

1. PERFORMANCE

1. Performance

<General>

MODEL NAME	B1200
Talk time	140 mins
Standby	50 - 120 hours
RF power output	Class 4 GSM/ Class 1 DCS

Transmitting Frequency Range:	GSM : 890 - 915 Mhz PCN : 1710 - 1785 Mhz
Receiving Frequency Range:	GSM : 935 - 960 Mhz PCN : 1805 - 1880 Mhz
TX - RX Duplex Spacing:	GSM : 45 MHz / PCN: 95Mhz
Channel Spacing:	GSM : 200 KHz / PCN: 200 KHz
Number of Channels:	GSM : 124 (Numbered 1 to 124) PCN : 374 (Numbered 512 to 885)

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Item	Description	Specification		
1	Frequency Band	EGSM900 band Tx: $890 + n \cdot 0.2$ MHz Rx: $935 + n \cdot 0.2$ MHz ($n = 0 \sim 124$) Tx: $890 + (n-1024) \cdot 0.2$ MHz Rx: $935 + (n-1024) \cdot 0.2$ MHz ($n = 975 \sim 1023$) GSM1800 band Tx: $1710 + (n-512) \cdot 0.2$ MHz Rx: $1805 + (n-512) \cdot 0.2$ MHz ($n = 512 \sim 885$)		
2	Phase error	RMS < 5 degrees Peak < 20 degrees		
3	Frequency error	< 0.1ppm \sim ± 90 Hz (for GSM900) or 180 Hz (for GSM1800)		
4	Power Level	GSM900		
		Control Level	Power level	Tolerance
		5	33 dBm	± 2 dB
		6	31 dBm	± 3 dB
		7	29 dBm	± 3 dB
		8	27 dBm	± 3 dB
		9	25 dBm	± 3 dB
		10	23 dBm	± 3 dB
		11	21 dBm	± 3 dB
		12	19 dBm	± 3 dB
		13	17 dBm	± 3 dB
		14	15 dBm	± 3 dB
		15	13 dBm	± 3 dB
		16	11 dBm	± 5 dB
		17	9 dBm	± 5 dB
		18	7 dBm	± 5 dB
		19	5 dBm	± 5 dB
		GSM1800		
		Control Level	Power Level	Tolerance
		0	30 dBm	± 2 dB
		1	28 dBm	± 3 dB
		2	26 dBm	± 3 dB
		3	24 dBm	± 3 dB
		4	22 dBm	± 3 dB
		5	20 dBm	± 3 dB
		6	18 dBm	± 3 dB
		7	16 dBm	± 3 dB
		8	14 dBm	± 3 dB
		9	12 dBm	± 4 dB
		10	10 dBm	± 4 dB
		11	8 dBm	± 4 dB
		12	6 dBm	± 4 dB
		13	4 dBm	± 4 dB
		14	2 dBm	± 5 dB
		15	0 dBm	± 5 dB

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Item	Description	Specification			
5	Spectrum due to modulation	GSM900			
		Offset from Carrier (KHz).		Max. dBc	
		100		+0.5	
		200		-30	
		250		-33	
		400		-60	
		600 ~ <1200		-60	
		1200 ~ <1800		-60	
		1800 ~ <3000		-63	
		3000 ~ <6000		-65	
		≥6000		-71	
		GSM1800			
		Offset from Carrier (KHz).		Max. dBc	
		100		+0.5	
		200		-30	
		250		-33	
		400		-60	
		600 ~ <1200		-60	
		1200 ~ <1800		-60	
		1800 ~ <3000		-65	
		3000 ~ <6000		-65	
		≥6000		-73	
6	Spectrum due to switching transient	GSM900			
		Offset from Carrie(KHz).		Max. dBm	
		400		-19	
		600		-21	
		1200		-21	
		1800		-24	
		GSM1800			
		Offset from Carrie(KHz).		Max. dBm	
		400		-22	
		600		-24	
		1200		-24	
		1800		-27	
7	Spurious emissions	Conduction, Emission Status, Appendix 1 Conduction, Emission Status, Appendix 2			
8	Bit Error Rate	GSM900 BER(Class II) <2.439% @-102dBm DCS1800 BER(Class II) <2.439% @-102dBm			
9	Rx Level Report accuracy	GSM900	GSM1800		
		≥ -88	≥ -86	2	2
		≥ -101	≥ -99	3	2
		< -101	< -99	4	2
10	SLR	8 +/- 3 dB			

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Item	Description	Specification		
11	Sending Response	Frequency(Hz)	Max.(dB)	Min.(dB)
		100	-12	
		200	0	
		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	
12	RLR	2 +/- 3 dB		
13	Receiving Response	Frequency(Hz)	Max.(dB)	Min.(dB)
		100	-12	
		200	0	
		300	2	-7
		500	*	-5
		1,000	0	-5
		3,000	2	-5
		3,400	2	-10
		4,000	2	
		* Mean that Adopt a straight line in between 300Hz& 1,000Hz to be Max. level in the range.		
14	STMR	13 +/- 5 dB		
15	Stability Margin	> 6 dB		
16	Distortion	dB to ARL (dB)		Level Ratio (dB)
		-35		17.5
		-30		22.5
		-20		30.7
		-10		33.3
		0		33.7
		7		31.7
		10		25.5
17	Sidetone Distortion	Three stage distortion < 10%		
18	<Change> System frequency (13MHz)tolerance	≤ 2.5ppm		
19	<Change>32.768KHz tolerance	≤ 30ppm		
20	Power consumption	Full power: < 280mA (GSM) ; < 220mA (DCS) Standby : Normal : <=5mA		
21	Talk time	GSM/ Level_7 (Battery Capacity 650mA): 180Min		
22	Standby time	Under conditions, at least 100 hours: 1. Brand new and full 650mAh battery 2. Full charge, keep GSM in idle mode. 3. Broadcast set off. 4. Signal strength=-82dBm, DRX=9multiframe 5. Back light of phone set off, no press keypad.		
23	Ringer Volume	At least 90dB under below conditions: 1. Ringer set as ringer 7. 2. Test distance set as 10 cm		

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Item	Description	Specification	
24	Charge Voltage	Fast Charge: < 650 mA Trickle Charge: < 35 mA	
25	Antenna display	Level	(RSSI)
		0	$RSSI \leq -104$
		1	$-103 \leq RSSI \leq -98$
		2	$-97 \leq RSSI \leq -92$
		3	$-91 \leq RSSI \leq -86$
		4	$-85 \leq RSSI \leq -76$
		5	$-75 \leq RSSI$
26	Battery indicator	Level	Voltage (v)
		0	3.300 ~ V ~ 3.504
		1	3.504 ~ V ~ 3.570
		2	3.570 ~ V ~ 3.686
		3	3.686 ~ V ~ 3.935
		4	3.935 ~ V
27	Low Voltage Warning	3.504V	
28	Forced shut down Voltage	3.3V	
29	Battery Type	1 Li-Ion battery Standard Voltage = 3.7V Battery full charge voltage =4.2V Capacity: 650mAh (Li-Ion);	
30	Travel Charger	Linear Charger In put: 110V or 240 VAC, 50/60Hz Out put: 5VDC+/-0.25V, 650mA (No Load)	
		Switching-mode charger In put: 96- 246VAC, 50/60Hz Out put: 5VDC+/-0.25V, 650mA (No Load)	

1-2 HW Features

Item	Feature	Comment
Battery	Li-Ion Battery, 650mAh	
AVG TCVR current (mA)	GSM I _{max} (280mA),DCS I _{max} (220mA)	
Stand by current (mA)	≤5mA	
- Talk time - Stand by time - Charging time	3-hour (GSM Tx Level_7) TBD-hour(Paging Period:5 RSSI:-82dBm) 2-hour	
RX sensitivity	GSM:-107dBm, DCS:-105dBm	
TX output power	GSM (Level 5:32dBm) DCS (Level0:29.5dBm)	
GPRS compatibility	N/A	
SIM card type	3v/5v small	
Display	128x64	
Status Indicator	Soft Icons	
Keypad	0-9, #, *, C, Phone Book,up/down On/Off, Hook	
ANT	Internal	
System connector	Yes	
Ear Phone Jack	N/A	
PC synchronization	N/A	
Memory	2MB	
Speech coding	EFR/FR/HR	
Data & Fax	N/A	
Vibrator	Yes	
Melody	15 default + 5 user edit	
Voice Recording	N/A	
C-Mike	N/A	
Receiver	Yes	
Speaker Phone	Yes	
Portable Handsfree	Yes, option	
Travel Adapter	Yes	Switching
Options		

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1-3 GSM band RF Specifications

Frequency Stability	< +/- 90Hz
RF Maximum Power Output	33dBm
RF Output Power Levels	15, decrementing in 2dB steps
Power Control Level 5	33dBm +/-2dB
Power Control Level 6	31dBm +/-3dB
Power Control Level 7	29dBm +/-3dB
Power Control Level 8	27dBm +/-3dB
Power Control Level 9	25dBm +/-3dB
Power Control Level 10	23dBm +/-3dB
Power Control Level 11	21dBm +/-3dB
Power Control Level 12	19dBm +/-3dB
Power Control Level 13	17dBm +/-3dB
Power Control Level 14	15dBm +/-3dB
Power Control Level 15	13dBm +/-3dB
Power Control Level 16	11dBm +/-5dB
Power Control Level 17	9dBm +/-5dB
Power Control Level 18	7dBm +/-5dB
Power Control Level 19	5dBm +/-5dB
TX Frequency Output	
Low Channel (Ch 1)	890.2 MHz
Mid Channel (Ch 62)	902.4 MHz
High Channel (Ch 124)	914.8 MHz
TX Frequency Calculation (F_{tx})	$890 + (ARFCN \times 0.2) = F_{tx} \text{ MHz}$
TX UHF VCO Frequency	
Low Channel (Ch 1)	1160.2 MHz
Mid Channel (Ch 62)	1172.4 MHz
High Channel (Ch 124)	1184.8 MHz
TX UHF VCO Freq. Calculation (F_{tuhf})	$F_{tx} + 270 = F_{tuhf} \text{ MHz}$
IF VCO Frequency	540 MHz
TX IF Frequency	270 MHz
Rx IF Frequency	270MHz
Phase Error	
Peak Phase Error	< 20 degrees
RMS Phase Error	< 5 degrees

1-4 DCS band RF Specifications

Frequency Stability	< +/- 180Hz
RF Maximum Power Output	30dBm
RF Output Power Levels	16, decrementing in 2dB steps
Power Control Level 0	30dBm +/-2dB
Power Control Level 1	28dBm +/-3dB
Power Control Level 2	26dBm +/-3dB
Power Control Level 3	24dBm +/-3dB
Power Control Level 4	22dBm +/-3dB
Power Control Level 5	20dBm +/-3dB
Power Control Level 6	18dBm +/-3dB
Power Control Level 7	16dBm +/-3dB
Power Control Level 8	14dBm +/-4dB
Power Control Level 9	12dBm +/-4dB
Power Control Level 10	10dBm +/-4dB
Power Control Level 11	8dBm +/-4dB
Power Control Level 12	6dBm +/-4dB
Power Control Level 13	4dBm +/-4dB
Power Control Level 14	2dBm +/-5dB
Power Control Level 15	0dBm +/-5dB
TX Frequency Output	
Low Channel (Ch 512)	1710.2 MHz
Mid Channel (Ch 699)	1747.6 MHz
High Channel (Ch 885)	1784.8 MHz
TX Frequency Calculation (F_{tx})	$1710.2 + (ARFCN \times 0.2) = F_{tx}$ MHz
TX UHF VCO Frequency	
Low Channel (Ch 1)	1530.2 MHz
Mid Channel (Ch 62)	1567.6 MHz
High Channel (Ch 124)	1604.8 MHz
TX UHF VCO Freq. Calculation (F_{tuhf})	$F_{tx} + 180 = F_{tuhf}$ MHz
IF VCO Frequency	540 MHz
TX IF Frequency	180 MHz
Rx IF Frequency	270MHz
Phase Error	
Peak Phase Error	< 20 degrees
RMS Phase Error	< 5 degrees

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1-5 Receiver (GSM)

RX Frequency Input	
Low Channel (Ch 1)	935.2 MHz
Mid Channel (Ch 62)	947.4 MHz
High Channel (Ch 124)	959.8 MHz
RX Frequency Calculation (F_{rx})	$935 + (ARFCN \times 0.2) = F_{rx} \text{ MHz}$
RX UHF VCO Frequency	
Low Channel (Ch 1)	1160-1230 MHz
Mid Channel (Ch 62)	1205.2 MHz
High Channel (Ch 124)	1217.4 MHz
RX UHF VCO Freq. Calculation (F_{ruhf})	1229.8 MHz $F_{rx} + 270 = F_{ruhf} \text{ MHz}$
RX VCO Frequency	540 MHz
Demodulation Frequency	270 MHz (540/ 2)
IF Frequency	270 MHz
BER (Bit Error Ratio)	Type II BER <2.4% at -102dBm Type II BER <0.1% at -15dBm

1-6 Receiver (DCS)

RX Frequency Input	
Low Channel (Ch 1)	1805.2 MHz
Mid Channel (Ch 62)	1842.6 MHz
High Channel (Ch 124)	1879.8 MHz
RX Frequency Calculation (F_{rx})	$F_{tx} + 95 \text{ Mhz} = F_{rx} \text{ MHz}$ 1535-1610 MHz
RX UHF VCO Frequency	
Low Channel (Ch 1)	1535.2MHz
Mid Channel (Ch 62)	1572.6 MHz
High Channel (Ch 124)	1609.8 MHz
RX UHF VCO Freq. Calculation (F_{ruhf})	$F_{rx} - 270 = F_{ruhf} \text{ MHz}$
RX VCO Frequency	540 MHz
Demodulation Frequency	270 MHz (540/ 2)
IF Frequency	270 MHz
BER (Bit Error Ratio)	Type II BER <2.4% at -102dBm Type II BER <0.1% at -15dBm