FCC CFR47 PART 22 SUBPART H

TEST REPORT

FOR

CELLULAR MOBILE PHONE AND MP3 PLAYER

MODEL: NXC-3200

FCC ID: MBUNXC3200

REPORT NUMBER: 00U0401

ISSUE DATE: 10/13/00

Prepared for
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ATTACHMENTS:

1. **PROPOSED FCC ID LABEL FORMAT**
2. **EUT PHOTOGRAPHS**
3. **INSTALLATION AND SERVICE MANUALS**
4. **SCHEMATICS AND PARTS LIST**

-1. FCC CERTIFICATION INFORMATION

The following information is in accordance with FCC Rules, 47CFR Part2, Subpart J, Sections 2.1033 – 2.1055.

2.1033(c)(1) Applicant: **STANDARD TELECOM CO., LTD.**
926 Kwanyang 2-Dong, Dongan-Ku, Nayang-City,
Kyunggi-Do
Korea 431-062

2.1033(c)(2) FCC ID: **MBUNXC3200**

2.1033(c)(3) Instructions/Installation Manual

Refer to **Attachment: Installation and Service manual**.

2.1033(c)(4) Types of Emissions

AMPS:F8W, F1D
CDMA: F9W

2.1033(c)(5) Frequency Range

Receiver: **869 - 894 MHz**
Transmitter: **824 - 849 MHz**

2.1033(c)(6) Range of Operating Power

-50dBm to +23dBm

2.1033(c)(7) Maximum Power Rating

CDMA: 0.32 Watts
AMPS: 0.5 Watts

2.1033(c)(8) Applied voltages and currents into the final transistor elements

3.7 Volts, 0.545 Amps

2.1033(c)(9) Tune-up/Optimization Procedure

Refer to **Attachment: Installation and Service manual.**

2.1033(c)(10) Complete Circuit Diagrams and Functional Block Diagram

Refer **Attachment: Schematics and Parts list**.

.

2.1033(c)(10a) Means for Frequency Stabilization

The reference clock for frequency stabilization is VC-TCXO's (voltage controlled, temperature compensated crystal oscillator) clock. Frequency stabilizing circuits are divided into three parts: local frequency stabilization circuit, transmitter IF stabilization circuit and receiver IF stabilization circuit. The IF frequency stabilization circuit for TX/RX are accomplished by a tank circuit, which is composed of capacitors and varactor diodes. The local frequency stabilization circuit is composed of a modularized PLL and VCO.

2.1033(c)(10b) Means for Limiting Modulation

A device is incorporated into the IFT3000 chip that limits any modulation in excess of 100%. This device precedes the modulator of the transmitter. It is instantaneous in action for controlling the modulation wave introduced into the transmitters frequency modulator.

2.1033(c)(10c) Means for Limiting Power

APC circuit

2.1033(c)(11) Equipment Identification

A drawing of the equipment identification nameplate appears under **Attachment: PROPOSED FCC ID LABEL FORMAT**.

2.1033(c)(12) Photographs

Photographs of the equipment, internal and external views, are found in the **Attachment: Eut Photographs**.

2.1033(c)(13) Description of Digital Modulation Techniques

0QPSK

2.1033(c)(14) Standard Test Conditions

The transmitter was tested under the following conditions:

Room Temperature: 20 - 23 °C
Relative Humidity: 55 - 60%
DC Supply Voltage: 3.8VDC
The transmitter was aligned and tuned up according to manufacturer's alignment procedure, prior to testing. All data presented represents the worst case parameter being measured.

2.1033 Description of Various Base Station Configurations

Not applicable.

2.1033 Use of Various Power Supplies

Not applicable.

TYPE OF EQUIPMENT:	CELLULAR MOBILE PHONE AND MP3 PLAYER
MEASUREMENT DISTANCE:	3 METER
TECHNICAL LIMIT:	FCC 15.707, 15.109 and 22.917
FCC RULES:	PART 2, PART 15 and PART 22
EQUIPMENT AUTHORIZATION PROCEDURE	Certification
MODIFICATIONS MADE ON EUT	☐ YES ☒ NO

The above equipment was tested by Compliance Certification Services for compliance with the requirements set forth in the FCC CFR 47, PART 15 AND 22. The results of testing in this report apply to the product/system, which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By

Tom Cokenias, Director of Engineering
Compliance Certification Services

3. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

4. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code:200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT(1300F2))

5. MEASUREMENT INSTRUMENTATION

Radiated emissions were measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, BI-log, ridged waveguide, and liner horn. EMI receivers were used for line conducted readings, spectrum analyzers with pre-selectors and quasi-peak detectors were used to perform radiated measurements. Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specification for "Radio Interference Measuring Apparatus and Measurement Methods," Publication 16.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

6. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

7. UNITS OF MEASUREMENT

Measurements of radiated interference are reported in terms of dB(µV/m) at a specified distance. The indicated readings on the spectrum analyzer were converted to dB(µV/m) by use of appropriate conversion factors. Measurements of conducted interference are reported in terms of dB(µV).

The field strength is calculated by adding the Antenna Factor and Cable Factors, then by subtracting the Amplifier Gain from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor
AG = Amplifier Gain

Assume a receiver reading of 52.5 dBµV is obtained. The Antenna Factor of 7.4dB/m and a Cable Factor of 1.1dB is added. The Amplifier Gain of 29 dB is subtracted, giving a field strength of 32 dBµV/m. The 32 dBµV/m value was mathematically converted to its corresponding level in µV/m.

FS = 52.5 + 7.4 + 1.1 - 29 = 32 dBµV/m

Level in µV/m = Common Antilogarithm [(32 dBµV/m)/20] = 39.8 µV/m

8. CLASSIFICATION OF DIGITAL DEVICE

Class A includes digital devices that are marketed for use in commercial, industrial or business environments, excluding devices which are marketed for use by the general public or are intended to be used in the home.

Class B includes digital devices that are marketed for use in residential environments, notwithstanding use in commercial, business and industrial environments.

Note: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as Class B device, and in fact is encouraged to do so provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B digital device, regardless of its intended use.

9. RADIATED EMISSION LIMITS

FCC PART 15 CLASS A

MEASURING DISTANCE OF 10 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBµV/m)
30-88	90	39.1
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

FCC PART 15 CLASS B

MEASURING DISTANCE OF 3 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBµV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

FCC RADIATED EMISSION ALTERNATIVE METHOD
(CISPR 22/EN55022)

Limits for radiated disturbance of Class A ITE at
measuring distance of 10 m

Frequency range MHz	Quasi-peak limits dB(μV/m)
30 to 230	**40**
230 to 1000	**47**
NOTES 1. The lower limit shall apply at the transition frequency. 2. Additional provisions may be required for cases where interference occurs.	

Limits for radiated disturbance of Class B ITE at
Measuring distance of 10 m

Frequency range MHz	Quasi-peak limits dB(μV/m)
30 to 230	**30**
230 to 1000	**37**
NOTES 1. The lower limit shall apply at the transition frequency. 2. Additional provisions may be required for cases where interference occurs.	

10. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80-cm above the ground screen. Antenna to EUT distance is 3 meters . During the test, the table is rotated 360 degrees to maximize emissions and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

EUT test configuration is according to Section 8 of ANSI C63.4/1992.

Monitor the frequency range of interest at a fixed antenna height and EUT azimuth. Frequency span should be small enough to easily differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and

manipulate cables to produce highest emissions, noting frequency and amplitude.

11. CONDUCTED EMISSION LIMITS

FCC CLASS A

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBµV)/QP
450kHz-1.705MHz	1000	60
1.705MHz - 30MHz	3000	69.54

FCC CLASS B

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBµV)/QP
450kHz-30MHz	250	48

FCC CONDUCTED EMISSION ALTERNATIVE METHOD
(CISPR 22/EN55022)

Limits for conducted disturbance at the mains ports of
Class A ITE

Frequency range MHz	Limits dB(µV)	
	Quasi-peak	**Average**
0.15 to 0.50	**79**	**66**
0.5 to 30	**73**	**60**
Note- The lower limit shall apply at the transition frequency.		

Limits of Conducted disturbance at the mains ports
of Class B ITE

Frequency range MHz	Limits dB((µV)	
	Quasi-peak	**Average**
0.15 to 0.50	**66 to 56**	**56 to 46**
0.50 to 5	**56**	**46**
5 to 30	**60**	**50**
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

12. CONDUCTED EMISSION TEST PROCEDURE

The EUT is located so that the distance between the boundary of the EUT and the closest surface to the LISN is 0.8m.

EUT test configuration is according to Section 7 of ANSI C63.4/1992.

Conducted disturbance shall be measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz (or 0.150 - 30 MHz in case of CISPR 22/EN55022 method) shall be investigated.

Set the EMI receiver to PEAK detector setting and sweep continuously over the frequency range to be investigated. Set resolution bandwidth to 9kHz minimum. Connect EMI receiver input cable to LINE 1 RF measurement connection on the LISN. Connect a 50ohm terminator to the unused RF connection on the LISN. For each mode of EUT operation, maximize emissions readings by manipulating cable and wire positions. Record the configuration for each EUT power cord, which produces emissions closest to the limit. Repeat the same procedure for LINE 2 of each EUT power cord.

13. AMBIENT CONDITIONS

The ambient conditions at the time of final tests were as follows:

	Radiated Emission	Conducted Emission
Temperature	**23**^{o}C	**23**^{o}C
Humidity	**65%**	**65%**

14. A) FCC PART 15 RADIATED AND LINE CONDUCTED TEST EQUIPMENT LIST

Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
Spectrum Analyzer	HP	8566B	2140A01296	12/15/99	12/15/00
Bi-Log Antenna	Chase EMC	CBL6112	2049	11/23/99	11/23/00
EMI Test Receiver	Rhode & Schwarz	ESHS20	827129/006	2/28/00	2/28/01
LISN	Fischer	FCC-LISN-50/250-25-2	114	10/31/99	10/31/00

B) FCC PART 22 TEST EQUIPMENT LIST

Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
Spectrum Analyzer	HP	8593EM	3710A00205	5/25/00	5/25/014
CDMA Mobile Station Test Set	HP	8924C	US37111069	8/30/00	8/30/02
Directional Coupler	Werlatone	06021	S576	N/A	N/A
Power Meter	HP	436A	3709A29209	2/8/00	2/8/01

15. EUT SETUP PHOTOS

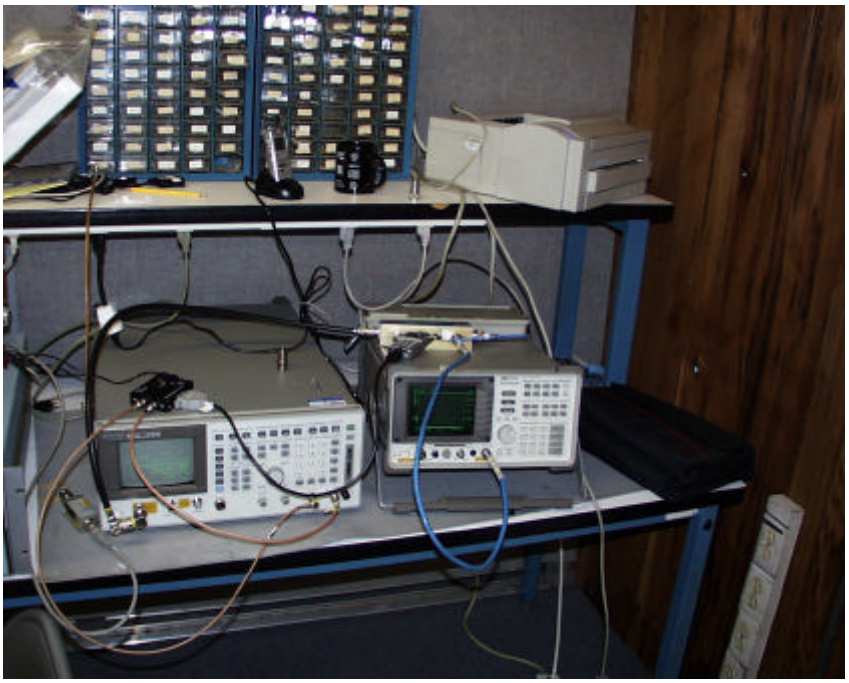
Part 15 Radiated X-axis

Part 15 Radiated Y-axis

Part 15 Radiated Z-axis

Part 15 Line Conducted

Part 15 Line Conducted



Part 22 Conducted Setup

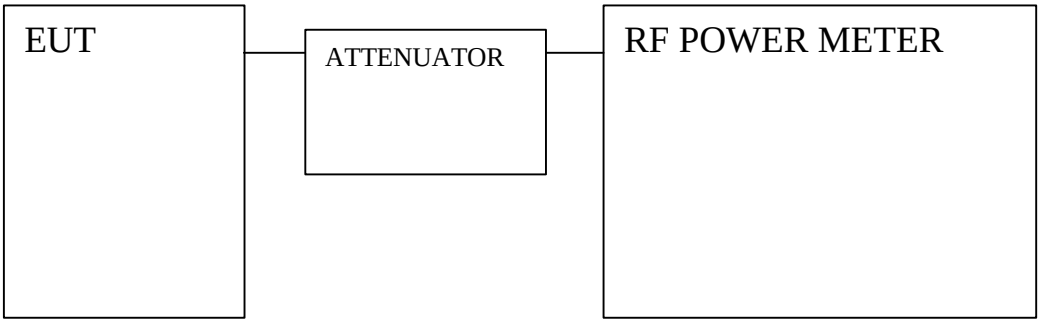
Part 22 Conducted Setup

Part 22 Conducted Setup

16. FCC PART 2 CERTIFICATION TEST RESULTS:

SECTION 2.1046: RF POWER OUTPUT

TEST SETUP:



Test Procedure: The EUT was setup using the tune-up procedure to give maximum output power for AMPS mode. The output power was then measured at the antenna output. The results are given below. The EUT was setup using the tune-up procedure to give maximum output power for CDMA mode. The output power was then measured at the antenna output. The results are given below.

Test Result:
AMPS mode: 24.9dBm
CDMA mode: 23.0dBm

Minimum Requirement:

Section 22.913(a); Maximum ERP. The effective radiated power (ERP) of mobile transmitters must not exceed 7 Watts.

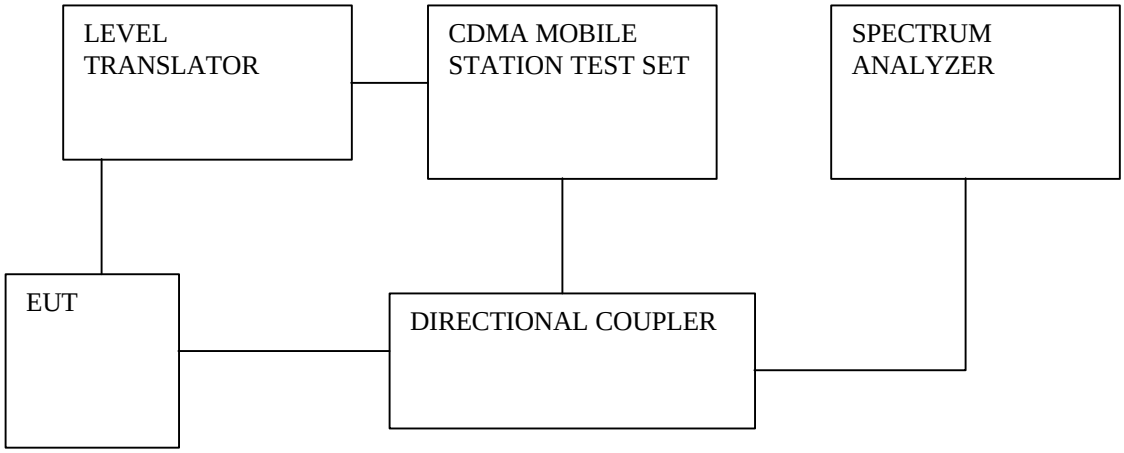
Test Procedure: Using the maximum rated output power for AMPS mode and the maximum direction gain for the antenna, the ERP was calculated as shown below.

Test Result: -1dBd + 27 dBm = 26 dBm = 0.398Watts

SECTION 2.1047: MODULATION CHARACTERISTICS

TEST SETUP:

.

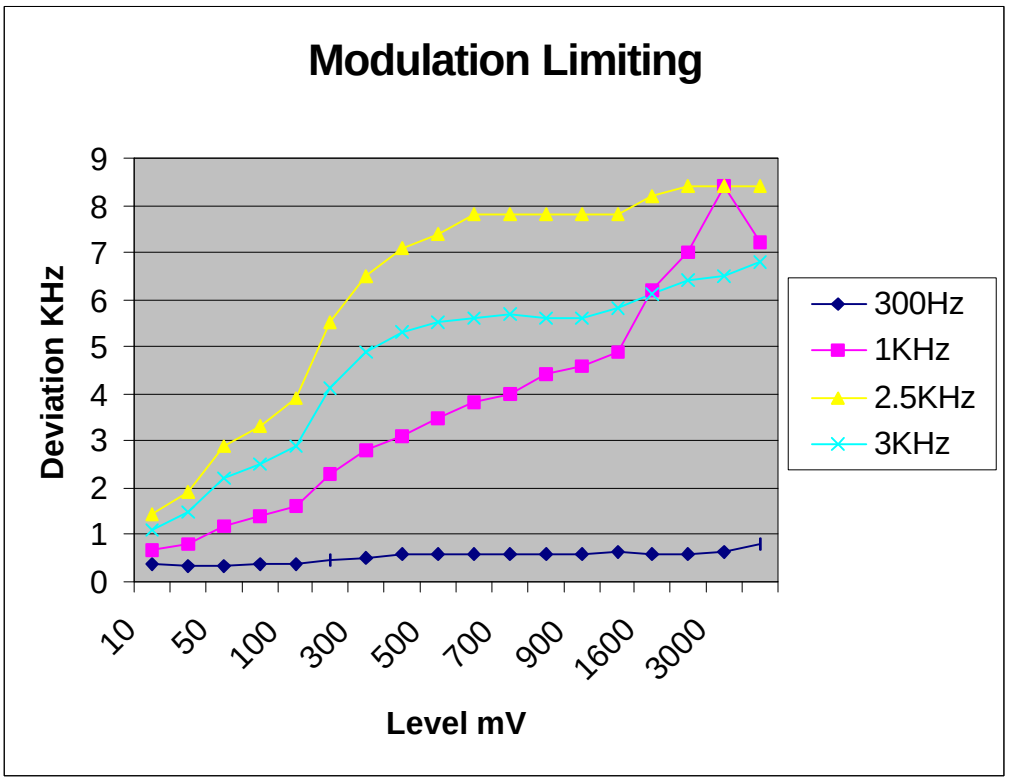


Minimum requirement:

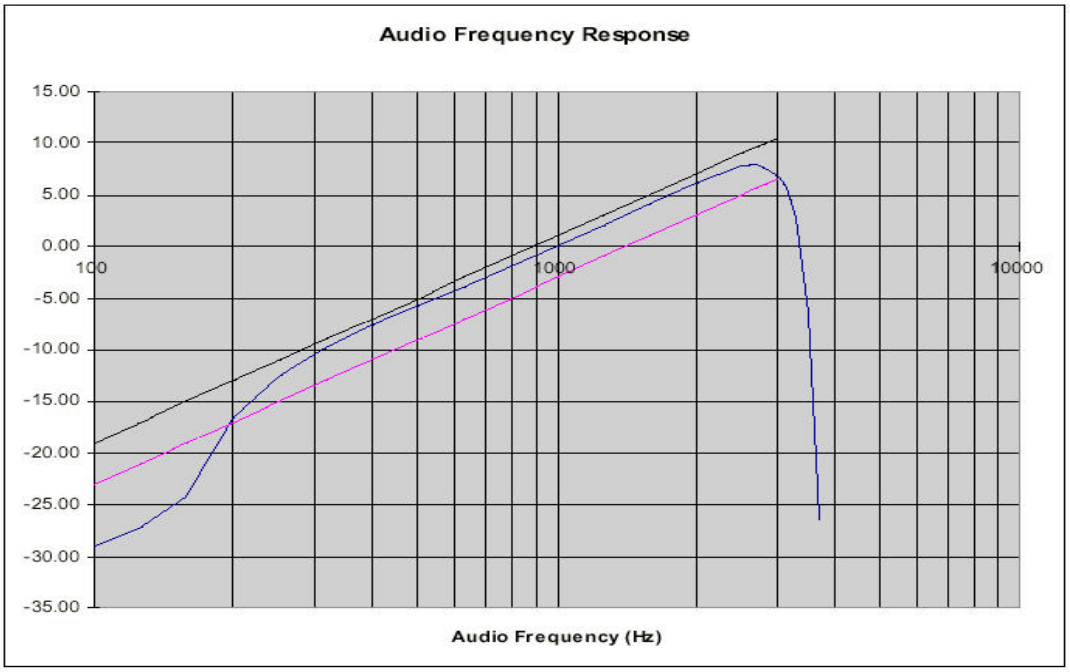
Section 2.1047 (d), for other type of equipment, a curve or equivalent data which shows that equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

Test procedure: An audio tone was applied to the EUT at 300Hz, 1KHz, 2.5KHz and 3KHz. The level was varied from 10mV to 4V. Frequency deviation was measured at each level.

Test result: See chart below.



Audio Frequency Response (from IC manufacturer data)



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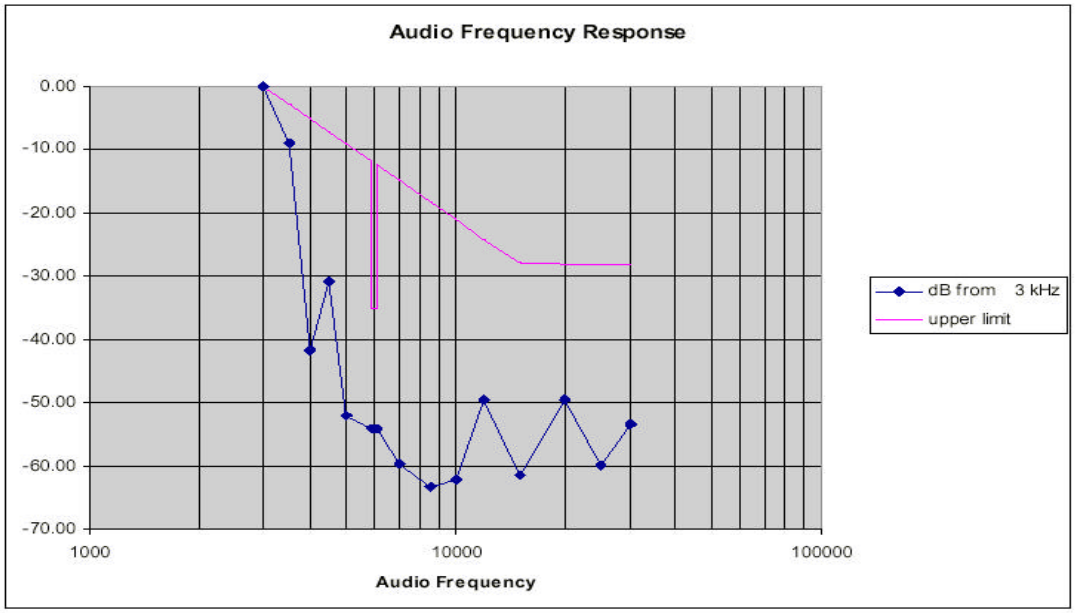
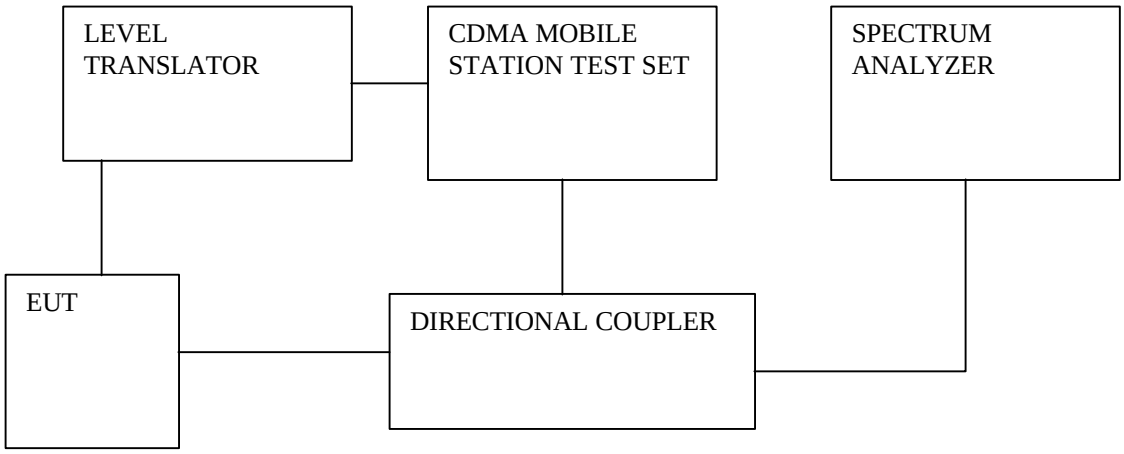


SECTION 2.1049: OCCUPIED BANDWIDTH

TEST SETUP:

.



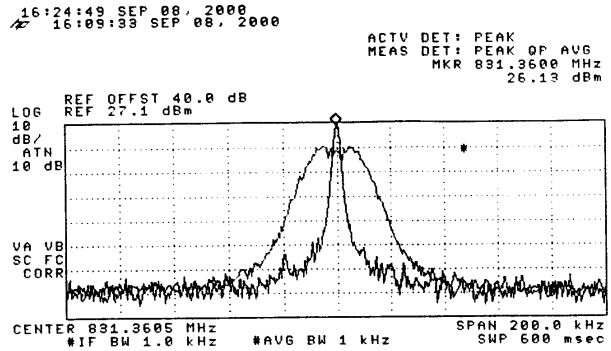
Measurements for F8W:

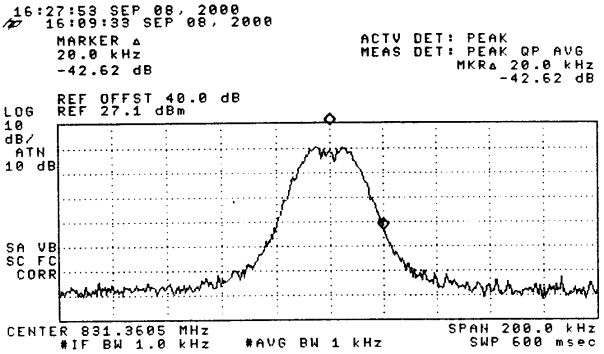
Test Procedure: Tune and adjust the EUT to maximum power. Adjust the analyzer to obtain an unmodulated carrier on the spectrum analyzer. Save the trace on the analyzer. Modulate the transmitter with an SAT and a 2500Hz. audio tone, 16dB greater than that required to produce +/- 6KHz. modulation. Save the trace of the modulated carrier superimposed over the trace of the unmodulated carrier. See graph below.

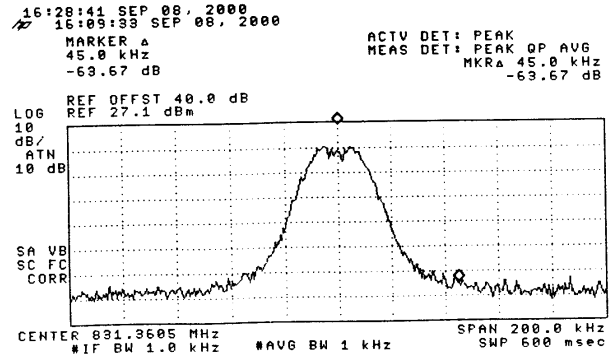
Specification Limits FCC22.917

a) On any frequency removed from the assigned carrier by more than 20KHz, up to and including 45KHz, the sideband is at least 26 dB below the carrier.
b) up to the first multiple of the carrier frequency, the sidebands are at least 43+10log P (-13dBm) below the carrier.

Test Result:







Measurements for F1D:

Test Procedure: Tune and adjust the EUT to maximum power. Adjust analyzer to obtain unmodulated carrier on spectrum analyzer. Save trace on the analyzer. Modulate the transmitter with an SAT and a 10KHz. tone at a level to produce +/- 8KHz. modulation. Save trace of modulated carrier superimposed over trace of unmodulated carrier. See graph below.

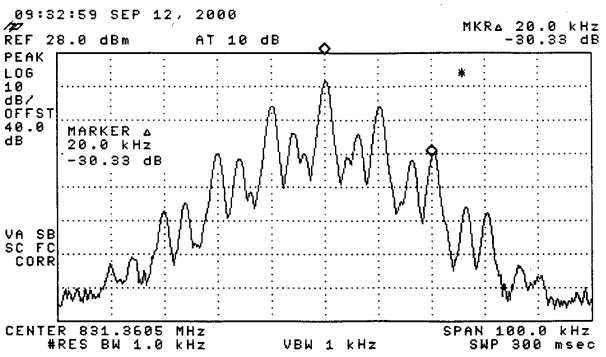
Specification Limits FCC22.917

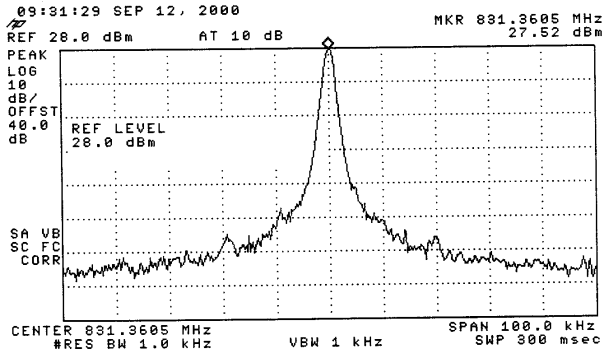
a) On any frequency removed from the assigned carrier by more than 20KHz, up to and including 45KHz, the sideband is at least 26 dB below the carrier.

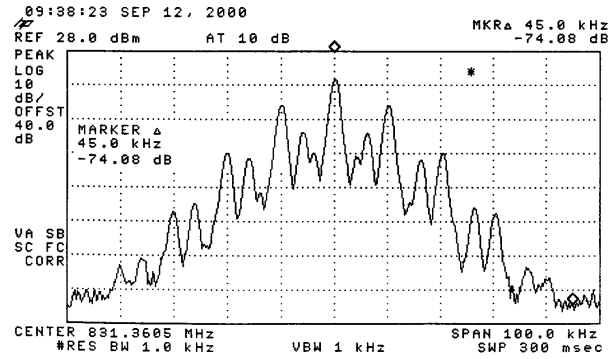
b) On any frequency removed from the carrier frequency by more than 45KHz but not more than 90KHz, the sidebands are at least 45dB below the carrier.

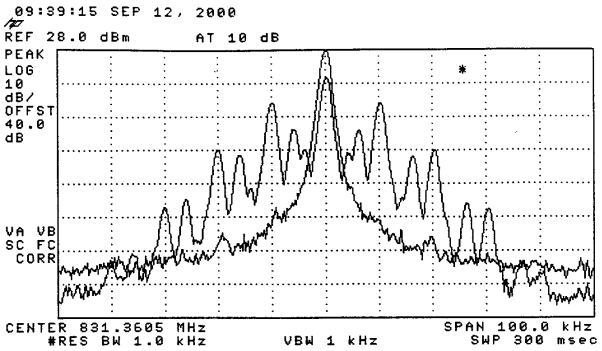
c) On any frequency removed from the assigned carrier frequency by more than 45KHz, up to the first multiple of the carrier frequency, the sidebands are at least 43+10log P (-13dBm) below the carrier.

Test Result:





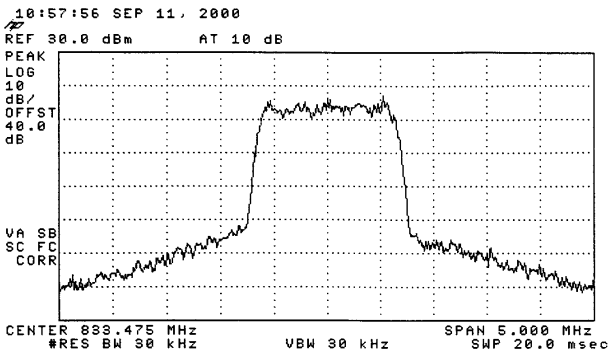




Measurements for F9W:

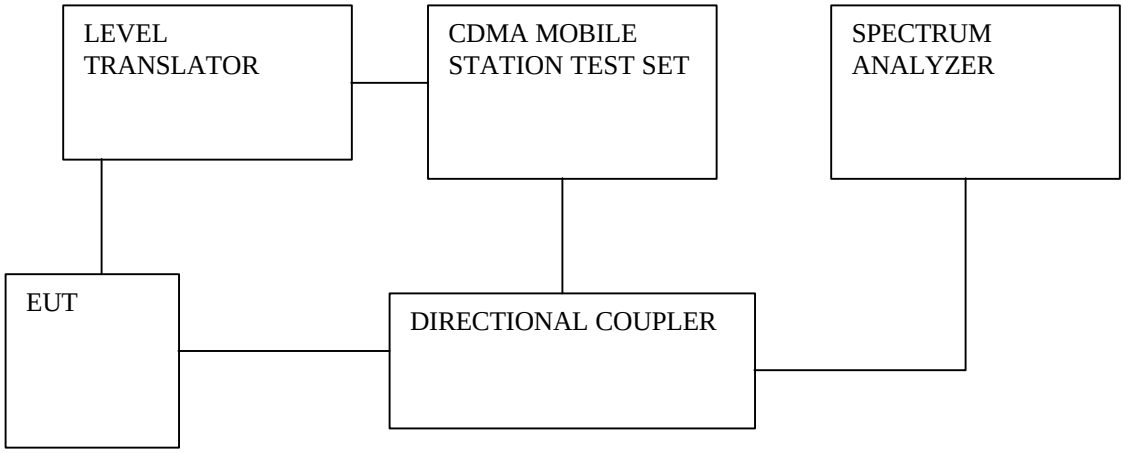
Test Procedure: Tune and adjust the EUT to maximum power. Modulate the transmitter with CDMA, using pseudo random data. Save trace on spectrum analyzer. See graph below.

Test Result:



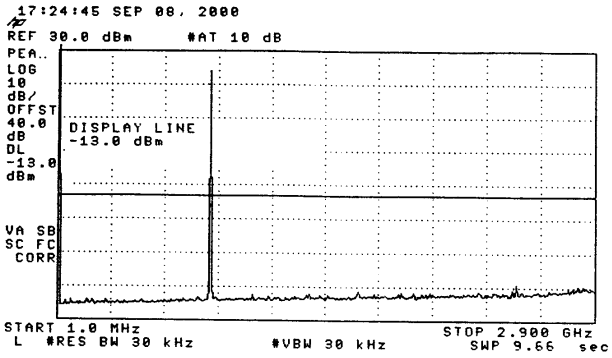
SECTION 2.1051: SPURIOUS EMISSIONS AT ANTENNA TERMINAL.

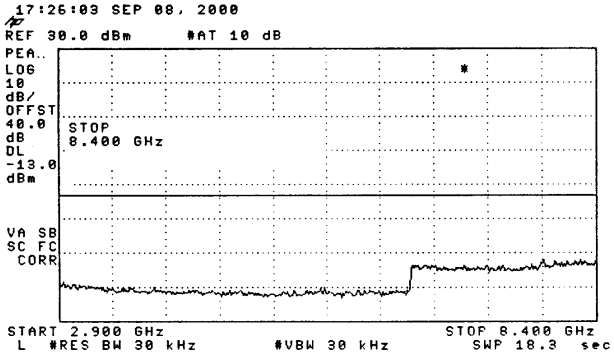
TEST SETUP:



Specification Limits 22.917(e):
The magnitude of each spurious and harmonic emissions that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not be more than 43 + log (mean output power) below the mean power output, which is equivalent to –13 dBm.

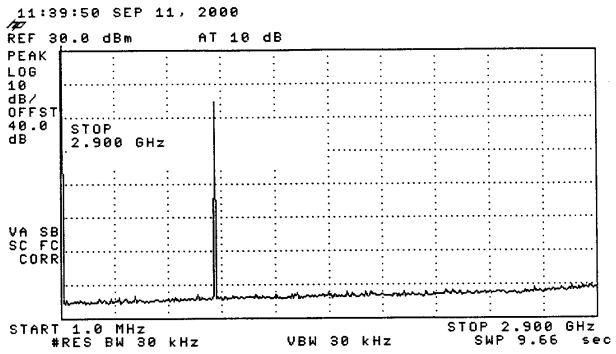
Measurements for F8W:
Test Procedure: Tune and adjust the EUT to maximum power. Modulate the transmitter with an SAT and a 2500Hz. audio tone, 16dB greater than that required to produce +/- 6KHz. modulation. Save traces from 1MHz. to 10fo. See graph below.

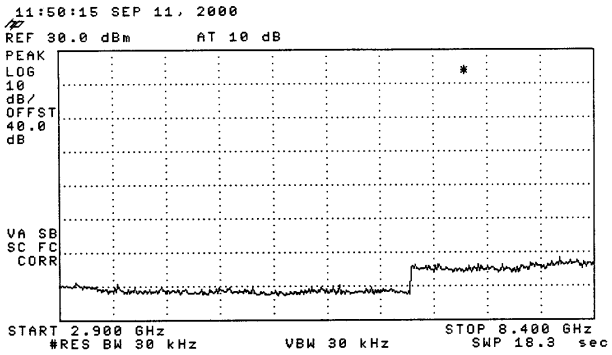




Measurements for F9W:

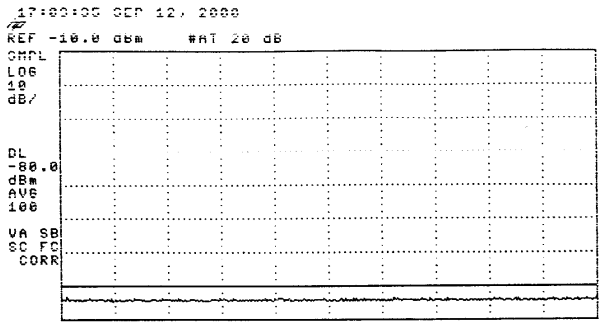
Test Procedure: Tune and adjust the EUT to maximum power. Modulate the transmitter with CDMA, using pseudo random data. Save traces from 1MHz. to 10fo. See graph below.





Measurements of mobile emissions in base band FCC 22.917(f)
Test Procedure: Setup the EUT and test equipment inside an anechoic chamber. Tune and adjust the EUT to maximum power, AMPS modulation and channel #779 (848MHz.). Save trace of emissions inside baseband frequencies. See graph below.

Specification Limits 22.917(f):
The mean power of any emission appearing in the base station frequency range from mobile transmitters operated must be attenuated to a level not to exceed -80dBm at the transmit antenna connector.



SECTION 2.1055: FREQUENCY STABILITY

Test Procedure: Place the EUT in an environmental chamber. Set the EUT to transmit a CW signal. Vary the temperature from -30 degrees Celsius to +50 degrees Celsius in 10 degree steps. At each temperature allow enough time for the EUT's temperature to stabilize and then take a measurement of the frequency. Adjust the EUT's supply voltage to 85% and measure the frequency. Repeat at 115% of the supply voltage.

Test Result:
Refer to chart below:

Temperature (degrees C)	Frequency (MHz.)
-30	831.366378
-20	831.366088
-10	831.365954
0	831.366016
+10	831.365954
+20	831.366616
+30	831.366792
+40	831.367317
+50	831.367004

Supply Voltage % based on 3.8VDC	
85% Voltage	831.365954
115% Voltage	831.366616

Highest Frequency	831.367317MHz
Lowest Frequency	831.365954MHz
Frequency Variation	1363Hz

Specification limit FCC 22.355 2.5ppm x 831MHz=2077.5Hz.

SECTION 2.1093 RADIOFREQUENCY RADIATION EXPOSURE EVALUATION: PORTABLE DEVICES:

APREL Laboratories

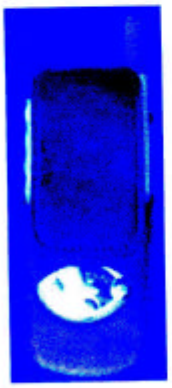
Certification Report on

Specific Absorption Rate (SAR)
Experimental Analysis on Body

Standard Telecom Co., Ltd.

NXC-3200

Test Date: 5 July, 2000



AIRB-Standard Telecom NXC 3200-3490

51 Spectrum Way Nepean ON K2R 1E6
Tel: (613) 820-2730 Fax: (613) 820-4161
email: info@aprel.com

APREL Laboratories

CERTIFICATION REPORT

Subject:	**Specific Absorption Rate (SAR) Experimental Analysis on Body**
Product:	Dual Mode Single Band Cellular Handset
Model:	NXC-3200
Client:	Standard Telecom Co., Ltd.
Address:	926 Kwanyang 2-Dongan-Ku Anyang-City, Kyunggi-Do Korea 431 062
Project #:	AIRB-Standard Telecom NXC 3200-3490

Prepared by: APREL Laboratories
51 Spectrum Way
Nepean, Ontario
K2R 1E6

Tested by: Delia Zapata Date: July 14, 2000
Delia M. Zapata, BSEE

Submitted by: Paul G Cardinal Date: 19 July 00
Dr. Paul G. Cardinal
Director, Laboratories

Approved by: Jacek J. Wojcik Date: 7/19/2000
Dr. Jacek J. Wojcik, P. Eng.

REGISTERED PROFESSIONAL ENGINEER PROVINCE of ONTARIO

• CONSULTING • RESEARCH • TRAINING • CERTIFICATION TESTING SINCE 1967

APREL Laboratories

FCC ID:
Applicant: Standard Telecom Co., Ltd.
Equipment: Dual Mode Single Band Cellular Handset
Model: NXC-3200
Standard: FCC 96 –326, Guidelines for Evaluating the Environmental Effects of Radio-Frequency Radiation

ENGINEERING SUMMARY

This report contains the results of the engineering evaluation performed on a Standard Telecom model NXC-3200 Dual Mode Single Band Cellular Handset when using a hands-free kit which includes a holster and belt clip (for SAR in the vicinity of the head see report AIRB-Standard Telecom NXC 3200-3489). The measurements were carried out in accordance with FCC 96-326. The cellular handset was evaluated at its maximum nominal power level.

The cellular handset was tested operating at maximum output power in AMPS (27dBm) and CDMA (25dBm) modes on low, middle and high channels, with the antenna extended and retracted, with the two types of battery offered. The cellular handset was configured with the headset attached and with the handset inside its holster. The testing was conducted with the holster belt clip against the phantom and the headset touching the phantom.

The maximum SAR was found to coincide with the peak performance RF output power operating in AMPS mode, on the middle channel (383, 836.49 MHz), with the antenna retracted and using the standard battery. Test data and graphs are presented in this report.

Based on the test results for this device, and as it will be marketed and used with a warning in the manual that the hands-free kit only be used with the phone placed in its holster, it is certified that the product meets the requirements as set forth in the above specifications, for partial body exposure in an uncontrolled RF exposure environment.

The results presented in this report relate only to the sample tested.

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e-mail: info@aprel.com

APREL Laboratories

Certification Report on

Specific Absorption Rate (SAR)
Experimental Analysis on Head

Standard Telecom Co., Ltd.

NXC-3200

Test Date: 6 July, 2000

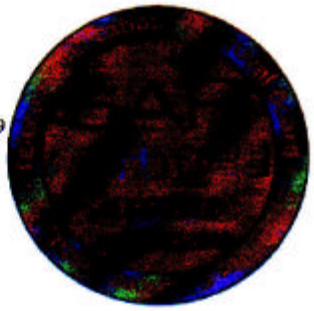
AIRB-Standard Telecom NXC 3200-3489

51 Spectrum Way Nepean ON K2R 1E6
Tel: (613) 820-2730 Fax: (613) 820-4161
email: info@aprel.com

APREL Laboratories

CERTIFICATION REPORT

Subject:	**Specific Absorption Rate (SAR) Experimental Analysis on Head**
Product:	Dual Mode Single Band Cellular Handset
Model:	NXC-3200
Client:	Standard Telecom Co., Ltd.
Address:	926 Kwanyang 2-Dongan-Ku Anyang-City, Kyunggi-Do Korea 431-062
Project #:	AIRB-Standard Telecom NXC 3200-3489
Prepared by:	APREL Laboratories 51 Spectrum Way Nepean, Ontario K2R 1E6



Tested by Delia M. Zapata, BSEE Date: 13 July 2000

Submitted by Dr. Paul G. Cardinal, Director, Laboratories Date: 18 July 00

Approved by Dr. Jacek J. Wojcik, P. Eng. Date: 19/7/2000

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APREL Laboratories

FCC ID:
Applicant: Standard Telecom Co., Ltd.
Equipment: Dual Mode Single Band Cellular Handset
Model: NXC-3200
Standard: FCC 96 –326, Guidelines for Evaluating the Environmental Effects of Radio-Frequency Radiation

ENGINEERING SUMMARY

This report contains the results of the engineering evaluation performed on a Standard Telecom model NXC-3200 Dual Mode Single Band Cellular Handset (for SAR in the vicinity of the body see report AIRB-Standard Telecom NXC 3200-3490). The measurements were carried out in accordance with FCC 96-326. The NXC-3200 was evaluated at its maximum nominal power level.

The NXC-3200 was tested operating at maximum output power in AMPS (27 dBm) and CDMA (25 dBm) modes on low, middle and high channels, with the antenna extended and retracted, with the two types of battery offered, with the telephone flip opened and with the keyboard side of the phone place against the head phantom.

The maximum SAR was found to coincide with the peak performance RF output power operating in AMPS mode, on the middle channel (383, 836.49 MHz), with the antenna retracted and using a large battery. Test data and graphs are presented in this report.

Based on the test results it is certified that the product meets the requirements as set forth in the above specifications, for partial body exposure in an uncontrolled RF exposure environment.

The results presented in this report relate only to the sample tested.

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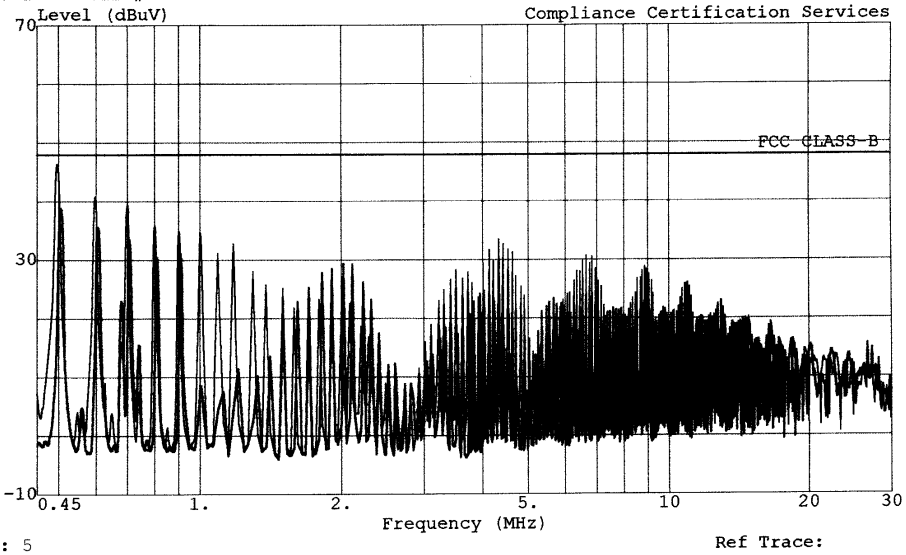
FCC PART 15

SECTION 15.111; CONDUCTED

1366 Bordeaux Dr.
Sunnyvale, CA 94089-1005 USA
Tel: (408) 752-8166
Fax: (408) 752-8168

Data#: 12 File#: 00U0401.EMI Date: 08-11-2000 Time: 18:00:47



Trace: 5 Ref Trace:

Project No. : 00U0401-1
Report No. : 000811LC
Test Engr : KERWIN CORPUZ KC
Company : STANDARD TELECOM CO. LTD./KOREA
EUT Description : CDMA/AMPS dual mode Cellular Handset
Model : NXC-3200
EUT Config. : EUT ONLY
Type of Test : FCC CLASS B
Mode of Operation: CHARGING
: QUASI-PEAK: L1(GREEN), L2(BLACK)
: 115Vac, 60Hz

15.109; RADIATED

COMPLIANCE
Certification Services

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

1366 BORDEAUX DRIVE, SUNNYVALE, CA 94089
PHONE: (408) 752-8166 FAX: (408) 752-8168

Project #: 00U0401-1
Report #: 000811A1
Date& Time: 08/11/00 4:52 PM
Test Engr: KERWIN CORPUZ

Company: STANDARD TELECOM CO. LTD./KOREA
EUT Description: CDMA/AMPS dual mode Cellular Handset(NXC-3200)
Test Configuration : EUT ONLY
Type of Test: FCC CLASS B
Mode of Operation: ON and STANDBY

(•) A-Site ( ) B-Site ( ) C-Site ( ) F-Site [6 Worst Data] [Descending]

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)

THERE ARE NO RADIATED EMISSIONS FOUND FROM 30 MHz TO 1000 MHz, VERTICAL AND HORIZONTAL POLARIZATION

Total data #: 0

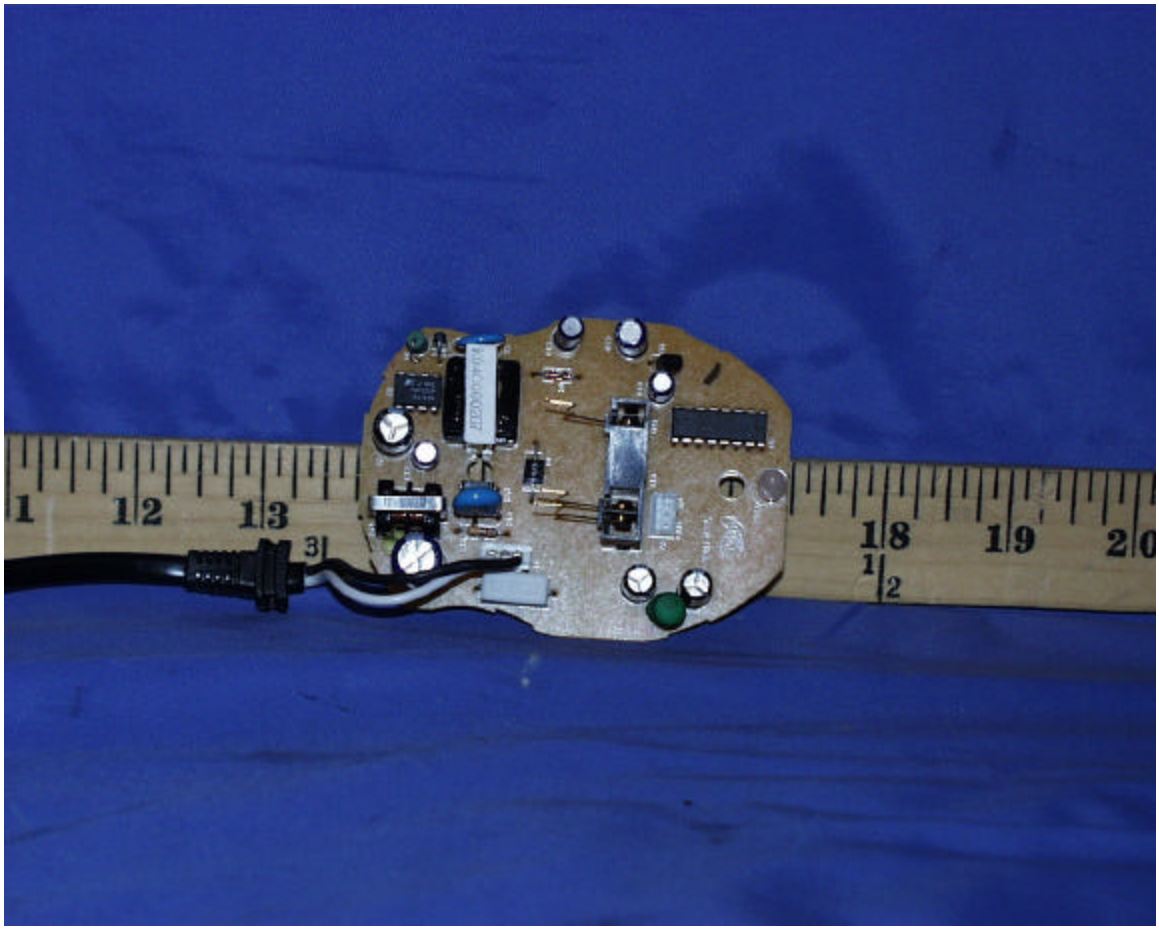
V.2a

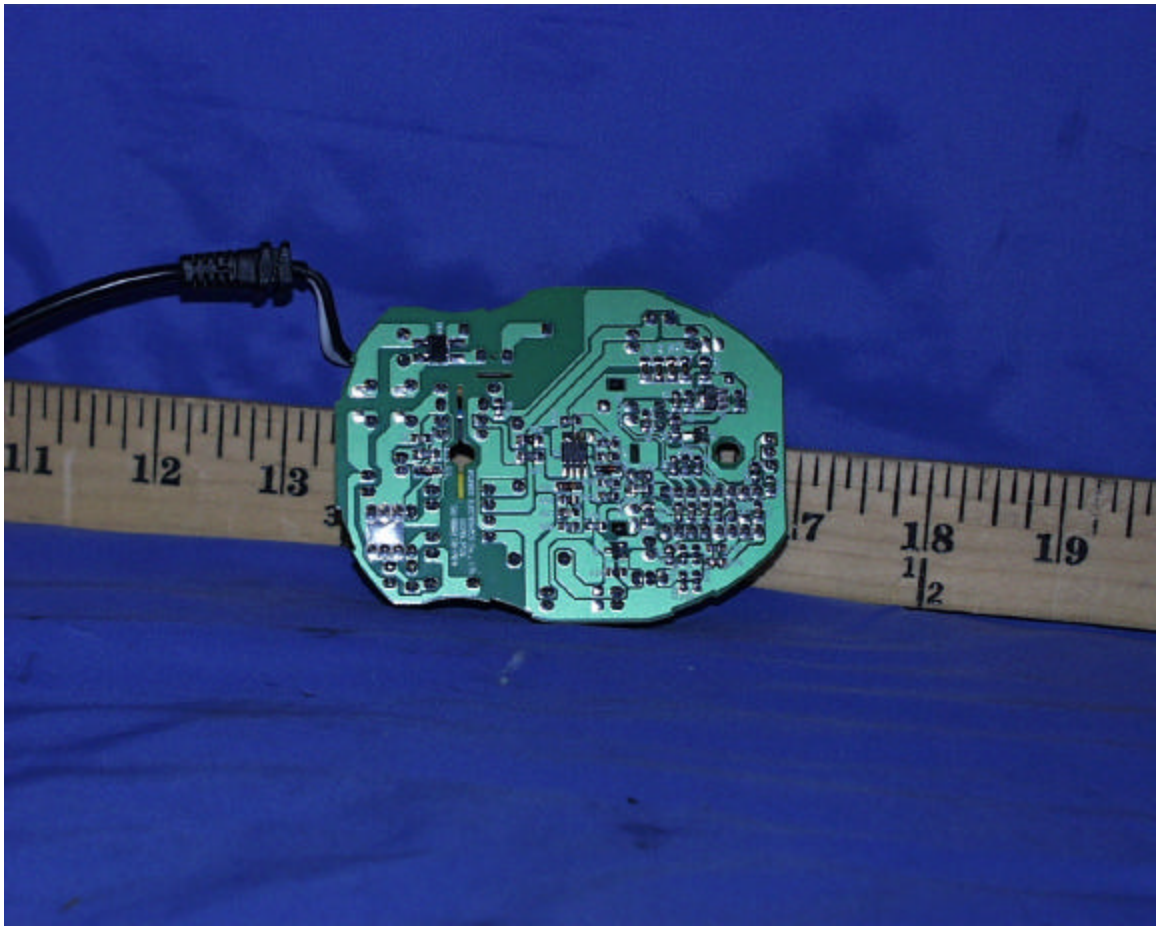
ATTACHMENTS:

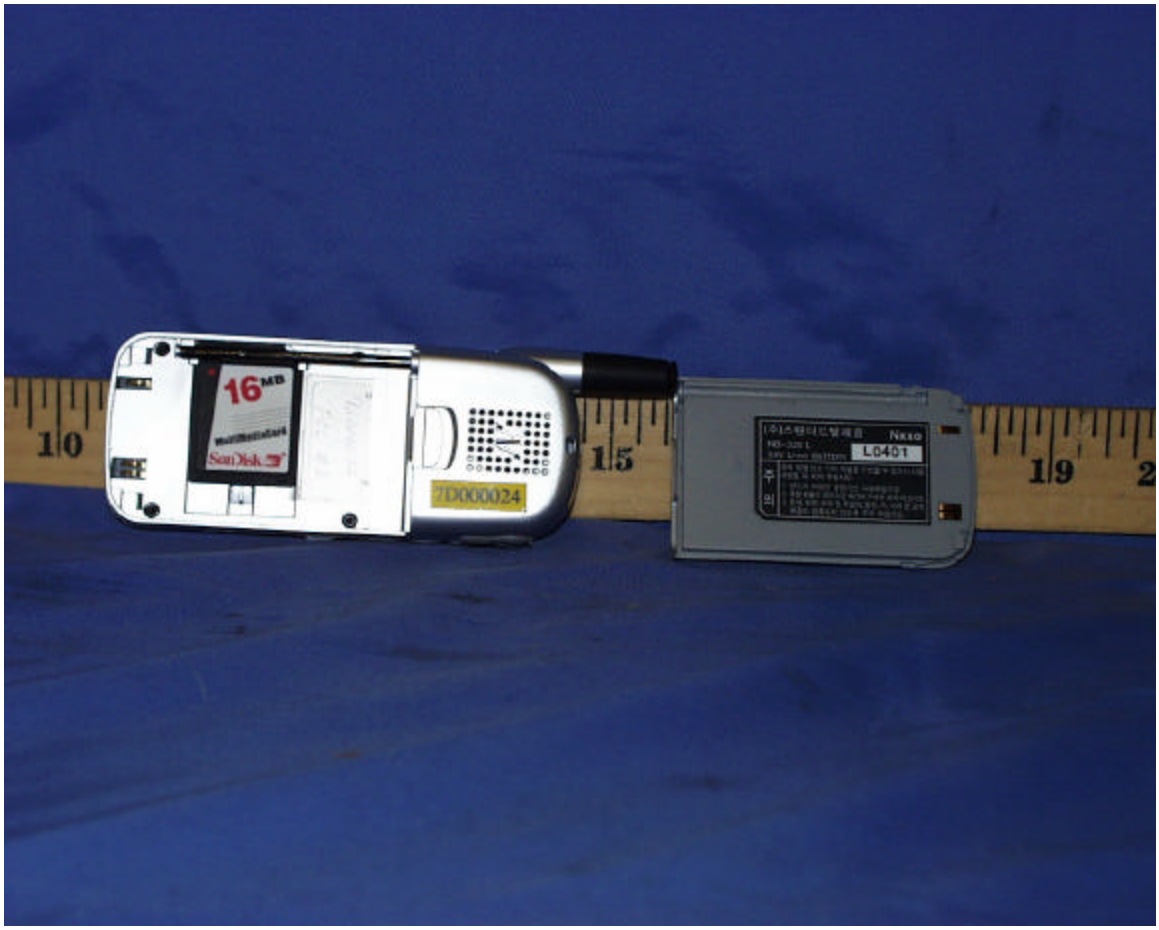
1. PROPOSED FCC ID LABEL FORMAT:

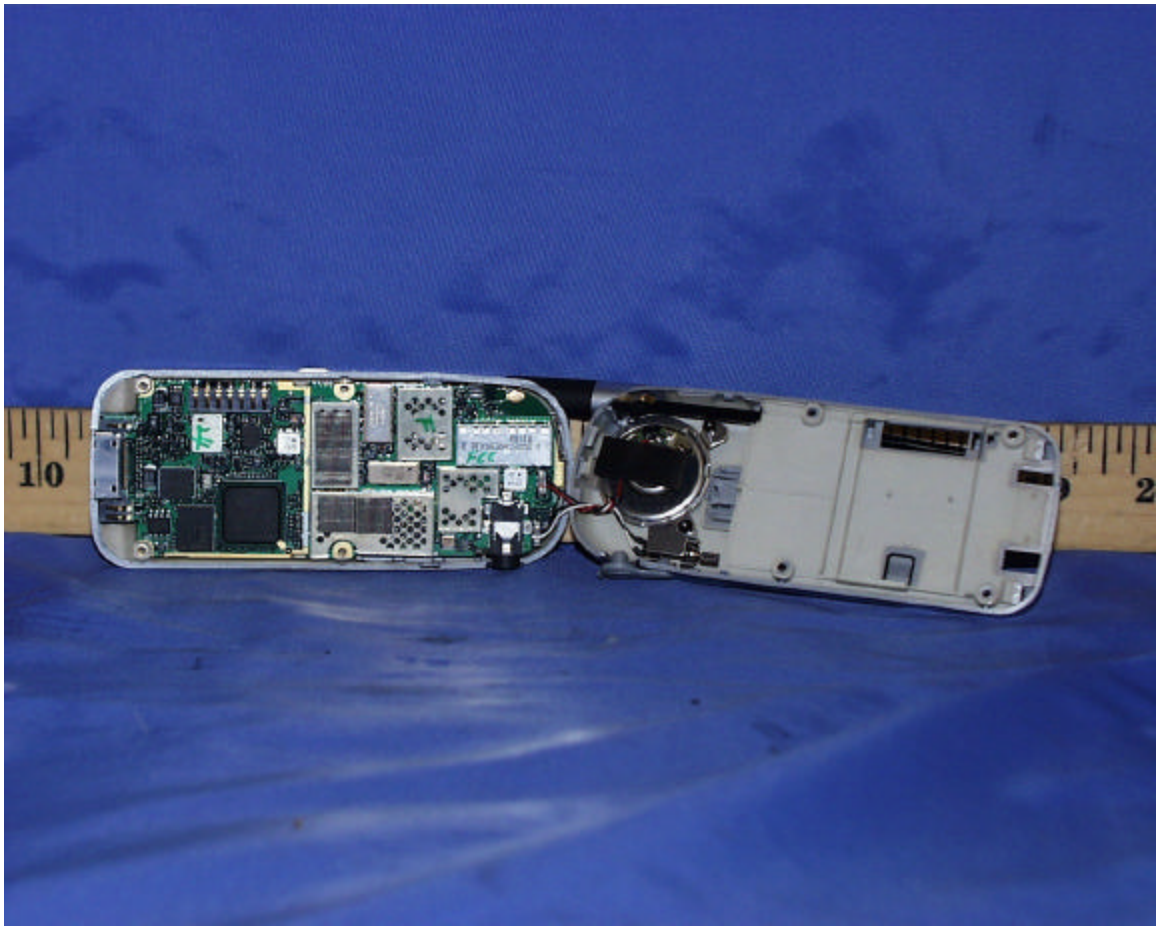
THE FCC ID NUMBER SHALL BE PLACED ON THE BACK OF THE EUT (PRODUCT).

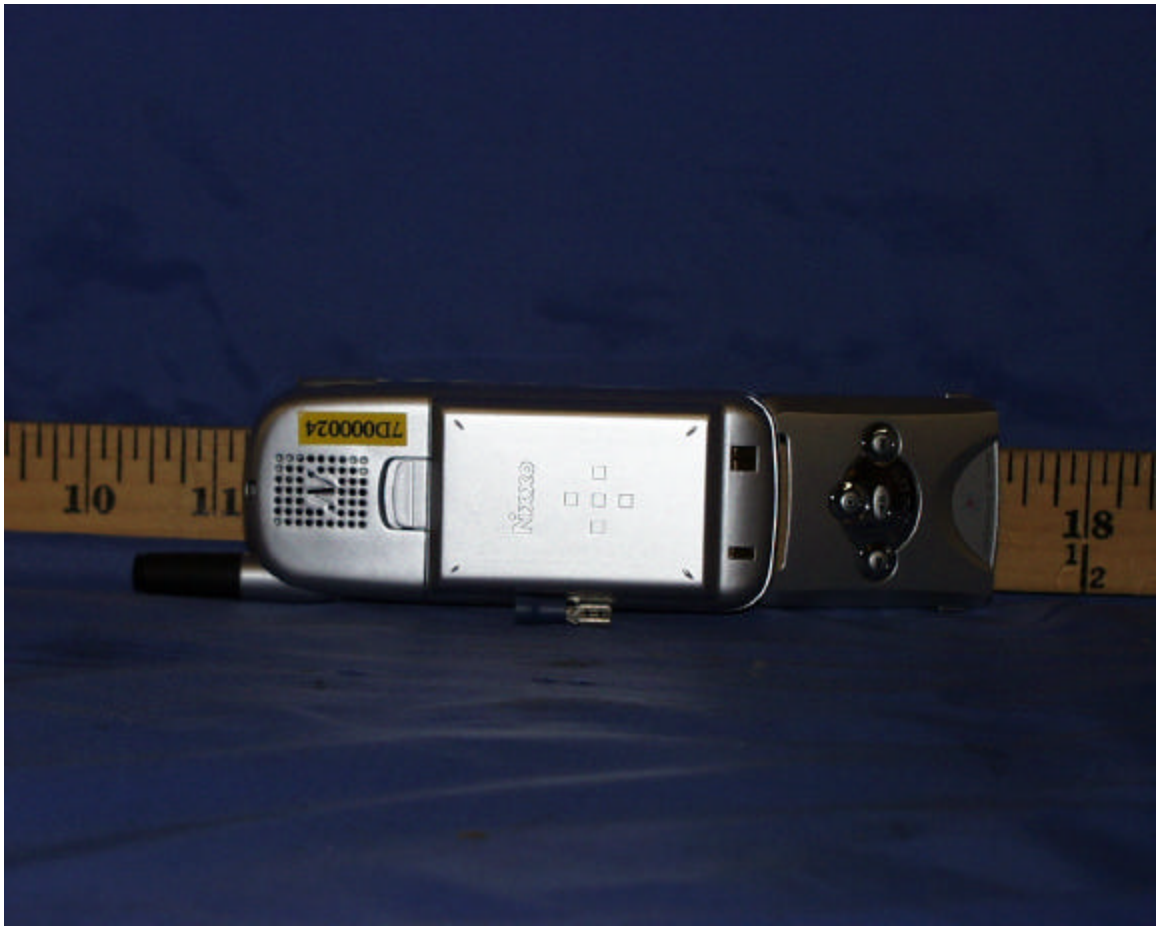
2. EUT PHOTOGRAPHS

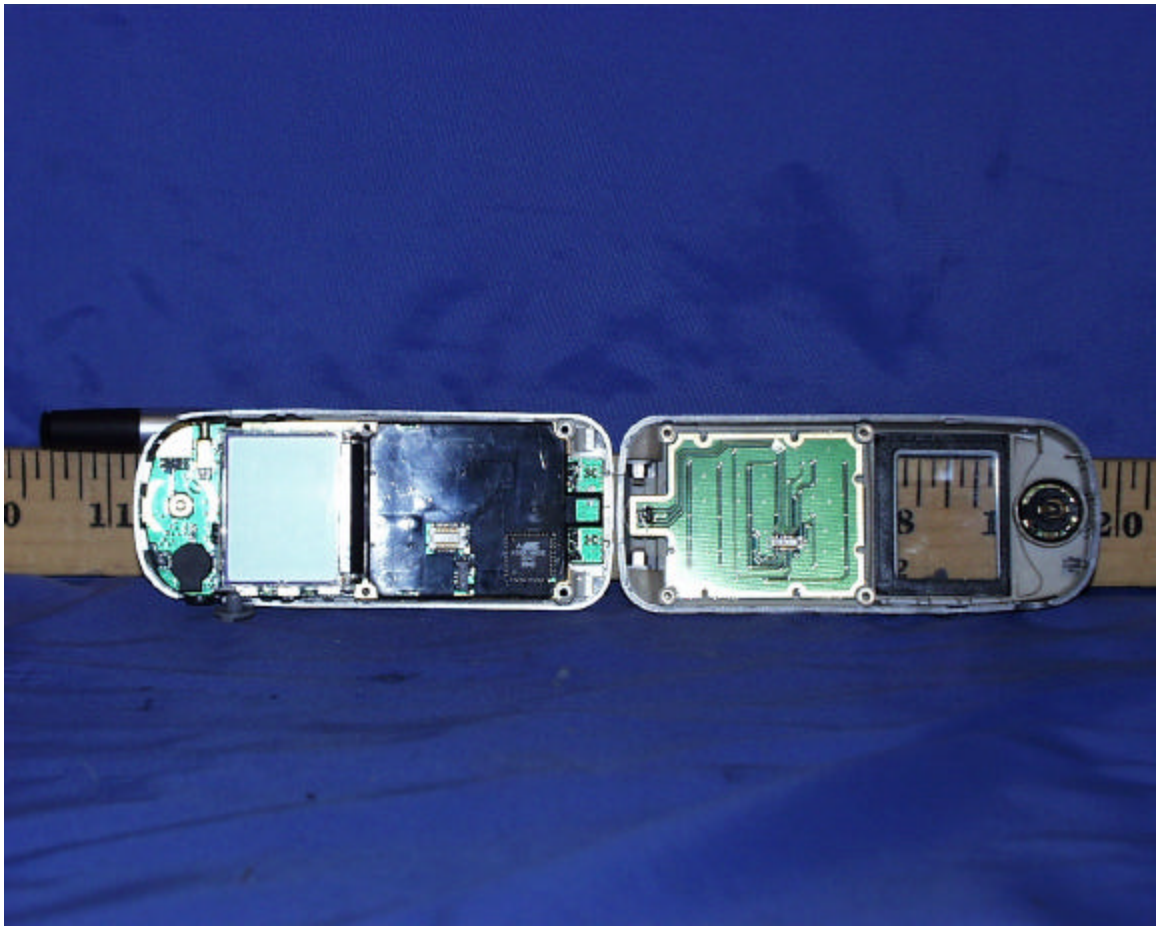




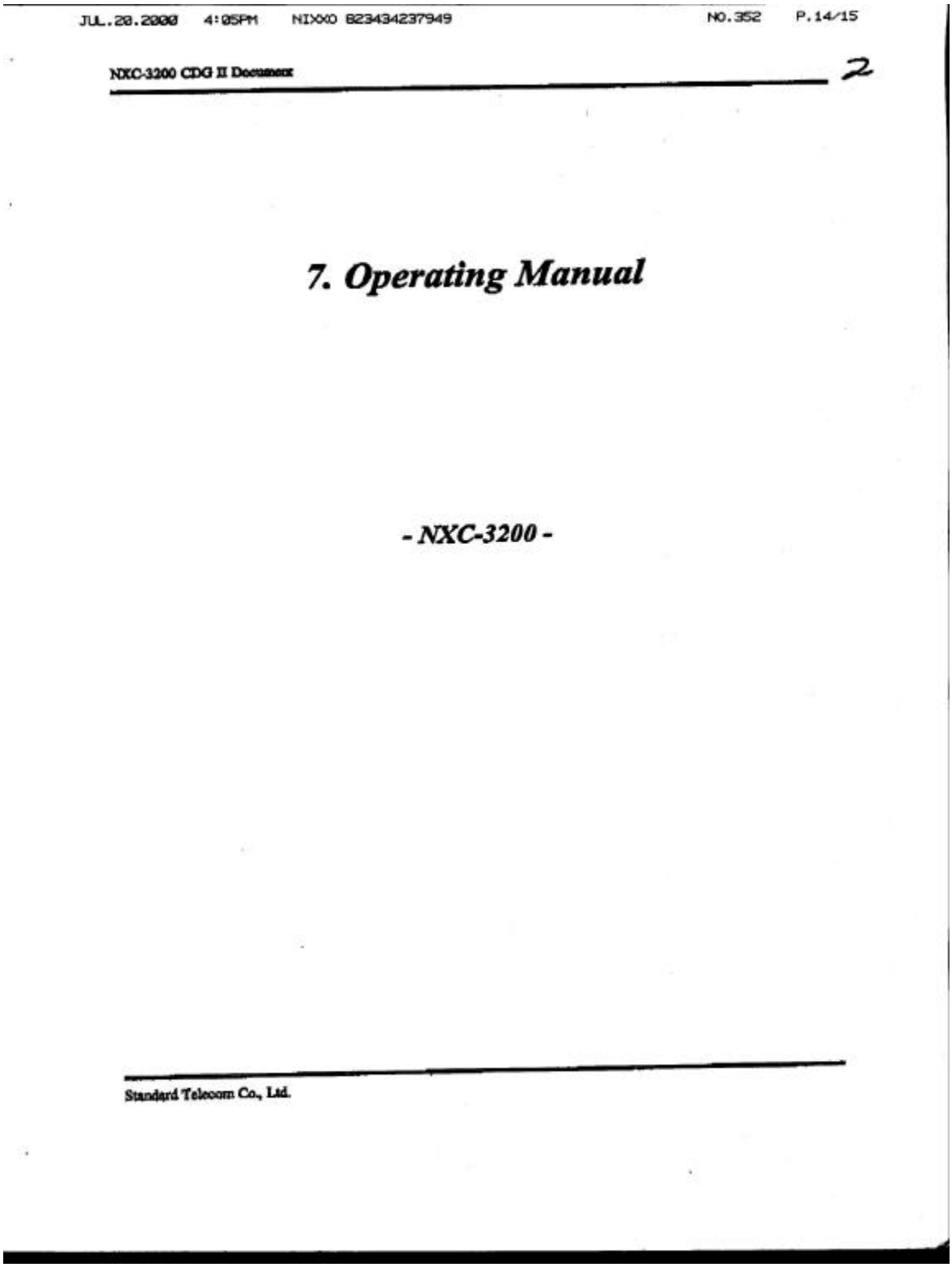








3. INSTALLATION AND SERVICE MANUALS:



JUL.28.2000 4:05PM NIXXO 823434237949 NO.352 P.14/15

NXC-3200 CDG II Documen 2

7. Operating Manual

- NXC-3200 -

Standard Telecom Co., Ltd.

1. Getting Started

1. Phone Parts and Function Key Descriptions

Function Key	Descriptions
Red Light	Lights-up when using power key to turn on the phone and when there are incoming calls and messages.
Volume Switch	Adjusts volume and can also be used to scroll through menus.
LCD Screen	Displays messages and indicator icons.
SEND Key	Places and receives a call.
END Key	Disconnects a call. Also exits all the way out of a menu back to the phone's standby display without changing any setting.
☒ Key	Allows quick access to text and voice mail notification messages.
Flip Switch	When closed, terminates a call in progress, when opened, answers an incoming call.
CLR Key	Clears letters, numbers or returns to the previous menu option. Press once to erase one character. Press and hold to erase all characters and to go back to the standby display.
Soft Keys	The current operation of a Soft Key is defined by the word at the bottom of the display.
Side keys	Adjusts ringer volume (in standby mode) and ear piece volume(in a call).
Roller Ball	Scrolls through the memory locations and menu items.
1,2,3, ..keys	Enters numbers, characters and chooses menu items.

2. LCD Icons

ICONS	Description
D	**Digital indicator** Digital service is available.
	NO SERVICE The phone is not receiving system signal.
	In use Call is in progress. * No Icon indicates the phone is in stand-by.
	In vibrator mode
R	**Roaming** The phone is outside of its home service area.
	[Charge level] Indicates Battery Charge Level.
	Message Message or page waiting.
V T	**V : voice message** There is a voice mail notification message waiting **T : text message** There is a text mail notification message waiting
	Signal strength The number of lines shown indicates current signal strength.

2. Basic Functions

1. Turning the Phone On and Off

1.1 Turning the Phone On

1. Install a charged battery pack or connect the phone to an external power source such as the cigarette lighter adapter or car kit.
2. Press [END] for a few seconds until the red light at the top of the phone flash.
   - The LCD displays the initial screen and a "beep" sound will alert you.
   - If the LCD displays "[UNLOCK]", see "security" under Menu Features.

1.2 Turning the Phone Off

1. Press and hold [END] and then release the button.
2. Protect the antenna by pushing it back into the phone, if extended.

2. Making a Call

Whenever you make a call, follow these simple steps:

1. Make sure the phone is turned on.
2. Enter the phone number with area code, if needed.
3. Press [SEND]
   - If the phone is locked , enter the Lock Code and pressing [SND].
   - "Call Failed" indicates that the call did not go through.
4. Press [END] to disconnect the call.

3. Correcting Dialing Mistakes

1. Press [CLR] to erase the most recent digit or letter.
2. Press and hold [CLR] for at least one second to delete all digits or letters.

4. Receiving Calls

1. Press any key to answer.

5. Call Waiting

Your cellular service may offer call waiting. While you are on a call, you may hear two beeps indicating another incoming call. When call waiting has been enabled, you may put the active call on hold as you answer the other incoming call. Check with your cellular service about this feature.

1. Press [SEND] to receive a waiting call.
2. Press [SEND] again to switch between calls.

6. Mute

This function prevents your voice from being transmitted, but you can still hear the other party's talking.

1. Press [MENU] and [3] while in a call.
2. To release Mute, Press [MENU] and [3] again.

7. Redialing Last Outgoing Number

1. Press [SEND] to redial the last dialed number.
   - You can also redial any of the last ten numbers you have dialed. Last 10 numbers are stored in the call history list (See Recent Call History List).

8. Adjusting the Volume

The volume buttons on the left topside of the phone can be used to adjust ear piece, ringer and key volumes. The upper button increases and the lower button decreases the volume.

- You may adjust earpiece volume while you are in a call.
- Adjusting the ringer volume while the phone is ringing and in standby mode.
  - The ringer volume can also be adjusted through Menu Feature.
  - If you adjust the ringer volume to silent, the LCD displays "-Ringer Off-" and you won't hear the ringer sound.
- The key beep volume is adjusted through Menu Feature.

9. Signal Strength

The quality of calls depends in the signal strength in your area. The stronger the signal, the better the call quality. The signal strength icon indicates the current strength as a number of bars.

If you are outside of a service area, the "No service" icon will be displayed. No calls can be made or received, including emergency calls. (Strongest signal)

Extend the antenna when the signal strength is weak.

If you are in a building, the reception may be better near a window.

Weak signal

No signal received

10. Emergency Dialing

As long as your phone is registered on a system, you can place calls to emergency number 911 - even if your phone is locked or restricted.

11. Manner Mode

Press the pound key [*] for one second, and the ring type is set to vibrator.

12. Caller ID

This feature enables the phone number of the calling person to be displayed when you receive the call. You should check if the cellular service carrier provides this feature.

- Use of Caller I.D.

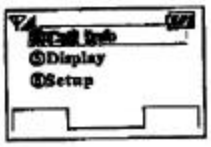
The phone number of calling person will be displayed on the LCD screen when the call is received. The 'Number is Restricted' message will be displayed if the phone blocked displaying the calling person's phone number. In addition, the 'Number is Unavailable' message will be displayed in case the Caller I.D. can not be used. The 'Missed Call' message will be displayed when you fail to receive the call after power on or fail to answer. Missed call number will be stored in the call history temporarily and will be displayed later in case the phone number is not blocked.

In case the phone number is stored in the memory together with the name, the phone number of calling person and name is displayed on the screen before you answer.

3. Menu Feature In Idle State

1. Main Menu

Menus allows you to check or change the phone's various features and settings.



2. General Guidelines to MENU Access and Settings

1. Press "MENU". Then the first 3 menu items will appear.
2. You can use roller ball or [◀], [▶] key for menu navigation and can select a menu item with "select" soft key or roller ball click.
3. Select the menu item that you want.
   Then the submenu list will appear on the screen.
4. Navigate and then select the submenu you want to access.
5. Press [CLR] key to go one step backward while accessing menu or selecting settings
6. Press [select] soft key or [sto] soft key to save the setting
7. Press [CLR] key or [cancel] soft key to cancel without saving.

3. Menu Item Descriptions

3.1 Menu 1 Phone Book

This phone can store up to 400 phone numbers. You do not have to remember them or carry your phonebook around. In the phone book you can accompany any number you store with a name. In addition, this phone book can store 2 phone numbers per name.

3.2 Menu 2 Sound

1. Ring Type
   Select the ring type one of four types (Bell, Vibration, Bell after Vib and Lamp only) with [◀], [▶] or a roller ball.
2. Ring Tone
   Select the ringer sound with [◀], [▶] or a roller ball. The first five are ring sounds , the second fifteenth are melodies and the remains recorded bell. Types of ring sound to notify that you have an incoming call.
3. Ring Vol.
   Adjust ringer volume. You can also adjust the ringer volume by pressing the side keys while the phone is ringing or in standby mode.
4. Earpiece Vol.
   Adjust the earpiece volume. You can also adjust this during a call, by pressing the side keys.
5. Key Beep Vol.
   You can set the volume level for keypad tones.
6. Key Length
   The Key beep sounds in response to digit key.
7. Tone Length
   You can set normal or long DTMF tones.

Standard Telecom Co., Ltd.

3.3 Menu 3 Alerts

1. Fade
   Set an alert to inform you when you have lost a call or lose service.
2. Service
   Alert you when service (CDMA / Analog , A / B ,etc.) changes.
3. Minute
   Alert you every 10 seconds before the end of every minute during a call.
4. RoamRinger
   Alert you when entering roam area.
5. Connect
   Alert you when the call is connected.
6. Disconnect

3.4 Menu 4 Call Info

1. Last Call
   Displays duration of last call in minutes and seconds.
2. All Calls
   Displays the total number and time(minutes and seconds) including calls made while in the home system and while roaming. This is NOT resetable.
3. Home Calls
   Displays the total number and time(minute and second) of all calls made while in the home system(i.e. not roaming), since last reset. This can be reset by pressing [ZERO] soft key.
4. Roam Calls
   Displays the total number and time(minute and second) of all calls made while in the roaming. This can be reset by pressing [ZERO] soft key.

3.5 Menu 5 Display

1. Banner
   Enter banner (up to 16 characters) that is displayed on the top line when the phone powers up and when it is in standby.
2. Show Time
   You can set this item when you want the phone to display time and date in the phone idle state.
3. Font Type
   You can change font type.
4. Backlight
   Choose the setting of the LCD and keypad backlighting. "7 seconds" turns the backlight off 7 seconds after the last key was pressed. "15 seconds" waits 15 seconds after the last key press. "30 seconds" waits 30 seconds after the last key press. "always on" means that the backlight is on whether the flip is open or closed. choosing "always on" significantly decrease battery drain. "always off" means that the backlight is never on.
5. LCD Contrast
   You can change LCD contrast.
6. Version
   View the software and hardware version.

3.6 Menu 6 Setup

1. Set NAM
   Select the phone's NAM(Number Assignment Module) if the phone is registered with multiple service providers.
2. Auto NAM
   Allows the phone to automatically switch to one of the programmed NAMs if it is operating in the corresponding service provider area.
3. System Select
   Choose setting to control which cellular company your phone uses. Leave this setting as "Standard" unless you want to alter the system selection. Change it after asking communication provider.

4. Force Mode
Make next call in analog mode. You have 30 second to place an analog call. This feature is typically used for data applications.
5. Data/Fax
In "Data/Fax" setting. Data and fax can be transmitted. Wireless data communication service refer to utilization of subscriber terminals for access to internet with personal computer or laptops.
6. Activation.
Send OTASP(Over The Air Service Provision) activation code
7. SIO Mode
Select DM/DS Mode.

3.7 Menu 7 Security

<You must enter the lock code to enter submenu>
1. Auto Lock
Choose when you want the phone to lock. "Now" immediately locks the phone. When the lock code is entered, this is reset to "Never". "On power up" locks the phone when the phone is turned on. "Never" means that the phone is never locked. When locked, you can only make emergency calls (see Emergency Calls) or receive incoming calls. When in a call, you can adjust the earpiece volume. All functions and features including memory viewing and storing and message viewing are disabled when the phone is locked. Speed dialing, last number redial, and one-touch, if enabled, will still work with emergency numbers.

2. Restrict
Set call restrictions to "YES" or "NO". If set to "YES," you can only make calls to emergency numbers and phone numbers in locations 1 to 9. You will still receive calls in restrict mode.

3.Clear Calls
Clear the call history information.

4. Emergency#
Emergency numbers. You can call these numbers and 911 even when the phone is locked or restricted. If dialing the numbers for it to override the lock and restriction settings.

5. Hide History
To view the call history, you have to enter the lock code.

6. New Lock Code
Allows you to enter a new four digit lock code number. For confirmation it will ask you to enter the new lock code twice.

7. Send PIN
Send PIN code.

8. Initializing
Resetting the phone returns all saved options to the factory defaults (the same as when you first received your phone).

3.8 Menu 8 Features

1 Auto Redial.
Set the length of time the phone waits before automatically redialing a number when the system is busy.

2 Auto Answer
Select the number of rings before the phone automatically answers a call. The earpiece must be raised for auto answer to work. This feature is most commonly used with the car kit. Select from the following using rings or melodies.

3. Alarm
The phone can be set to alarm at a specified time. In this menu you can set the alarm time and select "On" to hange the alarm time or "Off" to turn off the alarm clock. When the alarm time is reached, the phone will sound an alarm tone. When the phone is alarming, "Alarm" is also shown. To stop alarm, open the flip.

4. Booking Call
This feature reminds you of the important call. When the time you set is reached, the phone will sound an alarm tone.

5. World Time
This function allows you to view the time of major city in the world.

6. Anniversary
This feature let you know the important anniversary. You can save up to 10 items on the phone. When the anniversary is reached, the phone show you the anniversary that you programmed.

7. Calculator
This phone calculator in your phone adds, subtracts, multiplies and divides.

8. Calendar
This function allows you to view the calendar.

9. Voice Privacy
Set the voice privacy feature for CDMA calls as "Enhanced" or "Standard." CDMA offers inherent voice privacy. Check with your service provider for availability of the enhanced voice privacy mode.

2.9Menu 9 Recording

Record Bell
Playback Bell
Playback inuse
Erase inuse
Select Memory

*Internal memory is in your phone. You can record voice up to 5 minutes.
*External memory is MMC. The recording duration is upto your choice. Before selecting the external memory, make a space in the MMC first. See "Making a space in MMC"

4. Menu Feature In InUse State

4 InUse State Main Menu

4.1 Menu 1 Send DTMF
Send my phone number.

4.2 Menu 2 Scratchpad
Mute Key Beep Volume.

4.3 Menu 3 Mute
Switch microphone of and off while in a call. When the microphone is off, the other party can not hear you. Press [MENU] soft key and [1] or [Mute] submenu in the call state. Then. [MUTE] is displayed on the screen. If you need to release the status after the urgent conversation is over, press [MENU] soft key and 1key or [Mute] submenu again.

4.4 Menu 4 My Phone
Show my phone number.

4.5 Menu 5 MIC Gain
Control MIC Gain.

4.6 Menu 6 Version
View the software and hardware version.

4.7 Menu 7 Voice Privacy
Set the voice privacy feature for CDMA calls as "Enhanced" or "Standard" :
CDMA offers inherent voice privacy. Check with your service provider for availability of the enhanced voice privacy mode.

5. Message Feature

This phone allows you to send and receive voice messages and text messages. You can save up to 21 messages you have received and at the same time save up to 10 messages you have sent. Also you can edit messages you have saved or sent.

1. Read Message

1.1 Page/Message
1.2 Voice Mail
1.2 Erase All
This feature allows you to delete all messages of outbox.

2 Send Message

2.1 New Message
2.2 Load Message

3 Outbox Message

4 Clear Message

5 Setup Option

5.1 Right Display
This feature make the received message display on the screen when message incomes.

5.2 Msg. Alert
This feature make the Alert when message incomes.

6 QNC Enable/Disable(Hidden)

7 Data Debug Message(Hidden)

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6. Menu Tree

Main Menu			
Level 1	Level 2	Level 3	Level 4
1.Phonebook	1. Call History		
	2. Find Entry		
	3. Find Name		
	4. Empty Entry		
	5. My Phone #		
2. Sounds	1. Ring Type	Bell / Vibration / Bell after Vib / Lamp only	
	2. Ring Tone	Bell1~5 / Melody1~15 / Recorded Bell	
	3. Ring Volume	Low / Med / High / Higher	
	4. Earpiece Vol.	Low / Med / High / Higher	
	5. Key Beep Vol.	Silent / Low / Med / High / Higher	
	6. Key Length	Short / Long	
	7. Tone Length	Short / Long	
3. Alerts	1. Fade	On / Off	
	2. Service	On / Off	
	3. Minute	On / Off	
	4. RoamRinger	On / Off	
	5. Connect	On / Off	
	6. Disconnect	On / Off	
4. Call Info	1. Last Call		
	2. All Calls		
	3. Home Calls		
	4. Roam Calls		
5. Display	1. Banner		
	2. Show Time	Time preferred / Date preferred / Normal / Analog clock	
	3. Font Type	Type1 / Type2 / Type3 / Type4	
	4. Backlight	Always On / Always Off / 7 seconds / 15 seconds / 30 seconds	
	5. LCD Contrast	8-Step	
	6. Version		
6. Setup	1. Set NAM	NAM #1 / NAM #2	
	2. Auto NAM	Yes / No	
	3. System Select	A only / B only / home only / standard	
	4. Focus Call	Use Analog	
	5. Data / Fax	data/fax off / data until powered off / fax until powered off / data for next call / fax for next call	
	6. Activation	on A Band / on B Band	
	7. SIO Mode	DM Mode / DS Mode	
7. Security	1. Auto Lock	Off / When flip open / From now	
	2. Restrict	1. Outgoing	Yes / No
		2. Incoming	Yes / No
		3. Phonebook	Yes / No
		4. Speed dial	Yes / No
	3. Clear	1. Call history	Yes / No
		2. Phonebook	Yes / No
		3. Emergency #	Yes / No
		4. All	Yes / No
	4. Emergency #	Emergency 1 / Emergency 2 / Emergency 3	
	5. Hide History	Hide / Cancel	
	6. New Lock Code		
	7. Send PIN	Yes / No	
	8. Initializing	Yes / No	

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8. Feature	1. Auto Redial	OFF / 2 times / 3 times / 5 times	
	2. Auto Answer	OFF / After 5 sec. / After 10 sec. / After 15 sec.	
	3. Alarm	1. Every Day	
		2. Morning Call	
		3. One Time	
	4. Booking Call	Yes / No	
	5. World Time		
	6. Anniversary	1.View Items	
		2.Setup Items	
		3.Erase Items	
	7. Calculator		
	8. Calendar		
	9. Voice Privacy	Standard / Enhanced	
9. Recording	1. Record Bell		
	2. Playback Bell		
	3. Playback Inuse		
	4. Erase Inuse		
	5. Select Memory	Internal / External	
0.Debug Screen (Hidden)			

SMS Menu			
Level 1	Level 2	Level 3	Level 4
1.Read Message	1. Page / Message		
	2. Voice Mail		
2.Send Message	1. New Message		
	2. Load Message		
3.Outbox List			
4.Clear Message	Yes / No		
5.Setup Option	1. Right Display	On / Off	
	2. Msg. Alert	On / Off	
9.QNC Enable/Disable (Hidden)			
0.Data Debug Screen (Hidden)			

InUse Menu			
Level 1	Level 2	Level 3	Level 4
1. Send DTMF			
2. Scratchpad			
3. Mute			
4. My Phone #			
5. MIC Gain			
6. Version			
7. Voice Privacy	Standard / Enhanced		

Number Editing Menu			
Level 1	Level 2	Level 3	Level 4
1. H Hard Pause			
2. T Timed Pause			
3. - Hyphen			

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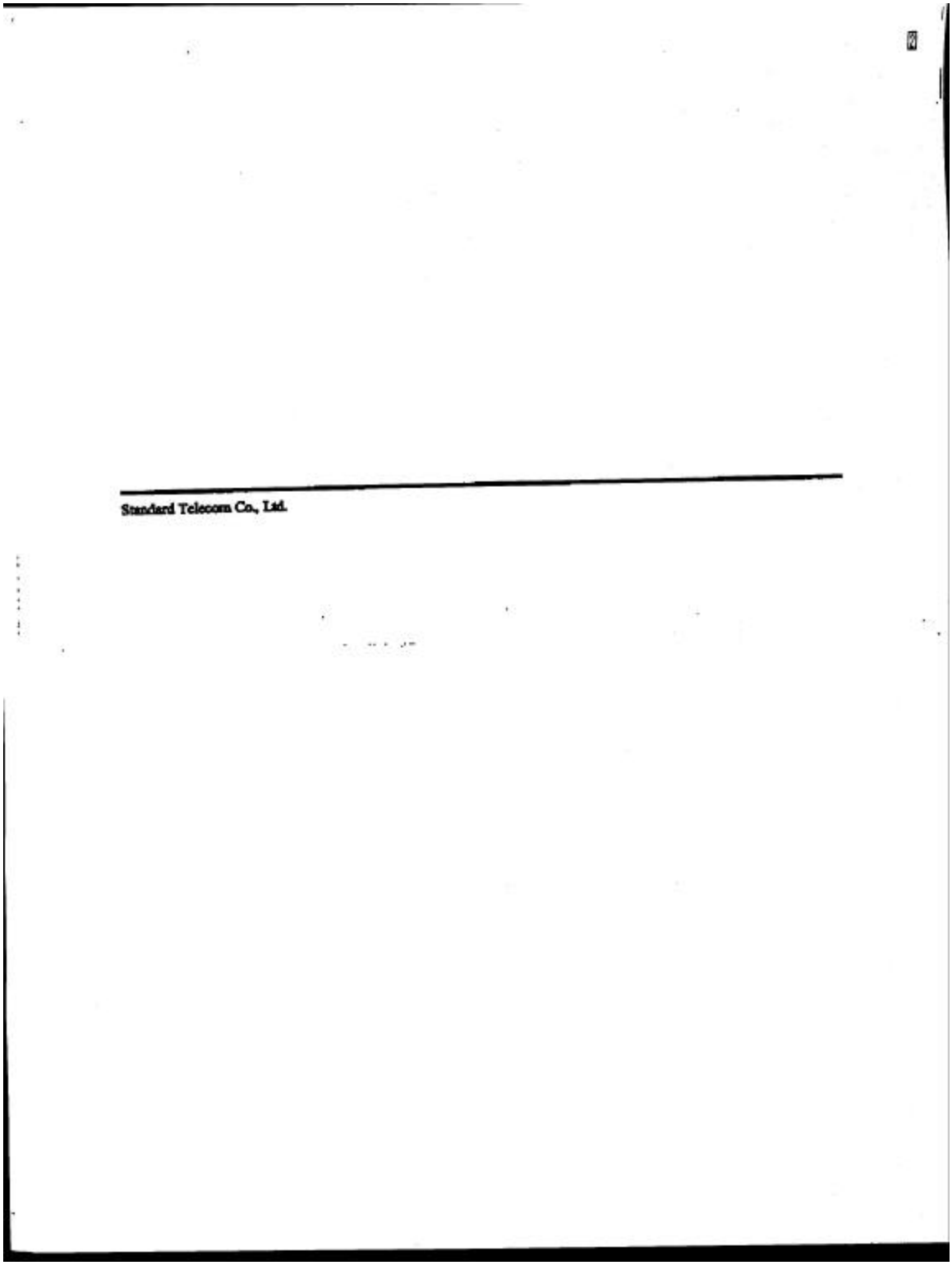


2. Basic Functions

1. Turning the Phone On and Off

1.1 Turning the Phone On

1. Install a charged battery pack or connect the phone to an external power source such as the cigarette lighter adapter or car kit.
2. Press [END] for a few seconds until the red light at the top of the phone flash.
   - The LCD displays the initial screen and a "beep" sound will alert you.
   - If the LCD displays "[UNLOCK]", see "security" under Menu Features.

1.2 Turning the Phone Off

1. Press and hold [END] and then release the button.
2. Protect the antenna by pushing it back into the phone, if extended.

2. Making a Call

Whenever you make a call, follow these simple steps:

1. Make sure the phone is turned on.
2. Enter the phone number with area code, if needed.
3. Press [SEND]
   - If the phone is locked , enter the Lock Code and pressing [SND].
   - "Call Failed" indicates that the call did not go through.
4. Press [END] to disconnect the call.

3. Correcting Dialing Mistakes

1. Press [CLR] to erase the most recent digit or letter.
2. Press and hold [CLR] for at least one second to delete all digits or letters.

4. Receiving Calls

1. Press any key to answer.

5. Call Waiting

Your cellular service may offer call waiting. While you are on a call, you may hear two beeps indicating another incoming call. When call waiting has been enabled, you may put the active call on hold as you answer the other incoming call. Check with your cellular service about this feature.

1. Press [SEND] to receive a waiting call.
2. Press [SEND] again to switch between calls.

6. Mute

This function prevents your voice from being transmitted, but you can still hear the other party's talking.

1. Press [MENU] and [3] while in a call.
2. To release Mute, Press [MENU] and [3] again.

7. Redialing Last Outgoing Number

1. Press [SEND] to redial the last dialed number.
   - You can also redial any of the last ten numbers you have dialed. Last 10 numbers are stored in the call history list (See Recent Call History List).

8. Adjusting the Volume

The volume buttons on the left topside of the phone can be used to adjust ear piece, ringer and key volumes. The upper button increases and the lower button decreases the volume.

- You may adjust earpiece volume while you are in a call.
- Adjusting the ringer volume while the phone is ringing and in standby mode.
  - The ringer volume can also be adjusted through Menu Feature.
  - If you adjust the ringer volume to silent, the LCD displays"-Ringer Off-" and you won't hear the ringer sound.
- The key beep volume is adjusted through Menu Feature.

9. Signal Strength

The quality of calls depends in the signal strength in your area. The stronger the signal, the better the call quality. The signal strength icon indicates the current strength as a number of bars.

If you are outside of a service area, the "No service" icon will be displayed. No calls can be made or received, including emergency calls. (Strongest signal)

Extend the antenna when the signal strength is weak.

If you are in a building, the reception may be better near a window.

Weak signal

No signal received

10. Emergency Dialing

As long as your phone is registered on a system, you can place calls to emergency number 911 - even if your phone is locked or restricted.

11. Manner Mode

Press the pound key [*] for one second, and the ring type is set to vibrator.

12. Caller ID

This feature enables the phone number of the calling person to be displayed when you receive the call. You should check if the cellular service carrier provides this feature.

- Use of Caller I.D.

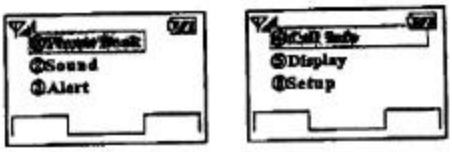
The phone number of calling person will be displayed on the LCD screen when the call is received. The 'Number is Restricted' message will be displayed if the phone blocked displaying the calling person' s phone number. In addition, the 'Number is Unavailable' message will be displayed in case the Caller I.D. can not be used. The 'Missed Call' message will be displayed when you fail to receive the call after power on or fail to answer. Missed call number will be stored in the call history temporarily and will be displayed later in case the phone number is not blocked.

In case the phone number is stored in the memory together with the name, the phone number of calling person and name is displayed on the screen before you answer.

3. Menu Feature In Idle State

1. Main Menu

Menus allows you to check or change the phone's various features and settings.



2. General Guidelines to MENU Access and Settings

1. Press "MENU". Then the first 3 menu items will appear.
2. You can use roller ball or [◀], [▶] key for menu navigation and can select a menu item with "select" soft key or roller ball click.
3. Select the menu item that you want.
   Then the submenu list will appear on the screen.
4. Navigate and then select the submenu you want to access.
5. Press [CLR] key to go one step backward while accessing menu or selecting settings
6. Press [select] soft key or [sto] soft key to save the setting
7. Press [CLR] key or [cancel] soft key to cancel without saving.

3. Menu Item Descriptions

3.1 Menu 1 Phone Book

This phone can store up to 400 phone numbers. You do not have to remember them or carry your phonebook around. In the phone book you can accompany any number you store with a name. In addition, this phone book can store 2 phone numbers per name.

3.2 Menu 2 Sound

1. Ring Type
   Select the ring type one of four types (Bell, Vibration, Bell after Vib and Lamp only) with [◀], [▶] or a roller ball.
2. Ring Tone
   Select the ringer sound with [◀], [▶] or a roller ball. The first five are ring sounds , the second fifteenth are melodies and the remains recorded bell. Types of ring sound to notify that you have an incoming call.
3. Ring Vol.
   Adjust ringer volume. You can also adjust the ringer volume by pressing the side keys while the phone is ringing or in standby mode.
4. Earpiece Vol.
   Adjust the earpiece volume. You can also adjust this during a call, by pressing the side keys.
5. Key Beep Vol.
   You can set the volume level for keypad tones.
6. Key Length
   The Key beep sounds in response to digit key.
7. Tone Length
   You can set normal or long DTMF tones.

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3.3 Menu 3 Alerts

1. Fade
   Set an alert to inform you when you have lost a call or lose service.
2. Service
   Alert you when service (CDMA / Analog , A / B ,etc.) changes.
3. Minute
   Alert you every 10 seconds before the end of every minute during a call.
4. RoamRinger
   Alert you when entering roam area.
5. Connect
   Alert you when the call is connected.
6. Disconnect

3.4 Menu 4 Call Info

1. Last Call
   Displays duration of last call in minutes and seconds.
2. All Calls
   Displays the total number and time(minutes and seconds) including calls made while in the home system and while roaming. This is NOT resetable.
3. Home Calls
   Displays the total number and time(minute and second) of all calls made while in the home system(i.e. not roaming), since last reset. This can be reset by pressing [ZERO] soft key.
4. Roam Calls
   Displays the total number and time(minute and second) of all calls made while in the roaming. This can be reset by pressing [ZERO] soft key.

3.5 Menu 5 Display

1. Banner
   Enter banner (up to 16 characters) that is displayed on the top line when the phone powers up and when it is in standby.
2. Show Time
   You can set this item when you want the phone to display time and date in the phone idle state.
3. Font Type
   You can change font type.
4. Backlight
   Choose the setting of the LCD and keypad backlighting. "7 seconds" turns the backlight off 7 seconds after the last key was pressed. "15 seconds" waits 15 seconds after the last key press. "30 seconds" waits 30 seconds after the last key press. "always on" means that the backlight is on whether the flip is open or closed. choosing "always on" significantly decrease battery drain. "always off" means that the backlight is never on.
5. LCD Contrast
   You can change LCD contrast.
6. Version
   View the software and hardware version.

3.6 Menu 6 Setup

1. Set NAM
   Select the phone's NAM(Number Assignment Module) if the phone is registered with multiple service providers.
2. Auto NAM
   Allows the phone to automatically switch to one of the programmed NAMs if it is operating in the corresponding service provider area.
3. System Select
   Choose setting to control which cellular company your phone uses. Leave this setting as "Standard" unless you want to alter the system selection. Change it after asking communication provider.

4. Force Mode
Make next call in analog mode. You have 30 second to place an analog call. This feature is typically used for data applications.

5. Data/Fax
In "Data/Fax" setting. Data and fax can be transmitted. Wireless data communication service refer to utilization of subscriber terminals for access to internet with personal computer or laptops.

6. Activation.
Send OTASP(Over The Air Service Provision) activation code

7. SIO Mode
Select DM/DS Mode.

3.7 Menu 7 Security

<You must enter the lock code to enter submenu>

1. Auto Lock
Choose when you want the phone to lock. "Now" immediately locks the phone. When the lock code is entered, this is reset to "Never". "On power up" locks the phone when the phone is turned on. "Never" means that the phone is never locked. When locked, you can only make emergency calls (see Emergency Calls) or receive incoming calls. When in a call, you can adjust the earpiece volume. All functions and features including memory viewing and storing and message viewing are disabled when the phone is locked. Speed dialing, last number redial, and one-touch, if enabled, will still work with emergency numbers.

2. Restrict
Set call restrictions to "YES" or "NO". If set to "YES," you can only make calls to emergency numbers and phone numbers in locations 1 to 9. You will still receive calls in restrict mode.

3.Clear Calls
Clear the call history information.

4. Emergency#
Emergency numbers. You can call these numbers and 911 even when the phone is locked or restricted. If dialing the numbers for it to override the lock and restriction settings.

5. Hide History
To view the call history, you have to enter the lock code.

6. New Lock Code
Allows you to enter a new four digit lock code number. For confirmation it will ask you to enter the new lock code twice.

7. Send PIN
Send PIN code.

8. Initializing
Resetting the phone returns all saved options to the factory defaults (the same as when you first received your phone).

3.8 Menu 8 Features

1 Auto Redial.
Set the length of time the phone waits before automatically redialing a number when the system is busy.

2 Auto Answer
Select the number of rings before the phone automatically answers a call. The earpiece must be raised for auto answer to work. This feature is most commonly used with the car kit. Select from the following using rings or melodies.

3. Alarm
The phone can be set to alarm at a specified time. In this menu you can set the alarm time and select "On" to hange the alarm time or "Off" to turn off the alarm clock. When the alarm time is reached, the phone will sound an alarm tone. When the phone is alarming, "Alarm" is also shown. To stop alarm, open the flip.

4. Booking Call
This feature reminds you of the important call. When the time you set is reached, the phone will sound an alarm tone.

5. World Time
This function allows you to view the time of major city in the world.

6. Anniversary
This feature let you know the important anniversary. You can save up to 10 items on the phone. When the anniversary is reached, the phone show you the anniversary that you programmed.

7. Calculator
This phone calculator in your phone adds, subtracts, multiples and divides.

8. Calendar
This function allows you to view the calendar.

9. Voice Privacy
Set the voice privacy feature for CDMA calls as "Enhanced" or "Standard." CDMA offers inherent voice privacy. Check with your service provider for availability of the enhanced voice privacy mode.

2.9Menu 9 Recording

Record Bell
Playback Bell
Playback image
Erase image
Select Memory

*Internal memory is in your phone. You can record voice up to 5 minutes.
*External memory is MMC. The recording duration is upto your choice. Before selecting the external memory, make a space in the MMC first. See "Making a space in MMC"

3. Alarm
The phone can be set to alarm at a specified time. In this menu you can set the alarm time and select "On" to hange the alarm time or "Off" to turn off the alarm clock. When the alarm time is reached, the phone will sound an alarm tone. When the phone is alarming, "Alarm" is also shown. To stop alarm, open the flip.

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*Internal memory is in your phone. You can record voice up to 5 minutes.
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4. Menu Feature In InUse State

4 InUse State Main Menu

4.1 Menu 1 Send DTMF
Send my phone number.

4.2 Menu 2 Scratchpad
Mute Key Beep Volume.

4.3 Menu 3 Mute
Switch microphone of and off while in a call. When the microphone is off, the other party can not hear you. Press [MENU] soft key and [1] or [Mute] submenu in the call state. Then. [MUTE] is displayed on the screen. If you need to release the status after the urgent conversation is over, press [MENU] soft key and 1key or [Mute] submenu again.

4.4 Menu 4 My Phone
Show my phone number.

4.5 Menu 5 MIC Gain
Control MIC Gain.

4.6 Menu 6 Version
View the software and hardware version.

4.7 Menu 7 Voice Privacy
Set the voice privacy feature for CDMA calls as "Enhanced" or "Standard" :
CDMA offers inherent voice privacy. Check with your service provider for availability of the enhanced voice privacy mode.

5. Message Feature

This phone allows you to send and receive voice messages and text messages. You can save up to 21 messages you have received and at the same time save up to 10 messages you have sent. Also you can edit messages you have saved or sent.

1. Read Message

1.1 Page/Message
1.2 Voice Mail
1.2 Erase All
This feature allows you to delete all messages of outbox.

2 Send Message

2.1 New Message
2.2 Load Message

3 Outbox Message

4 Clear Message

5 Setup Option

5.1 Right Display
This feature make the received message display on the screen when message incomes.

5.2 Msg. Alert
This feature make the Alert when message incomes.

6 QNC Enable/Disable(Hidden)

7 Data Debug Message(Hidden)

14

6. Menu Tree

Main Menu			
Level 1	Level 2	Level 3	Level 4
1.Phonebook	1. Call History		
	2. Find Entry		
	3. Find Name		
	4. Empty Entry		
	5. My Phone #		
2. Sounds	1. Ring Type	Bell / Vibration / Bell after Vib / Lamp only	
	2. Ring Tone	Bell1~5 / Melody1~15 / Recorded Bell	
	3. Ring Volume	Low / Med / High / Higher	
	4. Earpiece Vol.	Low / Med / High / Higher	
	5. Key Beep Vol.	Silent / Low / Med / High / Higher	
	6. Key Length	Short / Long	
	7. Tone Length	Short / Long	
3. Alerts	1. Fade	On / Off	
	2. Service	On / Off	
	3. Minute	On / Off	
	4. RoamRinger	On / Off	
	5. Connect	On / Off	
	6. Disconnect	On / Off	
4. Call Info	1. Last Call		
	2. All Calls		
	3. Home Calls		
	4. Roam Calls		
5. Display	1. Banner		
	2. Show Time	Time preferred / Date preferred / Normal / Analog clock	
	3. Font Type	Type1 / Type2 / Type3 / Type4	
	4. Backlight	Always On / Always Off / 7 seconds / 15 seconds / 30 seconds	
	5. LCD Contrast	8-Step	
	6. Version		
6. Setup	1. Set NAM	NAM #1 / NAM #2	
	2. Auto NAM	Yes / No	
	3. System Select	A only / B only / home only / standard	
	4. Force Call	Use Analog	
	5. Data / Fax	data/fax off / data until powered off / fax until powered off / data for next call / fax for next call	
	6. Activation	on A Band / on B Band	
	7. SIO Mode	DM Mode / DS Mode	
7. Security	1. Auto Lock	Off / When flip open / From now	
	2. Restrict	1. Outgoing	Yes / No
		2. Incoming	Yes / No
		3. Phonebook	Yes / No
		4. Speed dial	Yes / No
	3. Clear	1. Call history	Yes / No
		2. Phonebook	Yes / No
		3. Emergency #	Yes / No
		4. All	Yes / No
	4. Emergency #	Emergency 1 / Emergency 2 / Emergency 3	
	5. Hide History	Hide / Cancel	
	6. New Lock Code		
	7. Send PIN	Yes / No	
	8. Initializing	Yes / No	

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8. Feature	1. Auto Redial	OFF / 2 times / 3 times / 5 times	
	2. Auto Answer	OFF / After 5 sec. / After 10 sec. / After 15 sec.	
	3. Alarm	1. Every Day	
		2. Morning Call	
		3. One Time	
	4. Booking Call	Yes / No	
	5. World Time		
	6. Anniversary	1.View Items	
		2.Setup Items	
		3.Erase Items	
	7. Calculator		
	8. Calendar		
	9. Voice Privacy	Standard / Enhanced	
9. Recording	1. Record Bell		
	2. Playback Bell		
	3. Playback Imme		
	4. Erase Imme		
	5. Select Memory	Internal / External	
0.Debug Screen (Hidden)			

SMS Menu

Level 1	Level 2	Level 3	Level 4
1.Read Message	1. Page / Message		
	2. Voice Mail		
2.Send Message	1. New Message		
	2. Load Message		
3.Outbox List			
4.Clear Message	Yes / No		
5.Setup Option	1. Right Display	On / Off	
	2. Msg. Alert	On / Off	
9.QNC Enable/Disable (Hidden)			
0.Data Debug Screen (Hidden)			

InUse Menu

Level 1	Level 2	Level 3	Level 4
1. Send DTMF			
2. Scratchpad			
3. Mute			
4. My Phone #			
5. MIC Gain			
6. Version			
7. Voice Privacy	Standard / Enhanced		

Number Editing Menu

Level 1	Level 2	Level 3	Level 4
1. H Hard Pause			
2. T Timed Pause			
3. - Hyphen			

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Descriptive Information

Subsection	Description
2.983(a)	Applicant : STANDARD TELECOM CO., LTD 926 Kwanyang 2-Dong, Dongan-Ku, Anyang-City, Kyunggi-Do, Korea 431-062 Manufacturer : STANDARD TELECOM CO., LTD 926 Kwanyang 2-Dong, Dongan-Ku, Anyang-City, Kyunggi-Do, Korea 431-062
2.983(b)	FCC ID : XXXNXC3200
2.983©	Quantity : Quantity production is planned.
2.983(d) (1)	Emission Type
2.983(d) (2)	Frequency Range: • In CDMA mode RX : 869.82 ~ 893.19MHz TX : 824.82 ~ 848.19MHz • In AMPS mode RX : 869.04 ~ 893.97MHz TX : 824.04 ~ 848.97MHz
2.983(d) (3)	Range of Operating Power 1) CDMA : • Range of Open Loop Output Power : Open loop average output power of Mobile Station is estimated from the average input power. The estimation value is as below:

1/10

Average Output Power(dBm) = - Mean Input Power(dBm)
- 73
+ NOM_PWR(dB)
+ INIT_PWR(dB)

The range of the average output power shall satisfy the below condition

Average Input power Range(dBm/1.23MHz)	-25	-65	-104
Average Output power Range(dBm/1.23MHz)	-48±9.5	-88±9.5	18 to 27

- Range of Closed Loop Output Power :

Range of closed loop power control should be at least within –50dBm ~ +23dBm

Range of maximum power output should be in the range of +23dBm ~ +27dBm

Maximum power is recommended from manufacturer of mobile station

2)AMPS:

Power Level	Power Range(dBm)
0 ~ 2	+24 ~ +30
3	+20 ~ +26
4	+16 ~ +22
5	+12 ~ +18
6	+9 ~ +14
7	+4 ~ +10

2.983(d) (4) Maximum Power Rating :

1) CDMA : 0.32W
2) AMPS : 0.5W

2/10

[redacted] 00-07-14

2.983(d) (5) DC Voltage and Current into the final radio frequency amplifying device :

Frequency	836MHz	849MHz	824MHz
Supply Voltage[V]	3.7V	3.7V	3.7V
Current[mA]	535mA	525mA	545mA

2.983(d) (6) Function of Active Devices :

1. RF Part		
U103	RF2361	LNA
U104	TQ5M31	Down Converter
U107	IFR3000	RX BBA & AGC
U114	IFT3000	TX BBA & AGC
U5	RF2641	Up Converter
U4	RF2352	Driver Amp.
U119	RF2162	Power Amp.
U6	MRFIC0916	Buffer Amp.
2. Freq. Synthesizer		
U108	LMX2331LSLB	Dual PLL
U109	ENFVJ393S38	VCO
U115	TOS1968VA14KRE	VC-TCXO
3. LOGIC		
U301	MSM3000PBGA196	Qualcomm IC Chip
U900	CY62136VLL-70B	2M SRAM
U901	28F1602C3	COMBO Memory(16x2)
U8	TC7SH08FU	AND Gate
U305	24LC256	EEPROM(256K)
U306	TCM809RENB	Reset IC
U9	ST5093	CODEC IC
U10	DG9232	Analog Switch
U418	LM4865	Audio Amp.
4. MP3		
U500	DAC3550A	Digital-Analog Converter

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[redacted] TELECOM CO., LTD [redacted]

U502	MAS3507D	MP3 DECODER
U503	AT89LS8252	MPU FOR MP3
U1	74HC244	Buffer
U12	TC7WH74FK	D-F/F
[redacted]		
U304	TC1107-3.0VUA	3V Voltage Regulator(300mA)
U412	MIC5205-3.0V	3V Voltage Regulator(150mA)
U415	TC1185-3.0VCT	3V Voltage Regulator(150mA)
[redacted]		
Q403	DTC144EE	NPN Digital Transistor
Q101	UMC4N	Dual Digital Transistors
Q401	UMT2907	PNP Switching TR
Q7	DTA144TE	PNP Digital Transistor
Q406	UMT2222	NPN Switching TR
Q13	2SC4617	NPN Digital Transistor
U113	1034ECTTR	OP Amp.

2.983(d) (7) Circuit Diagram & Block Diagram

2.983(d) (8) Operating Instruction Book

2.9839d) (9) Tune-Up Procedure

1) Set-uP for Tune-Up of Transmitter

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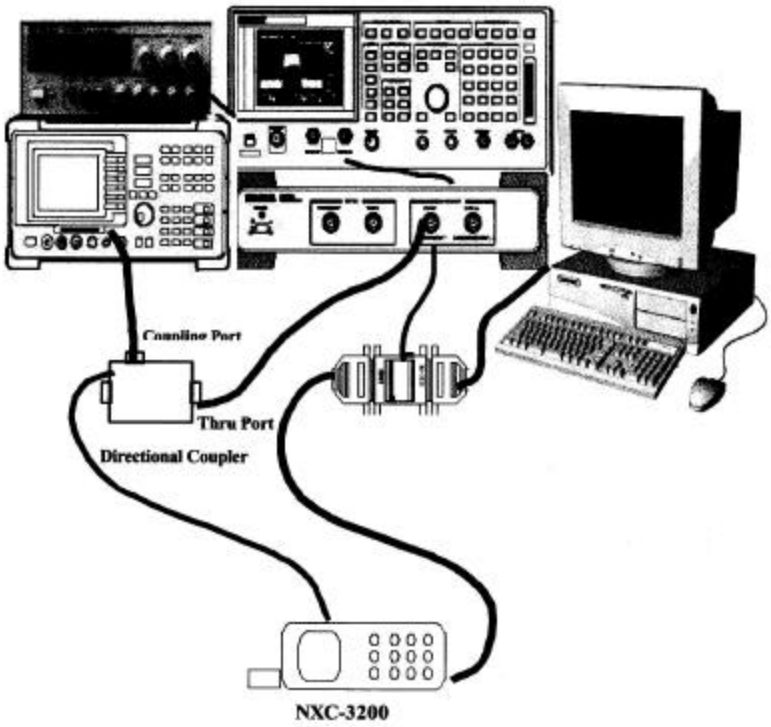

2) Key Operation for Handset

The method of setting channel and AGC

A. CDMA Mode

❶ Common Procedure

Push 4+5+6+8+0+*+4+7+*+8+6+9+#+3 → Service Code Push 000000 → Push 7

❷ Channel Setting

Enter Channel Push 1~1024 Channels → Push [sto] to store

❸ Start TX AGC

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Enter TX AGC Push 350 → Push [sto] to store

❹ HDET Control

Enter HDET value 70 to 120 ; ***Adjust Power*** → Push [sto] to store

❺ If the output power is not the desired power, You push [CLR] button →

Enter HDET value 70 to 120 → Push [sto] to store

B. AMPS Mode

❶ Common Procedure

Push 4+5+6+8+0+*+4+7+*+8+6+9+#+3 → Service Code Push 000000 → Push 8

❷ Channel Setting

Enter Channel Push 1~1024 Channels → Push [sto] to store

❸ Start TX AGC

Enter TX AGC Push 350 → Push [sto] to store

❹ HDET Control

Enter HDET value 90 to 170 ; ***Adjust Power*** → Push [sto] to store

❺ If the output power is not the desired power, You push [CLR] button →

Enter HDET value 90 to 170 → Push [sto] to store

* To test another channel, please reset the handset.

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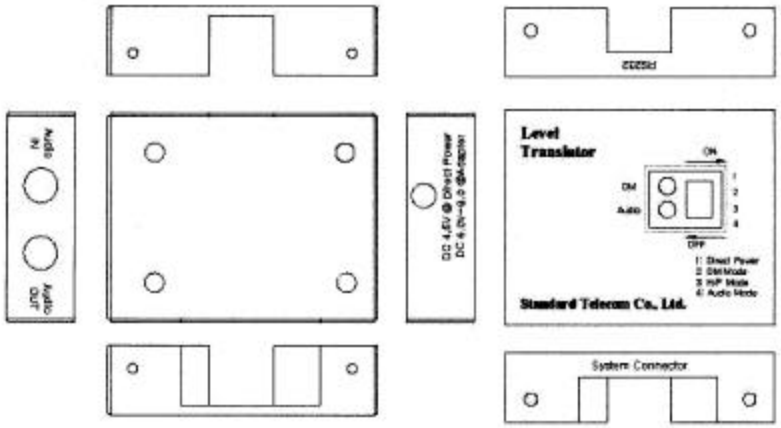
Level Translator

Brief Introduction

The level Translates the level of Input/output data of handset to interface with Personal Computer(which is installed with DM program by Qualcomm.) and, dispatch the audio signal between handset and measuring instrument. So, Level Translator can be used as TIA adaptor.

We also packed a RF caable to interface the RF signal from handset to the measuring equipment.



Basic Configuration and Function

Set the control switch 1 on and the other switches off.

And, feed power to the level translator with exactly 4.5 Volt, 2A.

Insert the carkit jack into the hole in the bottom of the handset.

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And, connect the other side of the code to the Level Translator

RF jack passes the RF signal between handset and measuring equipment.
Connect the RF jack to the RF terminal of measuring equipment.

If you need audio output, please set the control switch 4 on, otherwise please keep the switch off.

Now you are ready to see the audio/radio signal with your measuring equipment.

If you want to the Diagnostic Monitor, please connect RS-232C port to Com 2 port of PC with adequate cable.

5.2 Product Specification (H/W)

- NXC-3200 -

1. Specification

1.1 General Specification

1.1.1 Transmit/Receive Frequency Interval :
1) CELLULAR : 45 MHz
2) AMPS : 45MHz

1.1.2 Number of Channels (Channel Bandwidth)
1) CELLULAR : 20 Channels
2) AMPS : 832 Channels

1.1.3 Operating Voltage : DC 3.8V

1.1.4 Battery Power Consumption : DC 3.8V

	SLEEP	IDLE	MAX POWER
CELLULAR	3 mA	89 mA	509 mA (24 dBm)
AMPS	45mA	88 mA	8300 mA (27 dBm)

1.1.5 Operating Temperature : -30 C~ +60 C

1.1.6 Frequency Stability
1) CDMA : ±0.5PPM
2) AMPS : ±2.5PPM
3) PCS : ±0.1PPM

1.1.7 Antenna : Retractable Type (Herical+Whip), 50

1.1.8 Size and Weight
1) Size : 107×44×22.5
2) Weight : 112.5g

1.1.9 Channel Spacing
1) CELLULAR : 1.25MHz
2) AMPS : 30KHz

1.1.10 Battery Type, Capacity and Operating Time.
Unit = Hours : Minutes

	Extended (870mAh)	
Standby Time	CELLULAR	156hrs
	AMPS	15hrs
Talk time	CELLULAR	210min
	AMPS	1hrs

1.2 Receive Specification

1.2.1 Frequency Range
1) CELLULAR : 869.820 MHz ~ 893.190 MHz
2) AMPS : 869.04 MHz ~ 893.97 MHz

1.2.2 Local Oscillating Frequency Range :
1) CELLULAR : 966.88MHz±12.5MHz
2) AMPS : 966.88MHz±12.5MHz

1.2.3 Intermediate Frequency :
1) CELLULAR : 85.38MHz
2) AMPS: 85.38 MHz

1.2.4 Sensitivity
1) CELLULAR : -104dBm (C/N 12dB or more)
2) AMPS : -116dBm (12dB SINAD)

1.2.5 Selectivity
1) CELLULAR : 3dB C/N Degration (With Fch±1.25 kHz : -30dBm)
2) AMPS : 16dB at Fch±30kHz, 60 dB at Fch±60kHz

1.2.6 Spurious Wave Suppression : Maximum of -80dB

1.2.7 CDMA Input Signal Range
- ☐ Dynamic area of more than -104~ -25 dB: 79dB at the 1.23MHz band.

1.2.8 AMPS De-Emphasis : -6dB/OCT within 0.3~3kHz

1.2.9 AMPS Expander
- ☐ Expansion Rate : 1:2
- ☐ Attack Time : within 3mS
- ☐ Recovery Time : within 13.5mS
- ☐ Reference Input : Output level to a 1000Hz tone from a carrier within +2.9kHz peak frequency deviation.

1.2.10 AMPS Sensitivity : 12dB SINAD/-116dBm

1.2.11 AMPS Intermodulation Spurious Response Attenuation : Above 65dB

1.2.12 AMPS RSSI Range : Above 60dB

1.2.13 AMPS Protection Against Spurious Response Interference : Above 60dB

1.2.14 AMPS In Band Conducted Spurious Emissions
- ☐ Transmit Band : below –60dBm
- ☐ Receive Band : below –80dBm

1.2.15 AMPS Out of Band Conducted Spurious Emissions : Below -47dBm

1.2.16 AMPS Radiated Spurious Emissions

Frequency Range	Maximum allowable EIRP
25 ~ 70 kHz	- 45 dBm
70 ~ 130 kHz	- 41 dBm
130 ~ 174 kHz	- 41 ~ - 32 dBm
174 ~ 260 kHz	- 32 dBm
260 ~ 470 kHz	- 32 ~ - 26 dBm
470 ~ 1.0 GHz	- 21 dBm

1.3 Transmit Specification

1.3.1 Frequency Range
1) CELLULAR : 824.820MHz ~ 848.190MHz
2) AMPS : 824.04MHz ~ 848.97MHz

1.3.2 Local Oscillating Frequency Range :
1) CELLULAR : 966.88 MHz±12.5 MHz
2) AMPS : 966.88 MHz±12.5 MHz

1.3.3 Intermediate Frequency : 130.38 MHz

1.3.4 Output Power
1) CELLULAR : 0.3W
2) AMPS: 0.5W

1.3.5 Interference Rejection
1) Single Tone : -30dBm at 900 kHz (CELLULAR), -30dBm at 1.25MHz(PCS)
2) Two Tone : -43dBm at 900 kHz & 1700kHz(CELLULAR), -43dBm at 1.25 MHz & 2.05 MHz

1.3.6 AMPS Carrier ON/OFF Conditions
" ON" condition : within ±3dB of specification output (in 2msec)

1.3.7 AMPS Compressor
1) Compression Rate : 2:1
2) Attack Time : 3msec
3) Recovery Time : 13.5msec
4) Reference Input : Input level for producing a nominal ±2.9kHz peak requency deviation of transmitted carrier.

1.3.7 AMPS Preamphasis : 6dB/OCT within 0.3 ~ 3 kHz

1.3.8 AMPS Maximum Frequency Deviation
1) F3 of G3 : ±12kHz (±10%)
2) Supervisory Audio Tone : ±2kHz (±10%)
3) Signaling Tone : ±8kHz (±10%)
4) Wideband Data : ±8kHz (±10 %)

1.3.9 AMPS Post Deviation Limiter Filter

1) 3.0kHz ~ 5.9kHz : above 40log(F/3000) dB
2) 5.9kHz ~ 6.1kHz : above 35dB
3) 6.1kHz ~ 15kHz : above 40log(F/3000) dB
4) Over 15kHz : above 28dB

1.3.10 AMPS Spectrum Noise Suppression

1) For all Modulation
fo+20kHz ~ fo+45kHz : above 26dB
2) For Modulation by Voice and SAT
fo+45kHz : above 63+10log(Py) dB
3) For Modulation by WBD (without SAT) and ST (with SAT)
fo+45kHz ~ fo+60kHz : above 45dB
fo+60kHz ~ fo+90kHz : above 65dB
fo+90kHz ~ 2fo : above 63+10log(Py) dB,
where fo=carrier frequency, Py=mean output power in watts.

1.3.11 AMPS Harmonic and Conducted Spurious Emissions : above 43+10log(Py) dB

1.3.12 CDMA TX Frequency Deviation :

1) CELLULAR: ±300Hz or less
2) AMPS: ±300Hz or less

1.3.13 CDMA TX Conducted Spurious Emissions

1) CELLULAR : 900kHz : - 42 dBc/30kHz below
1.98MHz : - 54 dBc/30kHz below

1.3.14 CDMA Minimum TX Power Control

1) CELLULAR : - 50dBm below

1.4 MS (Mobile Station) Transmitter Frequency

1.4.1 CELLULAR & AMPS mode

Ch #	Center Freq. (MHz)	Ch #	Center Freq. (MHz)
1011	824.640	404	837.120
29	825.870	445	838.350
70	827.100	486	839.580
111	828.330	527	840.810
152	829.560	568	842.040
193	830.790	609	843.270
234	832.020	650	844.500
275	833.250	697	845.910
316	834.480	738	847.140
363	835.890	779	848.370

1.5 MS (Mobile Station) Receiver Frequency

1.5.1 CELLULAR & AMPS mode

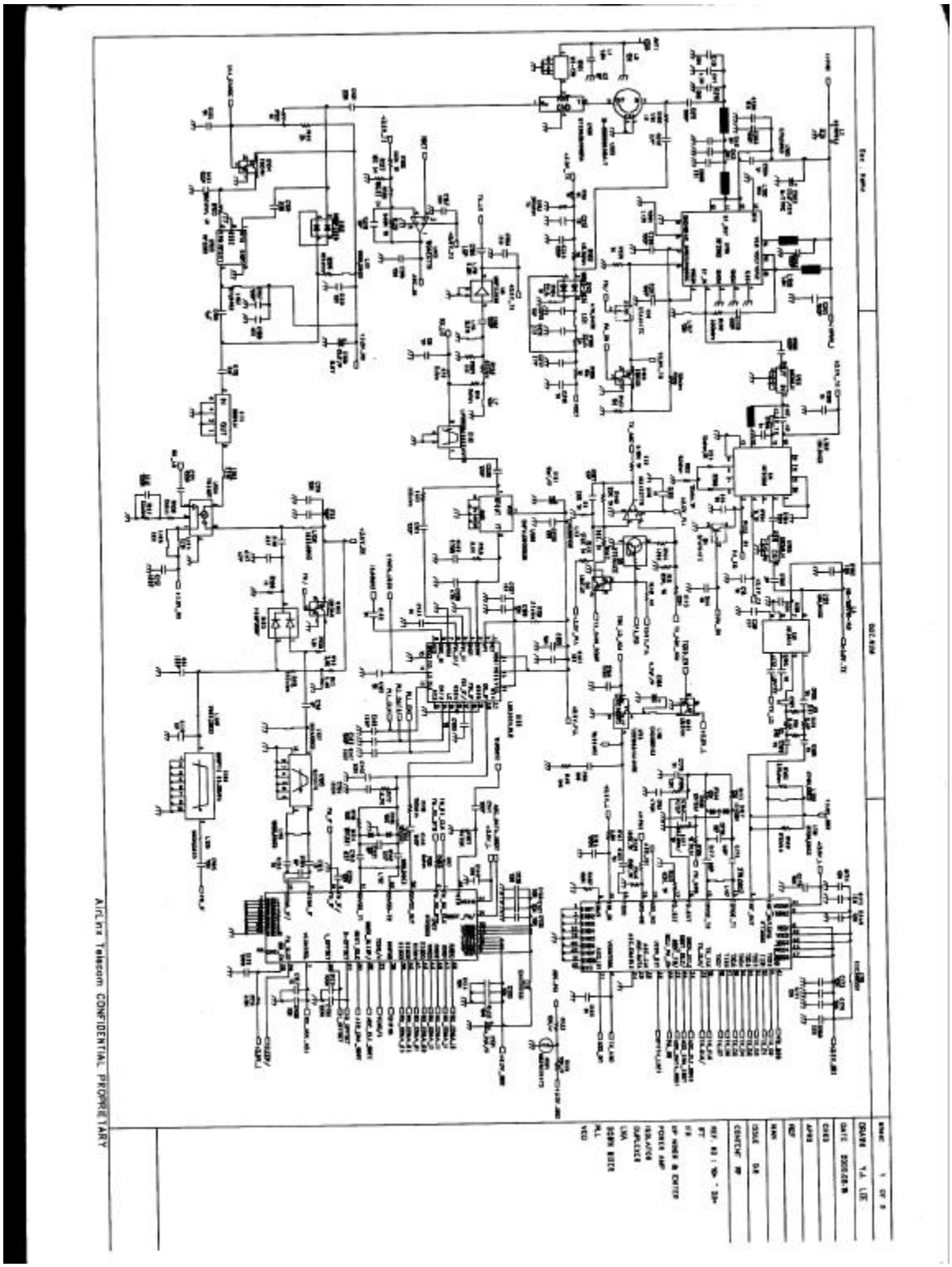
Ch. #	Center Freq. (MHz)	Ch. #	Center Freq. (MHz)
1011	869.640	404	882.120
29	870.870	445	883.350
70	872.100	486	884.580
111	873.330	527	885.810
152	874.560	568	887.040
193	875.790	609	888.270
234	877.020	650	889.500
275	878.250	697	890.910
316	879.480	738	892.140
363	880.890	779	893.370

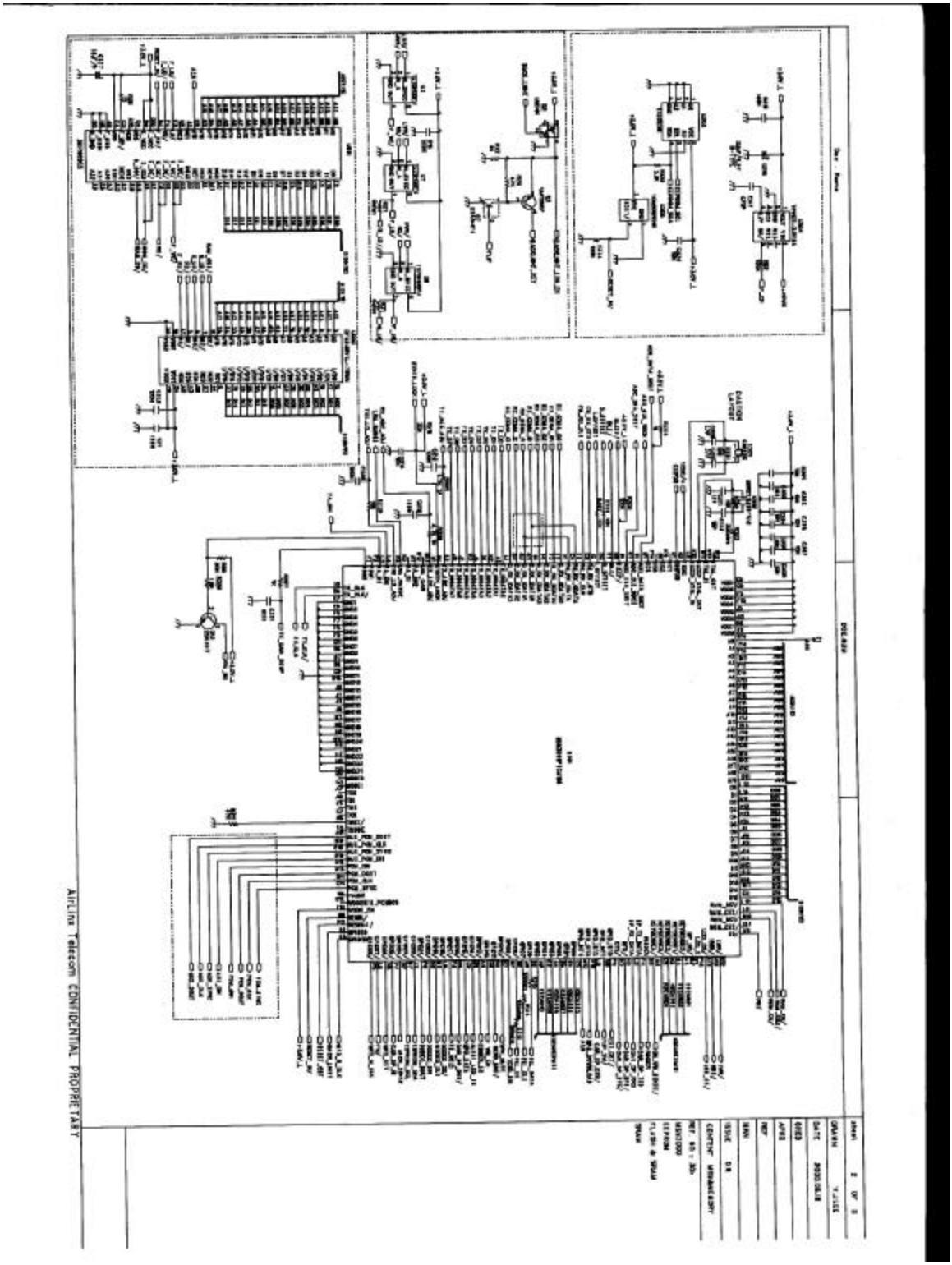
1.6 Charge time

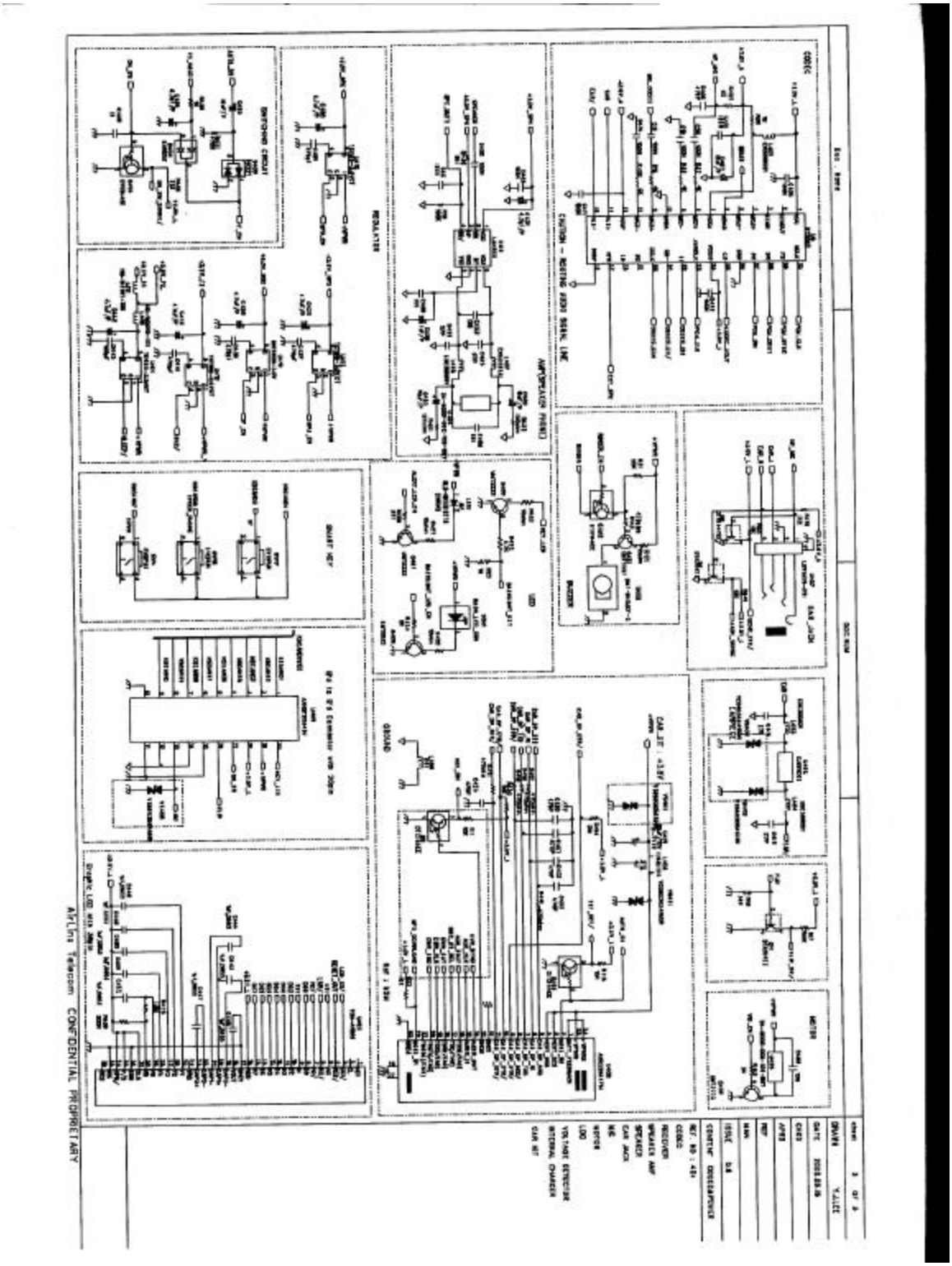
1.6.1 Standard Battery : 2 Hrs (870mAh)

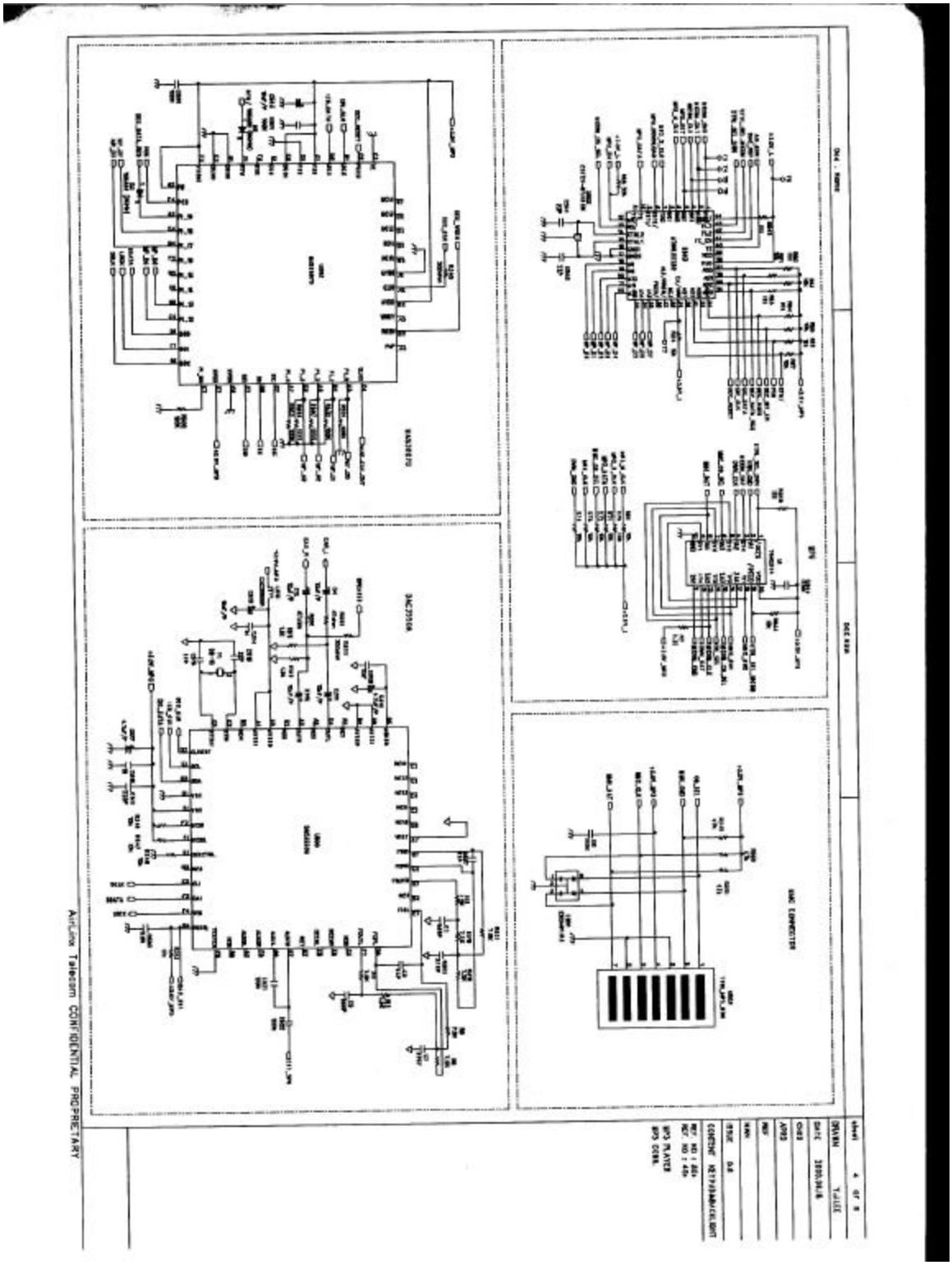
1.6.2 Extended Battery : 4 Hrs (1400mAh)

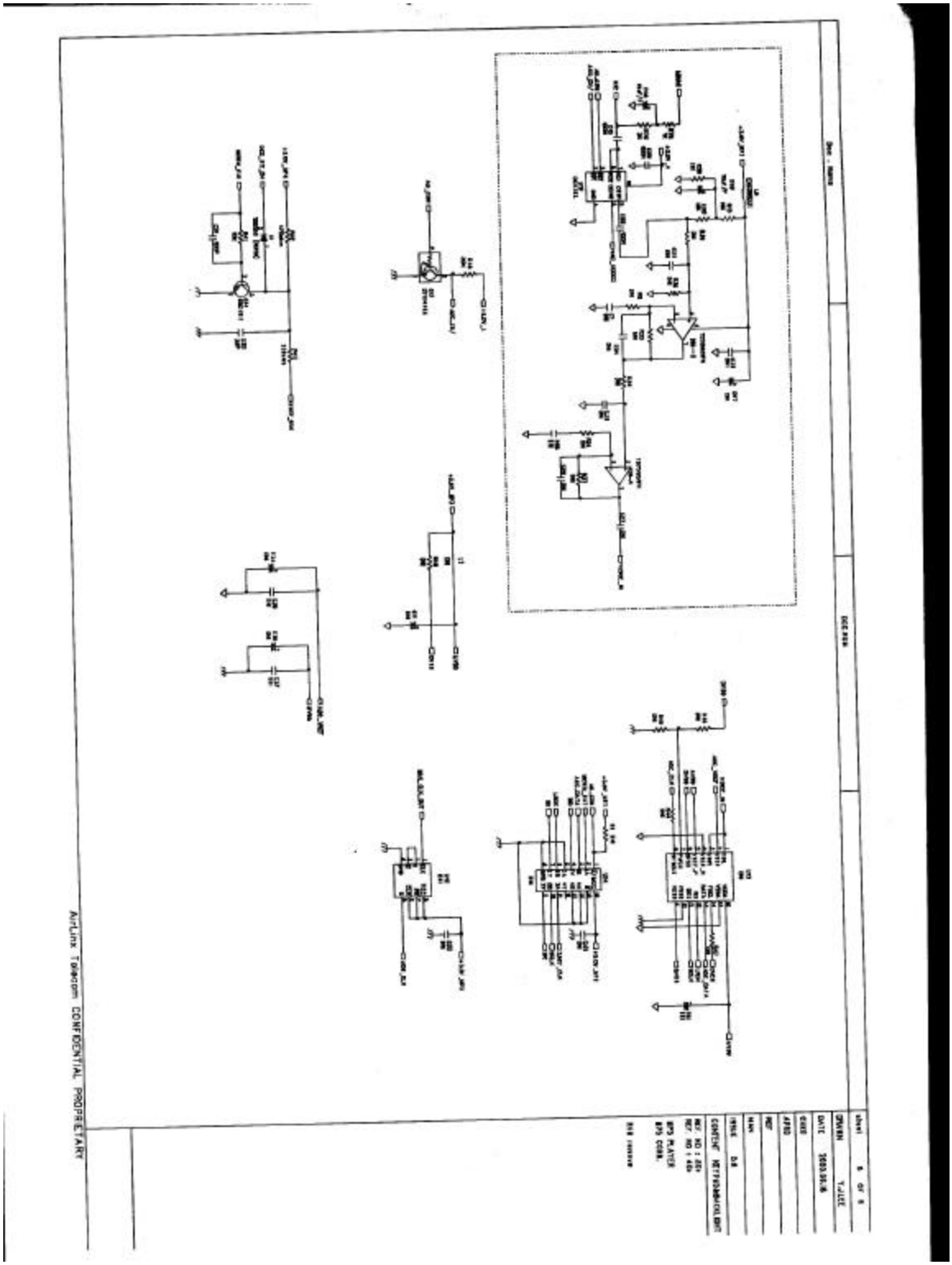
4. SCHEMATICS AND PARTS LIST:











NXC-3200 Part List

DESCRIPTION	PART NUMBER	LOCATION	Q'ty
PCB	MAIN BOARD		1
IC, MIXER RX	TQ9M31	U104	1
IC, MSM	MSM3000PBGA196	U301	1
IC, EEPROM	M24LC256-WMN6T	U305	1
IC, VOLTAGE REGULATOR	TC1185-3.0VCT	U415, U416, U410, U411	4
IC, VOLTAGE REGULATOR	MIC5205-3.0BM5	U412	1
IC, VOLTAGE REGULATOR	TC1107-3.0VUA	U304	1
IC, CODEC	ST5093TQFPTR	U9	1
IC, IFT3000(TX_BBA+AGC)	IFT3000	U114	1
IC, IFR3000(RX_BBA+ADC)	IFR3000	U107	1
IC, COMBO	28F1602C3B90	U601	1
IC, PLL	LMX2331LSLB	U108	1
IC, AND GATE	TC7SH08FU	U3, U7, U8	3
IC, RESET	TCM809REMB	U306	1
IC, POWER AMP	RF2162	U119	1
IC, MIXER TX	RF2641	U5	1
IC, 2M SRAM	CY62136VLL-70B	U500	1
IC, DRIVER AMP	RF2352	U4	1
IC, RF (LNA)	RF2361	U103	1
IC, TX LO BUFFER AMP	MRFIC0916	U6	1
IC, AUDIO AMP	LM4865MM	U418	1
IC, ANALOG SWITCH	DG9232	U10	1
IC, DAC	DAC3550A	U500	1
AMPS IF SAW	85SPY3 85.38MHz	U106	1
IC, MPU for MP3	AT89LS8252	U503	1
IC, BUFFER	74VHC244	U1	1
IC, MP3 DECODER	WAS3507D	U502	1
ISOLATOR	SI-588R0838M-T	U120	1
LED (RED)	SLSNMUR102TS	LED1	1
VC_TCXO (x-tal oscillator)	TOS1968VA14KRE(19.68MHz)	U115	1
VCO (PLL SYNTHERSIZER)	ENFVJ393S38	U109	1
RESONATOR	SSR27.008R-C15	X302	1
SAW IF RX(CDMA)	855676	U105	1
SAW TX	SFD836LH001	U118, U122	2
SAW RX	SFD881LH001	U121	1
DUPLEXER	DFX0836H0881A	U102	1
DIODE(VARACTOR)	1SV281	D104, D105, D106, D107	4
DIODE (EMD 3PIN)	DAN222 TL	D404	1
DIODE (EMD 3PIN)	DA221 TL	D405	1
DIODE	HSMS-2825	D101	1
DIODE (Schottery Barrier)	HSMP3895	D102	1

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NXC-3200 Part List

DESCRIPTION	PART NUMBER	LOCATION	Q'ty
DIODE	HSMP389F	D103	1
TR (EMT3)	DTC144EE TL	Q403, Q404, Q5, Q12, Q402, Q9	6
TR	UMC4N	Q101, Q103, Q104, Q2, Q5, Q102	6
TR	UNT2907	Q3, Q401	2
TR	DTA144TE	Q7, Q11, Q1, Q4, Q8	6
TR	UNT2222	Q406, Q407, Q408, Q409	4
TR	2SC4617	Q13, Q14	2
TR(OP-AMP)	1G34ECTTR	U113, U116	2
LPF	LP0805A0965AMTR	U110	1
EAR JACK	LGY3319-0111	U407	1
MOTOR CON.	24-8005-002-100-867	U405	1
SPEAKER CON.	24-8005-002-100-867	U404	1
EMI FILTER	KNH21104	L3, L405	2
VOLTAGE SUPPRESS	VC060305A150R	VS401, 402, 403, 404, 405	5
I/O CONNECTOR 22PIN	AXR33204701	U408	1
BEAD COIL	EXC3BB221	L111, L116, L401, L403, L404, L407, L408, L510, L6	9
BEAD COIL	EXC3BB102	L113, L118	2
ANT CONTACT		ANT1	1
BUZZER	SMT-9403EF-2	U406	1
SIDE SWITCH	EVQPUK	SW4, SW15, SW17	3
B'd to B'd CONNECTOR	AXK5F20545J	U409	1
RF SWITCH	MS-136	U101	1
32.768KHz	CM100S	X301	1
BEADS(0805)	HB-1M2012-102	L409, L511, L4	3
14.725MHz Crystal	CS-10	Y1	1
12M RESONATOR	CSTCV_MTJ12.0M	X502	1
CAP, 1005 1pF	GRM36 COG 010D50	C204	1
CAP, 1005 1.5pF	GRM36 COG 1R5C 50PN	C164	1
CAP, 1005 2pF	GRM36 COG 020D 50PN	C195	1
CAP, 1005 4pF	GRM36 COG 040C 50PN	C109, C197	2
CAP, 1005 4.7pF	GRM36 COG 4R7D 50PN	C41	1
CAP, 1005 6pF	GRM36 COG 060D 50PN	C118, C124, C120	3
CAP, 1005 9pF	GRM36 COG 090D 50PN	C42, C110, C221, C2	4
CAP, 1005 10pF	GRM36 COG 100J 50PN	C178, C215, C187, C219	4
CAP, 1005 12pF	GRM36 COG 120J 50PN	C13, C39	2
CAP, 1005 15pF	GRM36 COG 150J 50PN	C311, C312	2
CAP, 1005 22pF	GRM36 COG 220J 50PN	C515, C516, C541, C542	4
CAP, 1005 27pF	GRM36 COG 270J 50PN	C212, C216, C217, C309, C310, C415, C416, C425 C426	9
CAP, 1005 30pF	GRM36 COG 300J 50PN	C32	1
CAP, 1005 56pF	GRM36 COG 680J 50PN	C116	1

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NXC-3200 Part List

DESCRIPTION	PART NUMBER	LOCATION	Q'ty
CAP, 1005 68pF	GRM36 COG 680J 50PN	C176, C177	2
CAP, 1005 100pF	GRM36 COG 101J 50PN	C103, C107, C111, C115, C146, C147, C148, C149, C162 C163, C199, C200, C201, C202, C205, C207, C208, C211 C228, C214, C141, C31, C443, C51	24
CAP, 1005 1NF	GRM36 X7R 102K 50PN	C14, C15, C150, C151, C152, C153, C179, C182, C188 C188, C189, C192, C196, C198, C213, C218, C44, C186 C122, C123, C190, C191, C435, C127, C514, C518, C102	27
CAP, 1005 100NF	GRM36 Y5V 104Z 16PN	C16, C17, C112, C126, C129, C130, C430, C183, C313, C315, C319, C320, C326, C8, C23, C45, C321, C401, C404, C408 C411, C432, C500, C501, C521, C522, C544 C10, C22, C144, C185, C18, C19, C20, C414	35
CAP, 1005 10NF	GRM36 X7R 103K 16PN	C36, C105, C108, C114, C128, C132, C133, C134 C136, C137, C138, C139, C140, C154, C155, C156, C157 C165, C170, C171, C172, C173, C174, C175, C193, C301 C302, C303, C304, C305, C306, C307, C308, C314, C324 C460, C545, C206, C166, C167, C428, C509 C169, C224, C220, C125	45
CAP, 1005 150pF	GRM36 X7R 151J 50PN	C113	1
CAP, 1005 220pF	GRM36 X7R 221K 50PN	C519	1
CAP, 1005 270pF	GRM36 X7R 271K 50PN	C7, C526	2
CAP, 1005 470pF	GRM36 X7R 471K 50PN	C180, C317, C420, C421, C422, C423, C424, C406 C437, C441, C481, C439	12
CAP, 1005 560pF	GRM36 X7R 561K 50PN	C3, C5	2
CAP, 1005 2.2nF	GRM36 X7R 222K 50PN	C520	1
CAP, 1005 22nF	GRM36 Y5V 223Z 25PN	C101, C104, C158, C194, C145, L103	6
CAP, 0603 1uF	GRM36 Y5V 105K 50PN	C444, C445, C446, C447, C448, C449, C450, C451, C452	9
CAP, 1005 47pF	GRM36 X7R 470J 50PN	C117	1
CAP, 1005 470nF	GRM39 Y5V 474Z 10PN	C181, C159	2
TANTAL (4.7u/6.3V)	TA-6R3TCML4R7M-PR	C131, C184, C434, C480, C431, C436, C438, C440, C442, C510, C517	11
TANTAL (10u/6.3V)	TA-6R3TCML100M-PR	C106, C327, C433, C161, C46, C4, C12 C48, C402, C462, C463, C511, C512, C513, C543	15
TANTAL (22u/10V)	TA-010TRL220M-B2R	C203, C419	2
TANTAL (33u/6.3V)	TA-010TRL330M-B2R	C318	1
TANTAL (1u/6.3V)	TA-6R3TCML010M-PR	C429	1
THERMISTOR	NB21M00473	R131	1
RES, 1005 0ohm	ERJ2GEJ0R00	R21, R27, R106, R56, R57, R14, R78	7
RES, 1005 10ohm	ERJ2GEJ100	R411, R423, R425, R427	4
RES, 1005 12ohm 1%	ERJ2RKF0120	R24, R168	2
RES, 1005 20ohm	ERJ2GEJ200	R156	1

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NXC-3200 Part List

DESCRIPTION	PART NUMBER	LOCATION	Q'ty
RES, 1005 22ohm	ERJ2GEJ220	R119, R107	2
RES, 1005 47ohm	ERJ2GEJ470	R509, R510	2
RES, 1005 49.9ohm 1%	ERJ2RKF49R9	R124, R183	2
RES, 1005 82ohm	ERJ2GEJ820	R25	1
RES, 1005 100ohm	ERJ2GEJ101	R105, R118, R122, R313, R314, R315	6
RES, 1005 150ohm	ERJ2GEJ151	R460, R461	2
RES, 1005 300ohm	ERJ2GEJ301	R522, R540, R112	3
RES, 1005 301ohm 1%	ERJ2RKF3010	R162	1
RES, 1005 330ohm	ERJ2GEJ331	R155, R303, R43	3
RES, 1005 470ohm	ERJ2GEJ471	R416, R417, R418, R419, R421, R42, R142	7
RES, 1005 510ohm	ERJ2GEJ511	R149, R150	2
RES, 1005 665ohm 1%	ERJ2KRF6650	R103, R137	2
RES, 1005 1Kohm	ERJ2GEJ102	R28, R101, R159, R304, R76, R327, R432, R108, R59	9
RES, 1005 1Kohm 1%	ERJ2RKF1001	R154, R161	2
RES, 1005 1.1Kohm 1%	ERJ2RKF112	R160	1
RES, 1005 1.2Kohm	ERJ2GEJ122	R109	1
RES, 1005 1.5Kohm	ERJ2GEJ152	R511, R512	2
RES, 1005 1.8Kohm	ERJ2GEJ182	R135, R326	2
RES, 1005 2Kohm	ERJ2GEJ202	R75, R102	2
RES, 1005 2.4Kohm	ERJ2GEJ242	R50, R51, R111	3
RES, 1005 2.7Kohm	ERJ2GEJ272	R117	1
RES, 1005 3Kohm	ERJ2GEJ302	R402, R413	2
RES, 1005 3.3Kohm	ERJ2GEJ332	R330	1
RES, 1005 3.6Kohm	ERJ2GEJ362	R110	1
RES, 1005 3.9Kohm	ERJ2GEJ392	R114, R120, R141	3
RES, 1005 4Kohm	ERJ2GEJ402	R16, R30, R32, R145, R409	4
RES, 1005 4.3Kohm	ERJ2GEJ432	R7	1
RES, 1005 4.7Kohm	ERJ2GEJ472	R422	1
RES, 1005 4.7Kohm 1%	ERJ2RKF472	R308, R309	2
RES, 1005 6.19Kohm 1%	ERJ2RKF622	R26	1
RES, 1005 7.5Kohm	ERJ2GEJ752	R4, R5, R6, R10, R12, R518, R519, R521	8
RES, 1005 8Kohm	ERJ2GEJ802	R153, R424	2
RES, 1005 10Kohm	ERJ2GEJ103	R115, R116, R133, R134, R302, R306, R307, R415, R548, R33, R41, R54, R55, R60, R61, R62, R63 R65, R66, R67, R69, R71, R72, R73, R74, R64 R157, R410, R441, R543, R544, R545, R546, R515, R547, R13, R58, R53, R11, R325	40
RES, 1005 10Kohm 1%	ERJ2RKF1002	R166, R130, R132	3
RES, 1005 18Kohm 1%	ERJ2RKF1802	R127	1
RES, 1005 19.1Kohm 1%	ERJ2RKF1912	R136	1
RES, 1005 20Kohm	ERJ2GEJ203	R31, R425	2

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DESCRIPTION	PART NUMBER	LOCATION	Q'ty
RES, 1005 20Kohm 1%	ERJ2RKF2002	R3, R147, R148	3
RES, 1005 22.1Kohm 1%	ERJ2RKF2212	R164, R165	2
RES, 1005 25Kohm	ERJ2GEJ2512	R143	1
RES, 1005 30Kohm	ERJ2GEJ303	R19, R40, R29, R68, R70, R310	6
RES, 1005 47Kohm	ERJ2GEJ473	R20, R311, R549, R550, R551	5
RES, 1005 62Kohm 1%	ERJ2RKF6202	R15, R138	1
RES, 1005 80.6Kohm 1%	ERJ2RKF8062	R128	1
RES, 1005 100Kohm	ERJ2GEJ104	R17,R52, R305, R467, R18, R505, R506 R508, R530, R531, R324, R507	12
RES, 1005 100Kohm 1%	ERJ2RKF1003	R139, R140	2
RES, 1005 130Kohm	ERJ2GEJ134	R144	1
RES, 1005 150Kohm 1%	ERJ2RKF1503	R126	1
RES, 1005 174Kohm 1%	ERJ2RKF1743	R146	1
RES, 1005 300Kohm	ERJ2GEJ304	R436	1
RES, 1005 470Kohm	ERJ2GEJ474	R157, R431	2
RES, 1005 649Kohm 1%	ERJ2RKF6493	R129	1
RES, 1005 1Mohm	ERJ2GEJ304	R22, R23	2
RES, 1005 1.5Mohm	ERJ2GEJ155	R435	1
COIL, 0805, 27nH, HIGH Q	0805HQ-027G_01	L160	1
COIL, 0603, 27nH, 2%	0603AD-027G_01	L117	1
COIL, 0603, 68nH, 2%	0603AD-068G_01	L112	1
COIL, 0603, 180nH, 5%	0603A-R18J_01	L106, L107, L110	3
COIL, 0603, 270nH, 5%	0603A-R27J_01	L119, L120	2
INDUCTOR, 1005, 1nH	ELIRF1N0DF	L130	1
INDUCTOR, 1005, 1.8nH	ELIRF1N8DF	L128, L1	1
INDUCTOR, 1005, 6.8nH	ELIRF6N8DF	L115	1
INDUCTOR, 1005, 8.2nH	ELIRF8N2JF	L114	2
INDUCTOR, 1005, 10nH	ELIRF10NJF	L122, L129, R124	3
INDUCTOR, 1005, 12nH	ELIRF12NJF	L102, L121, L5	2
INDUCTOR, 1005, 15nH	ELIRF15NJF	L127	1
INDUCTOR, 1005, 27nH	ELIRF27NJF	L104	1
COIL, 0805, 560nH	0805A-R56J_01	L108	1
COIL, 0805, 390nH	0805A-R39J_01	L109	1
INDUCTOR, 1005, 39nH	ELIRF39NJF	L105	1
INDUCTOR, 1005, 47nH	ELIRF47NJF	L131	1
INDUCTOR, 0603, 100nH	ELIRE101JF	L101	1
ESD PROTECTOR	ESDA6V1W5	ESD1	1
LCD	TCM-A1202	U403	1
MMC CONNECTOR		U505	1
PCB, KEY PAD	FR-4 0.5t	PCB2	1
LED	SLSNWYG102TS	LED2, LED3, LED4, LED5, LED6, LED9, LED10, LED11 LED12, LED13	10

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DESCRIPTION	PART NUMBER	LOCATION	Q'ty
CONNECTOR 20PIN	AXK6F20345J	U601	1
MIC	MM-54PCX	U600	1
SPEAKER ASS'Y	U23SS4WC		1
MOTOR ASS'Y	FM-114K2-B2HIS		1
ANTENNA ASS'Y	2016-1-0000		1
EARPIECE	U1332P1		1
DNI		U11, U12, U13, U14, U111, Q10 L2, L406 C1, C11, C21, C24, C25, C26, C27, C28, C29 C30, C33, C34, C35, C36, C37, C40, C43 C47, C49, C209, C210, C453, C456 R1, R2, R5, R9, R34, R35, R36, R37, R38, R39, R44, R45, R46, R47, R48, R49, R50 R124, R201, R301, R414, R420, R430	54

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