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FAX OUT

To :Federal Communications Commission
Attn. :Mr. Richard F. Fabina
From :Mr. Peter Yeo
CC :

Date : Feb. 01,2001.
Ref. No. :CT1020101
Page(s) : 9
Fax No.: 1-301-344-2050

Thank you to receive your fax message dated Jan. 26,2001.

RE : Application dated 12/26/00
Applicant Name : Cherish Telecom Co.Ltd.
Equipment Class: DSS-Part 15 Spread Spectrum Transmitter.
FCC ID : FNXCS201

Answer to your question as below.

1. The chipping rate : 12 chip/bit.
   Bit rate : 1.92Mbps.
   Data rate : 80Kbps Time Division Duplex.
   Spreading rate : 12 chips/bit* 100K bit/sec.

2. Processing Gain data.
   See attachment total 4 (1/4-4/4) pages.

3. RF Exposure waning.
   See attachment total 4 (A/D-D/D) pages.

If you have any additional question please feel free to contact me asap.

Best regards,

Peter Yeo

Mr. Peter Yeo
Vice President

CS-201 (CHERISH)

USER'S MANUAL

CS-201 (900MHz DSST WITH CALLER ID AND CALLWAITING ID) MANUAL

This equipment has tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules, These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measurements:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

Changes or modification to device not expressly approved by ISV inc. could void the user's authority to operate this equipment.

√ ***IMPORTANT***

Read this manual before attempting to setup or use this instrument. If contains important Information regarding safe installation and use. Keep this manual for future reference. Also save the carton, packing and proof of purchase to simplify and accelerate any needed action.

√ ***WARNING***

To prevent fire or shock hazard, do not expose this product to rain or any type of moisture. If accidentally dropped into water, this product should immediately by unplugged from the AC outlet and telephone wall jack.

THIS SYMBOL IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE OWNER'S MANUAL.

☞ ***INSTALLATION PRECAUTION***

1. *Never install telephone wiring during a lighting storm.*
2. *Never install telephone jacks in wet locations unless the jack is specially designed for wet locations.*
3. *Never touch insulated telephone wireless or terminals unless the telephone line has been disconnected at the network interface.*
4. *Use caution when installing or modifying telephone lines.*

☞ MAINTENANCE

1. *Use a damp cloth to the plastic cabinet. A mind soap will help to remove grease or oil. Never use polish, solvents, abrasives or strong detergents since these can damage the finish.*
2. *Your phone should be situated away from heat sources such as radiators, heater, stoves or Any other appliance that produces heat.*

☞ CAUTION

To reduce the risk of fire or injure to persons, read and follow these instructions:

1. *Use only the following type and the size battery :*
   550mAh, 3.6V (PX55AAA NIMH by POWERHAUS(Pin Xin International limited , or equivalent)
2. *Do not dispose of the battery in a fire. The cell may explode. Check with local codes for possible special disposal instructions.*
3. *Do not open or mutilate the battery. Released electrolyte is corrosive and may be toxic if swallowed.*
4. *Exercise care in handling in order not to short the battery with conducting material such as rings, bracelets and keys. The battery or conductor may overhead and cause burns*
5. *Recharge only the battery type that is provided with or identified for use with this product. If a different type of battery is used, it may leak or explode.*
6. *Do not attempt to rejuvenate the battery provided with or identified for use with this product by heating them. Sudden release of the battery electrolyte may occur, causing burns or irritation to eyes or skin.*
7. *When inserting the battery into this product, the proper polarity or direction must be observed. Reverse insertion of battery may result in leakage or explosion.*
8. *Remove the battery from this product if the product will not be used for a long period of time (several months or more) since during this time they could leak in the product.*
9. *Discard the "dead" battery as soon as possible since "dead" battery are more likely to leak in a product.*
10. *Do not store this product, or the battery provided with or identified for use this product, in high-temperature areas. Battery that are stored in a freezer or refrigerator for the purpose of extending shelf life should be stabilized at room temperature prior to use after cold storage.*
11. *Always disconnect all telephone line cords from the wall modular jacks before installing or replacing the battery.*

☞ CARTON CONTENTS

1. *CS-201 Basestation and Handset.*
2. *Rechargeable Ni-MH Battery (3.6V, 550mAh)*
3. *AC Adaptor (AC 120V / DC9V, 300mA)*
4. *Telephone Line Cord*
5. *User's Manual*
6. *Warranty Card*
7. *Headphone (*OPTION)*

Operating Instruction for Satisfying RF Exposure Compliance

Your cordless telephone contains a low power transmitter.
When the Push-to Talk button is pushed it sends out radio frequency (RF) signals.
This device is authorized to operate at a duty factor not to exceed 50% in August 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with Safety levels for hand-held wireless devices.

CAUTION : *To maintain compliance with the FCC's RF exposure guidelines, hold the transmitter and antenna at least 0.5 inches (1.25 centimeters) from your face, with the antenna pointed up and away from the face, if you wear the handset on your body while using the headset accessory, use only the manufacturers supplied belt clip for this product and ensure that the antenna is at least 1 inch (2,5centimeters) from your body when transmitting.*

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter. use only the supplied antenna. Unauthorized antennas, modifications, or attachments could damage the transmitter and may violate FCC regulations.

This phone (device) has an output power of max 20mW, which no warning statements required. Now this phone (device) designed to be hold transmitter and antenna at least 0.5inchs from your Face. Therefore this phone (device) satisfies RF exposure compliance.

Processing Gain Measurements for CS201 DCT TEST report

Introduction

Scope

This document is a Cherish Engineering test report for CS201 DCT cordlessphone.
This document details the results of measurement of the processing gain of a DCT FFF phone.

Reference Documents

This section lists documents that are referenced within or are materially relevant to this document.
Code of Federal Regulations, Title 47, Chapter 1, Part 15 Radio Frequency Devices (FCC)

Definitions

FCC	Federal Communications Commission
SNR	Signal to Noise Ratio
JSR	Jammer to Signal Ratio
CW	Continuous wave (jammer)
HS	Handset
BS	Basestation
DBPSK	Differential Binary Phase Shift Keying

Table 1: Definitions and Abbreviations

An Overview of the FCC Method for measuring Processing Gain
The FCC in 15.247 (e) specifies two methods for measuring processing gain. The first method simply involves calculating the signal to ratio noise (SNR) with the spreading code switched on with the SNR when the spreading code is switched off.
The difference between the two is the processing gain.
The SNR is measured at the demodulated output of the receiver.
In principle this an acceptable method to measure the processing gain of any direct sequence spread spectrum communication system, however, it does not take into consideration that the non-spread spectrum portion of the system may operate under the assumption that the signal being transmitted is a spread spectrum signal and when the spreading code is switched off the system may fail to operate or operate at greatly
reduced efficiency, In either case the measurement of processing gain will be

meaningless. The second method specified by the FCC to measure processing gain is detailed in 15.247 (e)(1).

This involves transmitting a CW jammer in the RF passband of the system and measuring the jammer to signal ratio (JSR) required to achieve a certain bit error rate.

The choice of the actual value of the bit error rate is left up to the tester.

The jammer is stepped in 50 kHz increments across the entire passband and in each case the JSR to achieve the desired bit error rate is measured.

The JSR is measured at the RF input to the system under test.

The lowest 20% of the JSR data (in dB) is discarded.

The processing gain can then be calculated as follows:-

$$G_p = \left(\frac{S}{N}\right)_{theory} + \left(\frac{J}{S}\right)_{measured} + L_{system}$$

where G_p is the processing gain, the SNR is that theoretically predicted for the system under the test to achieve the desired bit error rate, the JSR is the lowest value (in dB) in the remaining data set and L_{sy} adjusts for non-ideal system losses. L_{sys} can not be greater than 2 dB.

Processing Gain Measurement Results

The following parameters were used in the test setup.

HS Tx power (dBm)	-4.3	
BS LNA gain (dB)	0	
Test system losses (signal) (dB)	-14.55	-4.05 dB (system), -3 dB (signal combiner), -7.5 dB (2 cables)
Test system losses (jammer) (dB)	-5.6	-3 dB (signal combiner), -2.6 dB (2cables)

Table 2: Test Setup Parameters

The following measurement results were taken at the basestation.
The desired bit error rate was set at 10^{-3}.

Jammer Frequency (MHz)	BER (BS)	Received jammer power (dBm)	Received signal power (dBm)	Jammer/Signal ratio (dB)
904.20	1.54×10^{-3}	--15.1	-17.1	2.0
904.80	1.25×10^{-3}	-14.9	-16.9	2.0
906.00	9.6×10^{-4}	-15.0	-17.3	2.3
907.20	9.6×10^{-4}	-14.5	-16.8	2.3
908.40	1.23×10^{-3}	-14.9	-17.4	2.5
909.60	9.8×10^{-4}	-15.3	-17.2	1.9
910.80	1.13×10^{-3}	-14.7	-16.9	2.2
912.00	9.23×10^{-4}	-14.8	-16.6	1.8
913.20	1.12×10^{-3}	-14.9	-17.1	2.2
914.40	1.2×10^{-3}	-14.8	-16.9	2.1
915.60	9.89×10^{-4}	-15.0	-17.5	2.5
916.80	1.11×10^{-3}	-14.7	-16.9	2.2
918.00	1.21×10^{-3}	-15.2	-16.9	1.7
919.20	1.08×10^{-3}	-14.9	-17.0	2.1
920.40	9.87×10^{-4}	-15.1	-17.3	2.2
921.60	1.8×10^{-3}	-15.3	-17.6	2.3
922.80	9.87×10^{-4}	-15.1	-17.6	2.5
924.00	1.54×10^{-3}	-15.3	-17.0	1.7
925.20	1.65×10^{-3}	-15.3	-17.3	2.0
925.80	9.98×10^{-3}	-15.4	-17.5	2.1

Table 3: Test Results

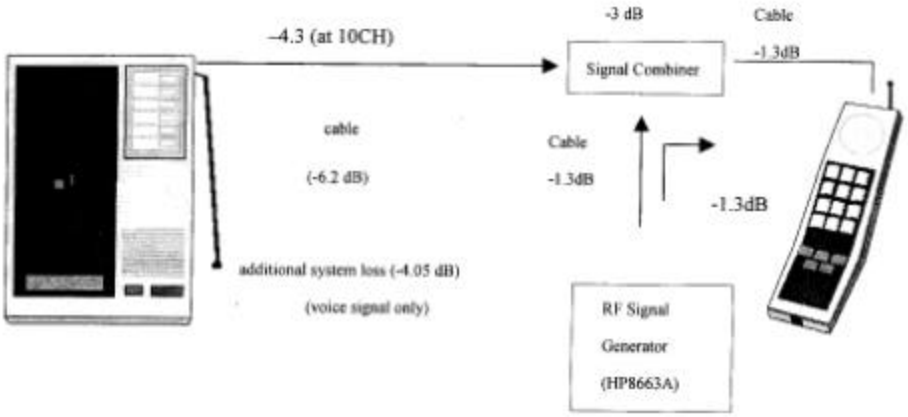

Figure 1: Test Setup

For DBPSK at 10^{-3} bit error rate the required SNR is 8.0 dB. Using the results above and the data in the tab below the processing gain is calculated to be 12.1 dB.

Required SNR (dB)	8.0
System losses (dB)	2.0
J/S ratio at 80% point (dB)	2.1
FCC Processing gain (dB)	12.1

Table 4: Processing Gain Calculation data

Conclusions

The result measured for processing gain of 12.1 dB is close to the actual processin gain due to a 12 chip spreading code of

$$10 \times \log_{10}(12.1) = 10.828\ dB$$