Product Description

[1] General:
This product is a telephone equipment for PSTN and VoHPNA LAN.
This product is named Cordless Telephone, Model BB-HC1.

Specification for DSSS Cordless Phone:

| No.	Items	Description
1	Frequency Range	2404.8 – 2475.0MHz
2	Frequency Tolerance	1ppm
3	Number Of Channel	40ch
4	Channel Spacing	1.8MHz
5	Access Method	FDMA-TDD Frequency Division Multiple Access, Time Division Duplex)
6	Spread Method	DSSS (Direct Sequence Spread Spectrum
7	Chip Rate	12chips/bit
8	Data Transfer Rate	100kbps
9	Rate Of Base Band Data	1200kbps
10	Modulation Method	DBPSK (Differential Binary Phase Shift Keyed)

[2] Circuit Description:

1. General Description
The compact design of the Main PWB is obtained by using CONEXANT DSSS ASIC in the main control section and high density printing of surface mounting parts.
The compact design of the HPNA PWB is obtained by using AGERE HPNA ASIC and high density printing of surface mounting parts.

2. PWB Configuration
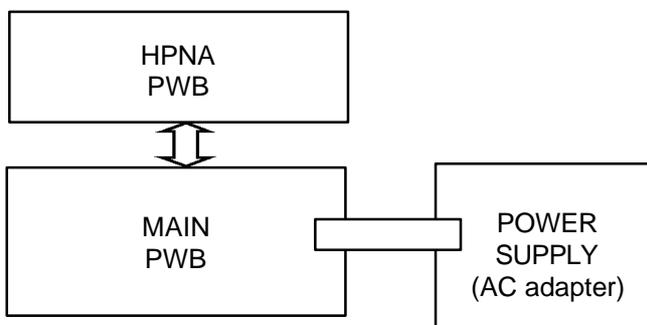
1) MAIN PWB
The Main PWB has TEL/LIU circuit, Power Supply circuit and DSSS Cordless system circuit. TEL/LIU circuit controls connection of the telephone line to the unit. Power Supply circuit provides voltages of +3.3V and +6V to the other circuits. This PWB controls HPNA PWB.

2) HPNA PWB
This PWB controls connection of the VoHPNA LAN to the unit.

3) Power Supply (AC adapter)
This adapter provides voltages of +9V/500mA to the MAIN PWB.

3. Operation Description
Operational descriptions are given below:

• RF Block Description
The communication using radio is performed TDD operation between the sets of keeping a common system ID.
The system ID is stored nonvolatile memory of each set.
The ID code are kinds of 2 24.

Transmission
Voice signal is inputted from microphone and headset is adjusted the level of signal and converted from analog signal to digital signal in the CODEC, and is sent to Merlin (Baseband IC).
In Merlin, the inputted signal is converted ADPCM data and scrambled by XORed PN sequence.
The scrambled signal is differentially encoded and spreaded.
A 12chip spreading code is used to meet FCC part 15.247 requirements for a DSS(Digital Spread Spectrum) system.
The spreaded signal is modulated by BPSK(Binary Phase Shift Keying) and is sent to RF109(2.4GHz Digital Spread Spectrum Transceiver).
RF109 generates the Local Oscillator(LO) frequencies using a PLL(Phase Lock Loop) frequency synthesizer and external 2.4GHz VCO(Voltage Controlled Oscillator).
The baseband signal from Merlin is mixed LO frequency.
The mixed signal pass through Matching Network Circuits and is sent to RF110(RF Power Amplifier).
The Amplified signal in RF110 pass through Antenna Matching Circuit and is sent to Antenna.

Reception
The signal from radio pass through BPF (Band Pass Filter) of 2.4GHz band width and is sent to RF109.
RF109 adjust the level of signal in LNA Low Noise Amplifer) and downconverted to Baseband I/Q signals.
Baseband I/Q signals is sent to the Merlin and despread, demodulated and descrambled to ADPCM data.
The ADPCM data is converted analog signal in CODEC.

Channel Number	Channel Center Frequency (MHz)	Channel Number	Channel Center Frequency (MHz)
1	2404.8	21	2440.8
2	2406.6	22	2442.6
3	2408.4	23	2444.4
4	2410.2	24	2446.2
5	2412.0	25	2448.0
6	2413.8	26	2449.8
7	2415.6	27	2451.6
8	2417.4	28	2453.4
9	2419.2	29	2455.2
10	2421.0	30	2457.0
11	2422.8	31	2458.8
12	2424.6	32	2460.6
13	2426.4	33	2462.4
14	2428.2	34	2464.2
15	2430.0	35	2466.0
16	2431.8	36	2467.8
17	2433.6	37	2469.6
18	2435.4	38	2471.4
19	2437.2	39	2473.2
20	2439.0	40	2475.0