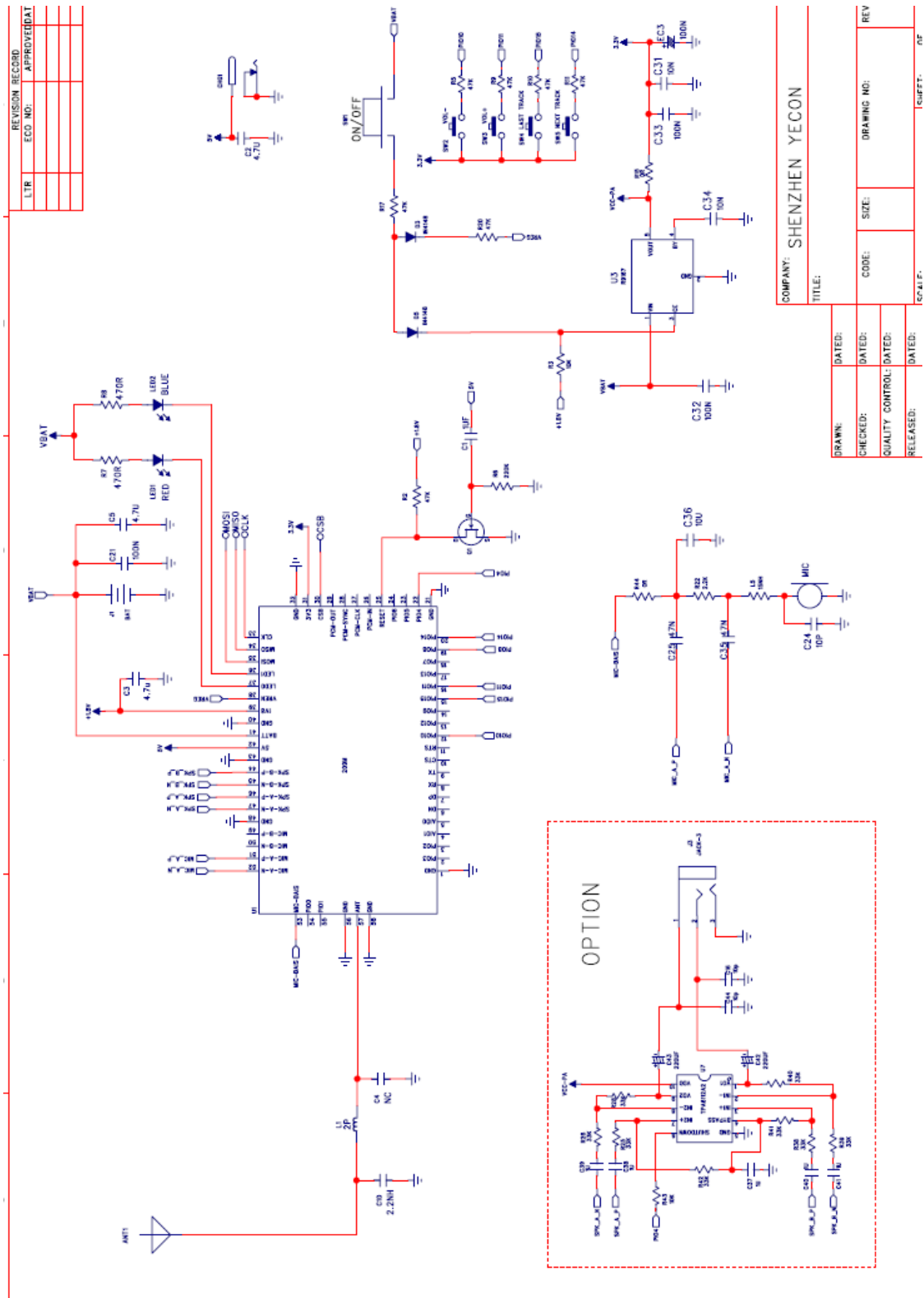


Operating Condition	Min	Max
Operating temperature range	-20°C	+75°C
Guaranteed RF performance range(a)	-20°C	+75°C
Supply voltage: VDD_RADIO, VDD_VCO, VDD_ANA and VDD_CORE	1.7V	1.9V
Supply voltage: VDD_PADS, VDD_PIO, VDD_MEM and VDD_USB	1.7V	3.6V
Supply voltage: VREG_IN	3.0V	4.2V(b)
Supply voltage: BAT_P	3.0V	4.2V
Supply voltage: V_CHG	4.35V	6.5V



Radio Characteristics	VDD = 1.8V			Temperature = +20°C	
	Min	Typ	Max	Bluetooth Specification	Unit
Maximum RF transmit power <sup>(a)</sup> <sup>(b)</sup>	-	2.5	-	-6 to +4 <sup>(c)</sup>	dBm
RF power variation over temperature range with compensation enabled <sup>(±)</sup> <sup>(d)</sup>	-	1.5	-	-	dB
RF power variation over temperature range with compensation disabled <sup>(±)</sup>	-	2	-	-	dB
RF power control range	-	35	-	≥16	dB
RF power range control resolution <sup>(e)</sup>	-	0.5	-	-	dB
20dB bandwidth for modulated carrier	-	780	-	≤1000	kHz
Adjacent channel transmit power F = F <sub>0</sub> ± 2MHz <sup>(f)</sup> <sup>(g)</sup>	-	-40	-	≤-20	dBm
Adjacent channel transmit power F = F <sub>0</sub> ± 3MHz	-	-45	-	≤-40	dBm
Adjacent channel transmit power F = F <sub>0</sub> ± > 3MHz	-	-50	-	≤-40	dBm
Δf <sub>avg</sub> Maximum Modulation	-	165	-	140 < f <sub>avg</sub> < 175	kHz
Δf <sub>max</sub> Minimum Modulation	-	150	-	≥115	kHz
Δf <sub>avg</sub> /Δf <sub>avg</sub>	-	0.97	-	≥0.80	-
Initial carrier frequency tolerance	-	6	-	±75	kHz
Drift Rate	-	8	-	≤20	kHz/50μs
Drift (single slot packet)	-	7	-	≤25	kHz
Drift (five slot packet)	-	9	-	≤40	kHz
2 <sup>nd</sup> Harmonic Content	-	-65	-	≤-30	dBm
3 <sup>rd</sup> Harmonic Content	-	-45	-	≤-30	dBm

### 7. Schematic Diagram



REVISION RECORD	
LTR	APPROVED/DATE

COMPANY: SHENZHEN YECON	
TITLE:	
DRAWN:	DATED:
CHECKED:	DATED:
QUALITY CONTROL:	DATED:
RELEASED:	DATED:
CODE:	SIZE:
DRAWING NO:	REV:
SCALE:	DATE:

8. Testing Block Diagram

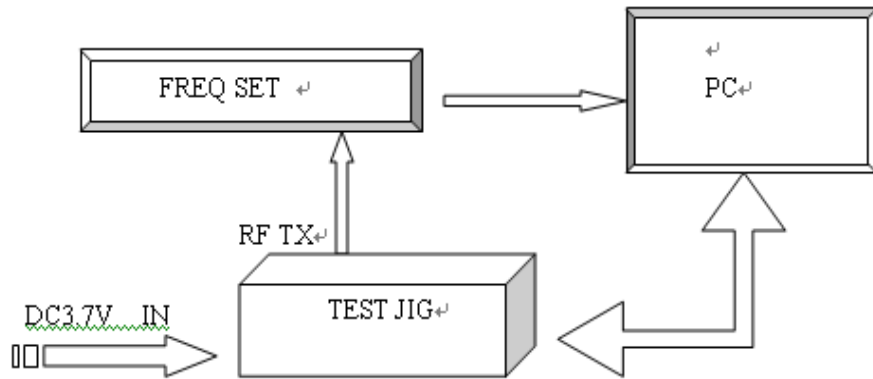


Fig 1 Programming and Freq. Alignment Test Procedure

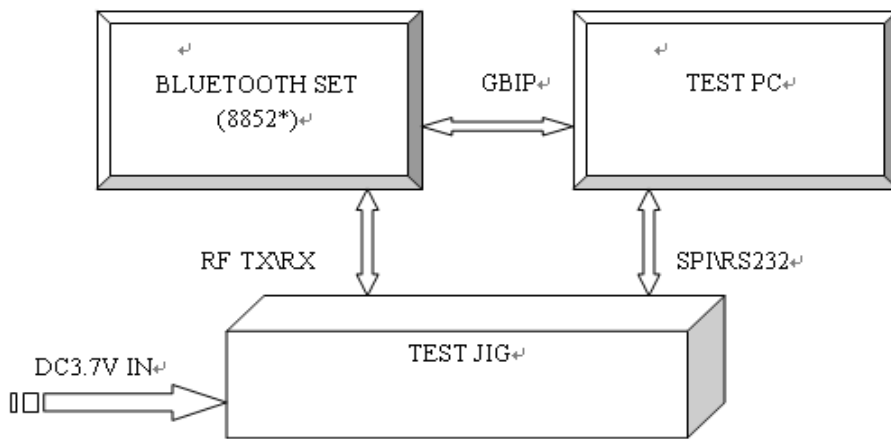
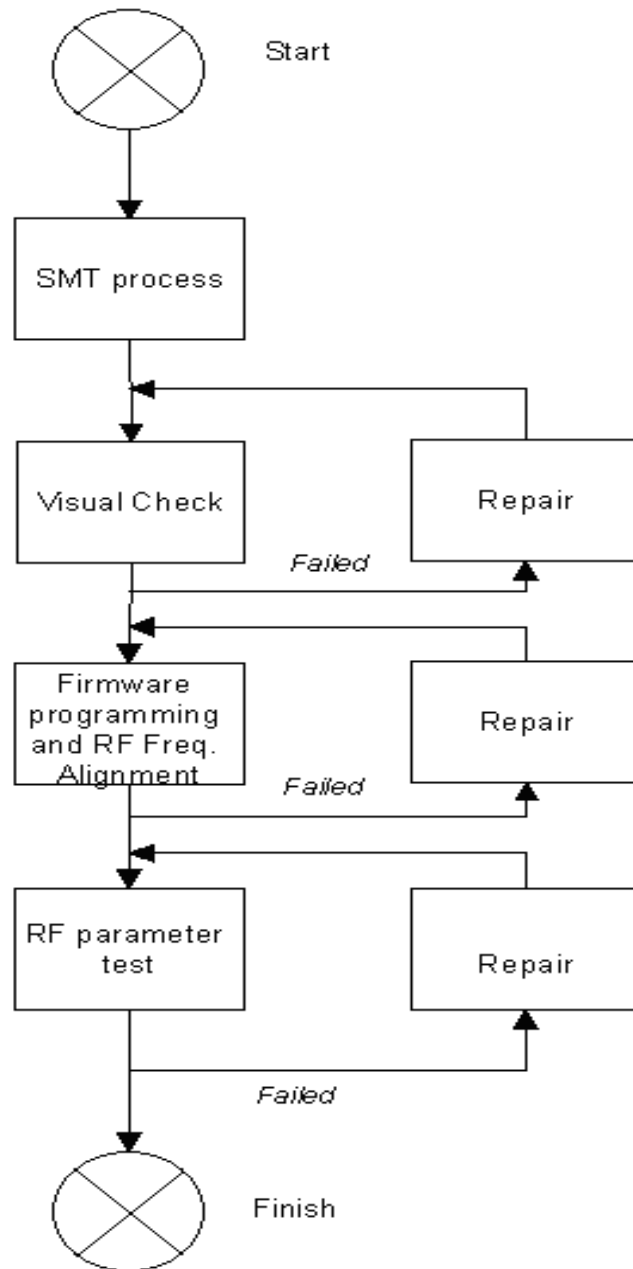


Fig 2 RF Parameter Test procedure



**Fig 3 Assemble/Alignment/Testing Flow Chart**