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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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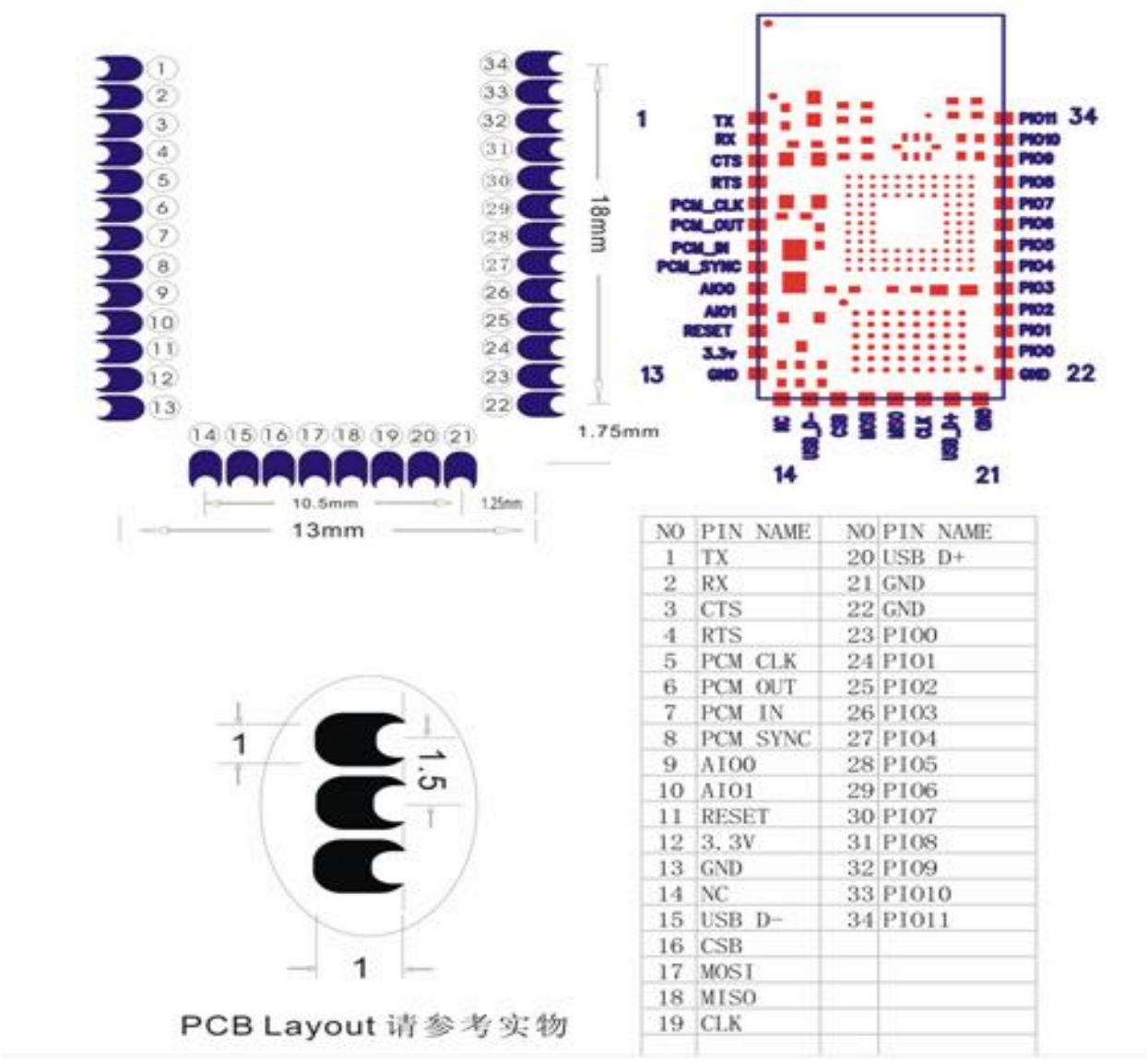
1. Product Photo



NO	PIN NAME	NO	PIN NAME
1	TX	20	USB D+
2	RX	21	GND
3	CTS	22	GND
4	RTS	23	PIO0
5	PCM CLK	24	PIO1
6	PCM OUT	25	PIO2
7	PCM IN	26	PIO3
8	PCM SYNC	27	PIO4
9	AIO0	28	PIO5
10	AIO1	29	PIO6
11	RESET	30	PIO7
12	3.3V	31	PIO8
13	GND	32	PIO9
14	NC	33	PIO10
15	USB D-	34	PIO11
16	CSB		
17	MOSI		
18	MISO		
19	CLK		

27mm×13mm×2mm

2 · Feature

- **Radio Transceiver**

  Typical –80dBm sensitivity
  Up to +4dBm RF transmit power with power level control
  Fully Qualified Bluetooth V2.0+EDR(Enhanced Data Rate) 2Mbps Modulation
  Integrated 15-bit Linear 8KHz Sample Frequency Audio CODEC in one chip
  Internal 6Mbit ROM
  Low Power 1.8V Operation
  Integrated Switch-Mode Regulator (DC To DC)
  Integrated Battery Charger With Programmable Current
  PIO control
  Standard HCI(UART or USB)
  4.2V Tolerant LED Drivers With Intensity Control
  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 04-Audio ROM, single chip bluetooth system with CMOS technology
  - Adaptive frequency hopping feature (AFH)
  - Smallest footprint, 27mmX13mm
  - 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**
  - Mouse
  - Automotive Hands-Free Kits
  - Cordless headsets
- **Software**
  - Support CSR bluetooth stack
  - Design for Client

4 · Device Terminal Function

PIN Name	PIN #	Pad type	Description	Note
GND	13 21 22	VSS	Ground pot	
3.3 VCC	12	3.3V	Integrated 3.3V (+) supply with On-chip linear regulator output within 3.15-3.3V	
AIO0	9	Bi-Directional	Programmable input/output line	
AIO1	10	Bi-Directional	Programmable input/output line	
PIO0	23	Bi-Directional RX EN	Programmable input/output line, control output for LNA(if fitted)	
PIO1	24	Bi-Directional TX EN	Programmable input/output line, control output for PA(if fitted)	
PIO2	25	Bi-Directional	Programmable input/output line	
PIO3	26	Bi-Directional	Programmable input/output line	
PIO4	27	Bi-Directional	Programmable input/output line	
PIO5	28	Bi-Directional	Programmable input/output line	
PIO6	29	Bi-Directional	Programmable input/output line	
PIO7	30	Bi-Directional	Programmable input/output line	
PIO8	31	Bi-Directional	Programmable input/output line	
PIO9	32	Bi-Directional	Programmable input/output line	
PIO10	33	Bi-Directional	Programmable input/output line	
PIO11	34	Bi-Directional	Programmable input/output line	
RESETB	11			
UART_RTS	4	CMOS output, tri-stable with weak internal pull-up	UART request to send, active low	
UART_CTS	3	CMOS input with weak internal pull-down	UART clear to send, active low	

UART_RX	**2**	**CMOS input with weak internal pull-down**	**UART Data input**	
UART_TX	**1**	**CMOS output, Tri-stable with weak internal pull-up**	**UART Data output**	
SPI_MOSI	**17**	**CMOS input with weak internal pull-down**	**Serial peripheral interface data input**	
SPI_CSB	**16**	**CMOS input with weak internal pull-up**	**Chip select for serial peripheral interface, active low**	
SPI_CLK	**19**	**CMOS input with weak internal pull-down**	**Serial peripheral interface clock**	
SPI_MISO	**18**	**CMOS input with weak internal pull-down**	**Serial peripheral interface data Output**	
USB_-	**15**	**Bi-Directional**		
USB_+	**20**	**Bi-Directional**		
1.8V	**14**		**Output Dc1.8v**	
PCM_CLK	**5**	**Bi-Directional**	**Synchronous PCM data clock**	
PCM_OUT	**6**	**CMOS output**	**Synchronous PCM data output**	
PCM_IN	**7**	**CMOS Input**	**Synchronous PCM data input**	
PCM_SYNC	**8**	**Bi-Directional**	**Synchronous PCM data strobe**	

5. Electrical Specification:

z Eecommended Operating condition

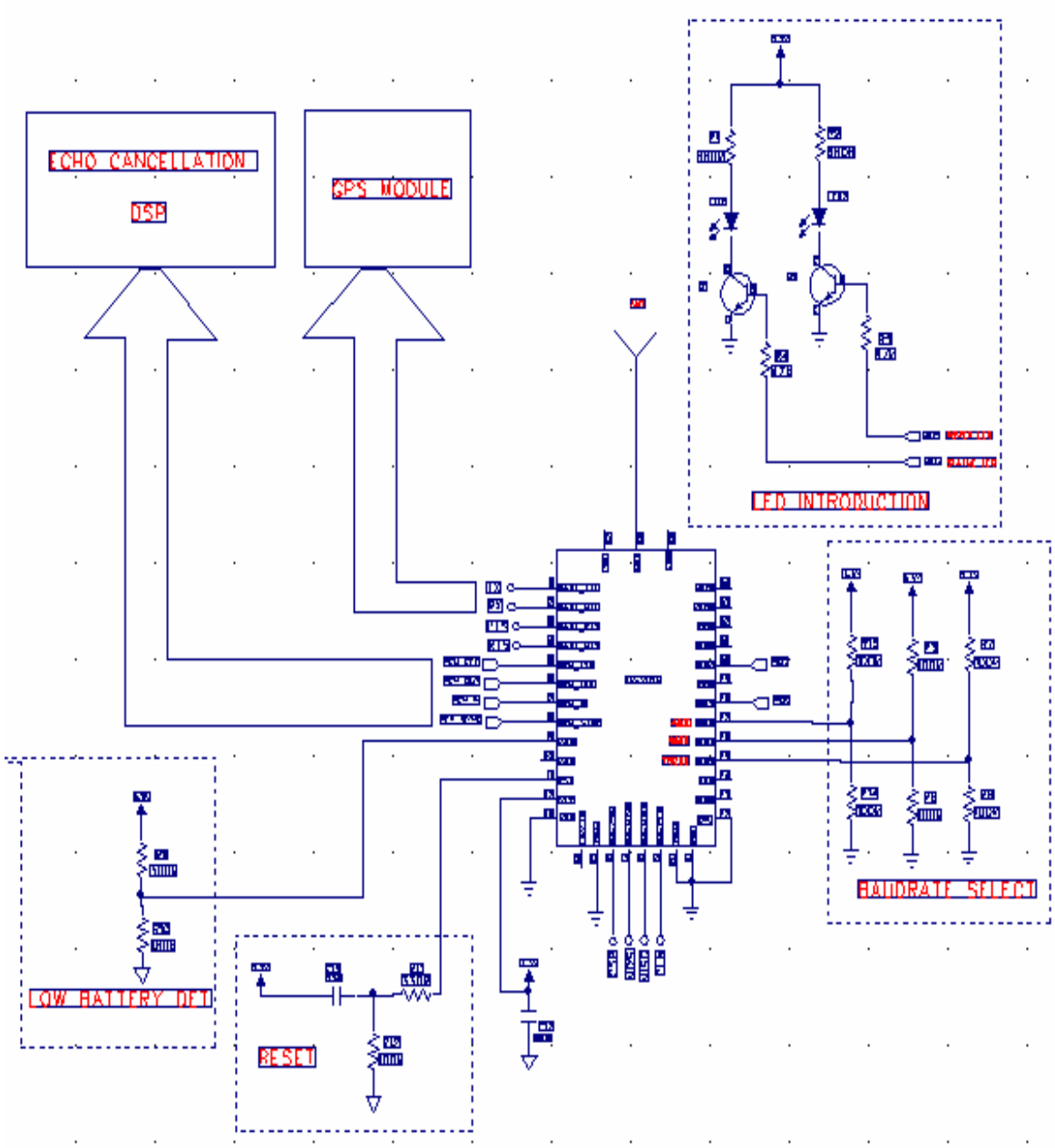
Radio Characteristics	VDD = 1.8V		Temperature = +20°C		
	Min	Typ	Max	Bluetooth Specification	Unit
Maximum RF transmit power[a] [b]	-	2.5	-	-6 to +4[c]	dBm
RF power variation over temperature range with compensation enabled(±)[d]	-	1.5	-	-	dB
RF power variation over temperature range with compensation disabled(±)	-	2	-	-	dB
RF power control range	-	35	-	≥16	dB
RF power range control resolution[e]	-	0.5	-	-	dB
20dB bandwidth for modulated carrier	-	780	-	≤1000	kHz
Adjacent channel transmit power F = F_0 ± 2MHz[f] [g]	-	-40	-	≤-20	dBm
Adjacent channel transmit power F = F_0 ± 3MHz	-	-45	-	≤-40	dBm
Adjacent channel transmit power F = F_0 ± > 3MHz	-	-50	-	≤-40	dBm
$\Delta f1_{avg}$ Maximum Modulation	-	165	-	$140<f1_{avg}<175$	kHz
$\Delta f2_{max}$ Minimum Modulation	-	150	-	≥115	kHz
$\Delta f1_{avg}/\Delta f2_{avg}$	-	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
2nd Harmonic Content	-	-65	-	≤-30	dBm
3rd Harmonic Content	-	-45	-	≤-30	dBm

z Transmitter

Radio Characteristics	VDD = 1.8V		Temperature = +20°C		
	Min	Typ	Max	Bluetooth Specification	Unit
Maximum RF transmit power[a] [b]	-	2.5	-	-6 to +4[c]	dBm
RF power variation over temperature range with compensation enabled(±)[d]	-	1.5	-	-	dB
RF power variation over temperature range with compensation disabled(±)	-	2	-	-	dB
RF power control range	-	35	-	≥16	dB
RF power range control resolution[e]	-	0.5	-	-	dB
20dB bandwidth for modulated carrier	-	780	-	≤1000	kHz
Adjacent channel transmit power $F = F_0 \pm 2MHz$[f] [g]	-	-40	-	≤-20	dBm
Adjacent channel transmit power $F = F_0 \pm 3MHz$	-	-45	-	≤-40	dBm
Adjacent channel transmit power $F = F_0 \pm > 3MHz$	-	-50	-	≤-40	dBm
$\Delta f1_{avg}$ Maximum Modulation	-	165	-	$140<f1_{avg}<175$	kHz
$\Delta f2_{max}$ Minimum Modulation	-	150	-	≥115	kHz
$\Delta f1_{avg}/\Delta f2_{avg}$	-	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
2nd Harmonic Content	-	-65	-	≤-30	dBm
3rd Harmonic Content	-	-45	-	≤-30	dBm

Radio Characteristics		VDD = 1.8V		Temperature = +20°C		
	Frequency (GHz)	Min	Typ	Max	Bluetooth Specification	Unit
Sensitivity at 0.1% BER for all packet types	2.402	-	-84	-	≤-70	dBm
	2.441	-	-84	-		
	2.480	-	-85	-		
Maximum received signal at 0.1% BER		-	10	-	≤-20	dBm
	Frequency (MHz)	Min	Typ	Max	Bluetooth Specification	Unit
Continuous power required to block Bluetooth reception (for input power of -67dBm with 0.1% BER) measured at the unbalanced port of the balun.	30-2000	-	-6	-	≤-10	dBm
	2000-2400	-	0	-	≤-27	
	2500-3000	-	0	-	≤-27	
C/I co-channel		-	6	-	≤11	dB
Adjacent channel selectivity C/I $F = F_0 + 1MHz$ [a] [b]		-	-5	-	≤0	dB
Adjacent channel selectivity C/I $F = F_0 - 1MHz$		-	-4	-	≤0	dB
Adjacent channel selectivity C/I $F = F_0 + 2MHz$		-	-38	-	≤-30	dB
Adjacent channel selectivity C/I $F = F_0 - 2MHz$		-	-23	-	≤-20	dB
Adjacent channel selectivity C/I $F = F_0 + 3MHz$		-	-45	-	≤-40	dB
Adjacent channel selectivity C/I $F = F_0 - 5MHz$		-	-44	-	≤-40	dB
Adjacent channel selectivity C/I $F = F_{image}$		-	-22	-	≤-9	dB
Maximum level of intermodulation interferers[c]		-	-30	-	≥-39	dBm
Spurious output level[d]		-	-150	-	-	dBm/Hz

6. Schematic Diagram



7. Block Diagram

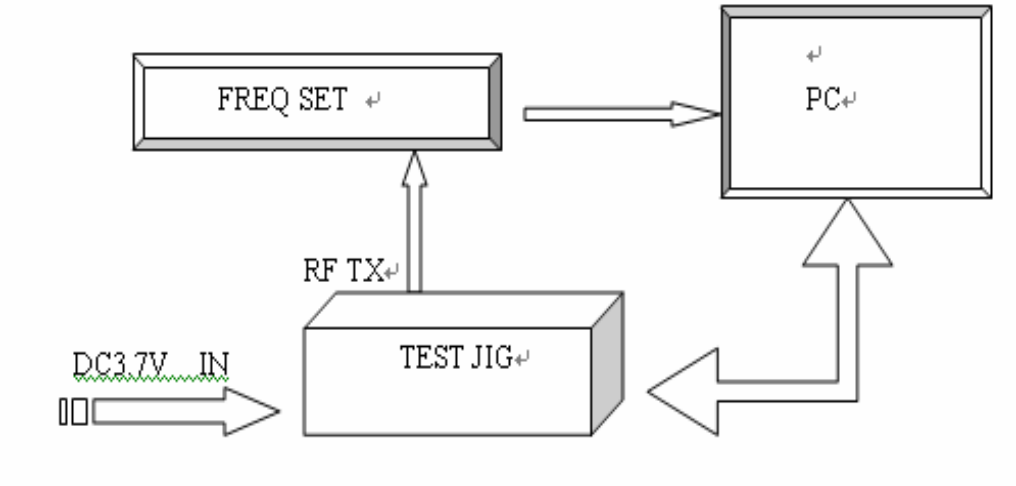


Fig 1 Programming and Freq. Alignment Test Procedure

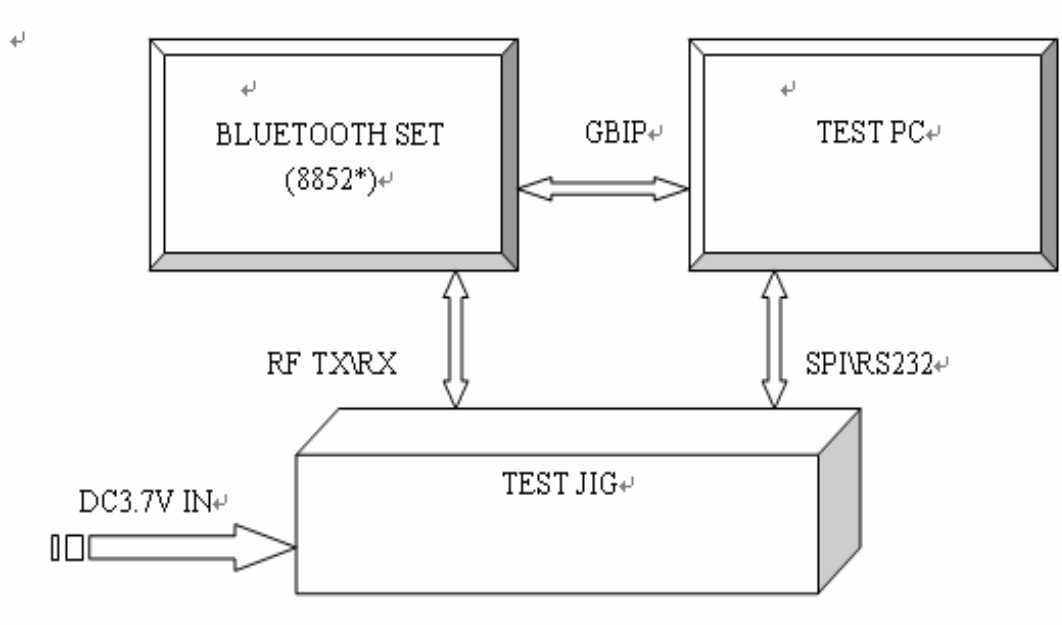


Fig 2 RF Parameter Test procedure

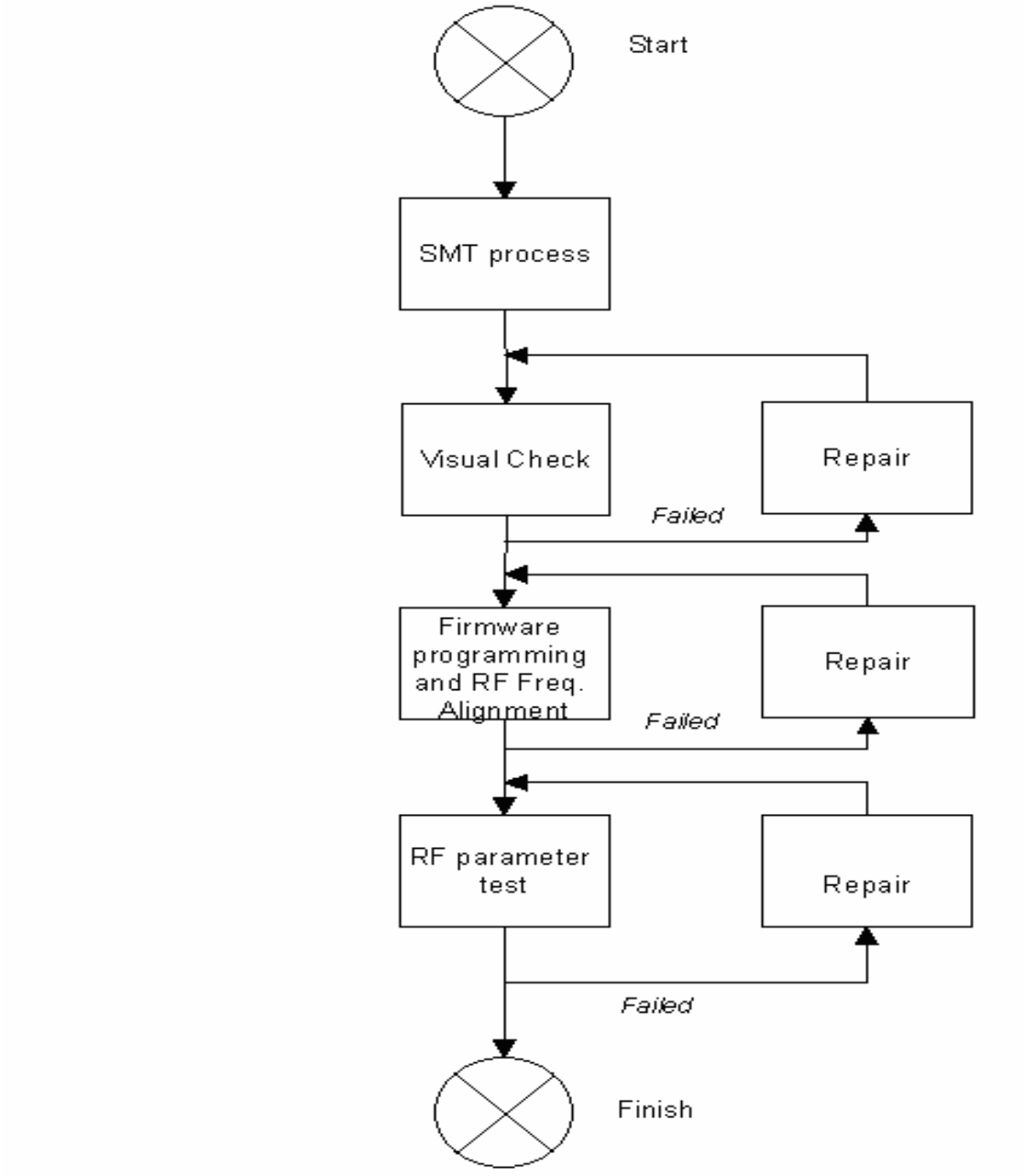


Fig 3 Assemble/Alignment/Testing Flow Chart