APPLICANT: CHERISH TELECOM CO., LTD.
FCC ID: FNXCS201

TABLE OF CONTENTS

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TEST EQUIPMENT LIST

1._X_Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/ preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter HP 8565OA, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02, S/N 3008A00372 Cal. 10/17/99
2._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057
3.___Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171
4._X_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
5.___Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409
6.___Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319
7.___18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20
8.___Horn 40-60GHz: ATM Part #19-443-6R
9.___Line Impedance Stabilization Network: Electro-Metrics Model ANS-25/2, S/N 2604 Cal. 2/9/00
10.___Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
11.___Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99
12.___Peak Power Meter: HP Model 8900C, S/N 2131A00545
13._X_Open Area Test Site #1-3meters Cal. 12/22/99
14.___Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
15.___Signal Generator: HP 8614A, S/N 2015A07428
16.___Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N 9706-1211 Cal. 6/10/00
17.___Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153 Cal. 11/24/99
18.___AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
19.___Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
20.___Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
21.___Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99

TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal data transmission on a network.

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-1992 using a 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The ambient temperature of the UUT was 84oF with a humidity of 56%.

TEST PROCEDURE CONTINUED

BANDWIDTH 6.0dB: The measurements were made withe the spectrum analyzer's resolution bandwidth(RBW)=1.0MHz and the video bandwidth(VBW) =3.0MHz and the span set as shown on plot.

POWER OUTPUT: The RF power output was measured at the antenna feed point using a peak power meter.

ANTENNA CONDUCTED EMISSIONS: The RBW=100KHz, VBW=300KHz and the span set to 10.0MHz and the spectrum was scanned from 30MHz to the 10th Harmonic of the fundamental. Above 1.0GHz the resolution bandwidth was 1.0MHz and the VBW = 3.0MHz and the span to 50MHz.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth(RBW) of the spectrum analyzer was 100kHz up to 1GHz and 1.0MHz above 1GHz with an appropriate sweep speed. The VBW above 1.0GHz was = 3.0MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 84oF with a humidity of 56%.

PRODUCT DESCRIPTION:

The FNXCS201 is a direct sequence spread spectrum cordless telephone radio that operates in the 904-924 MHz band with Caller ID. The antenna used for the base and the handset is permanently attached to the UUT. Its actual frequency range is;

Channel #1	904.20 MHz	Lowest
Channel #20	925.80 MHz	Highest

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SECURITY CODING INFORMATION

15.214(d) - THIS DEVICE COMPLIES WITH THE SECURITY CODE REQUIREMENTS OF 15.214(d)(1)(2) AND (3) BY MEANS OF THE FOLLOWING:

The scrambler/descrambler is a 16-bit maximum length PN sequence generator. Its output is XOR'ed with TX data for scrambling and XOR'ed with RX data for descrambling. The voice and supervisory bits are scrambled. The PN sequence generator's staring location is programmable using one memory mapped register along with the two ID registers. This starting location is used to initialize the PN generator at the star of each link. The MSB of the PN generator is used to scramble/descramble. The first frame bit scrambled/descrambled uses the initialized value of the MSB. A 32 bit ID word (16-bit programmable) is used during acquisition to verify the RF link and initialize frame timing.

When the System Manager determines that a link needs to be established, it calls the routine "user Establish Link. The proprietary code will perform all actions necessary to set up a link. This includes link access protocol (finding the correct channel to contract the far unit and authenticating the far unit via the security ID code, channel hopping due to interference and fading, and power control), and data flow control. If a link is not available, audio data is discarded until the link becomes available. For control data and FACCH data, the data will be preserved until the link is re-established. The formatting of the audio and data is performed automatically. To release a link, the programmer uses a call to the route Release Link.

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NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NUMBER: 15.107(a)

REQUIREMENTS: .45 - 30 MHz 250 uV OR 47.96 dBuV

TEST PROCEDURE: ANSI STANDARD C63.4-1992. The spectrum was scanned from .45 to 30 MHz.

TEST DATA:

THE HIGHEST EMISSION READ FOR LINE 1 WAS 16.962 uV @ 28.94 MHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 9.988 uV @ 28.94 MHz

THE GRAPHS IN EXHIBITS 13A-13B REPRESENT THE EMISSIONS TAKEN FOR THIS DEVICE.

TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

NAME OF TEST: 6.0dB BANDWIDTH

RULES PART NUMBER: 15.247(a)(2)

REQUIREMENTS: The 6.0dB bandwidth must be greater than 500KHz.

MEASUREMENT: The 6.0dB bandwidth measured @ 904.20 MHz was 1.42 MHz for the base.

The 6.0dB bandwidth measured @ 904.20 MHz was 1.51 MHz for the handset

MEASUREMENT DATA: The 6dB bandwidth was measured a the Low end of band, middle of band, and the high end of the band for both the handset & the base unit. See Plots in Exhibits #14 A-F,

NAME OF TEST: POWER OUTPUT

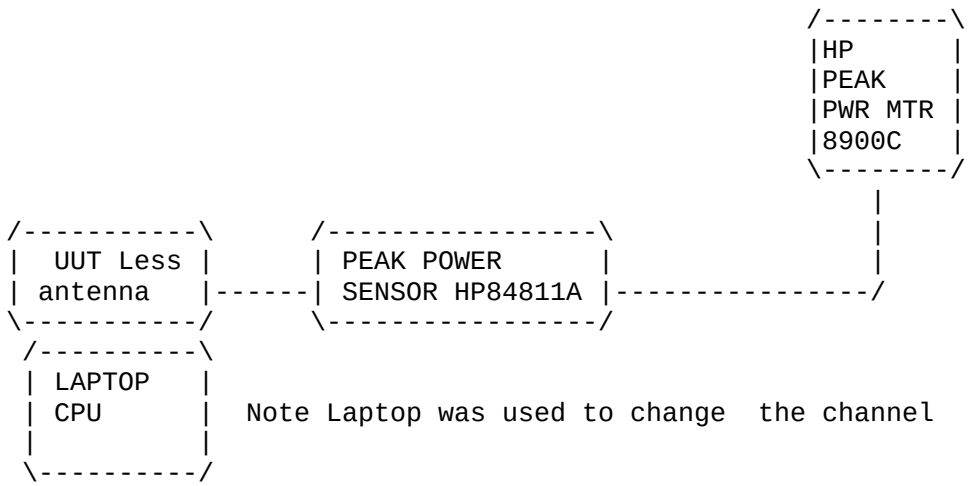
RULES PART NUMBER: 15.247(b) 1.0Watt or +30dBm

MEASUREMENT:

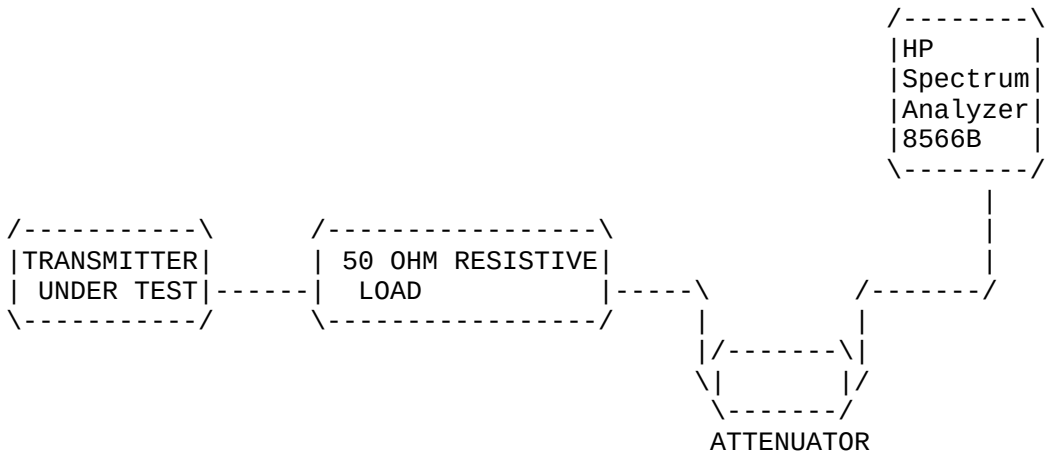
Channel No.	Power Output milliwatts	Unit
1	20.0	Base
10	18.0	Base
20	17.0	Base
1	18.0	Handset
10	18.0	Handset
20	20.0	Handset

15.247(c) Method of Measuring RF Power output:

The antenna was disconnected and a Peak power Sensor was connected in place of the antenna. The Power output was measured a the Low end of band, middle of band, and the high end of the band for both the handset & the base unit.



15.247(c) Method of Measuring RF Conducted Spurious Emissions



NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

REQUIREMENTS: Emissions must be at least 20dB down from the highest emission level within the authorized band as measured with a 100KHz RBW.

	EMISSION FREQUENCY MHz	dB BELOW CARRIER
BASE		
Channel 1	903.70	0.0
base	1808.40	-48.5
	7212.0	-59.9
channel 10	913.90	0.0
	1828.80	-49.3
Channel 20	925.30	0.0
	1851.60	-47.8
HANDSET		
Channel 1	906.70	0.0
	1814.40	-47.7
Channel 10	918.70	0.0
	1838.40	-59.6
Channel 20	925.30	0.0
	1851.60	-56.3

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

APPLICANT: CHERISH TELECOM CO., LTD.
FCC ID: FNXCS201
DATE: OCTOBER 26, 2000
REPORT #: T:\CUS\C\CHERISH\246ZK0\246zk0rpt.doc

15.247(c),15.205 &15.209(b) Field strength of spurious emissions:

REQUIREMENTS:

FIELD STRENGTH OF FUNDAMENTAL:	FIELD STRENGTH OF HARMONICS	S15.209
		30 - 88 MHz 40 dBuV/m @3M
902-928 MHz		88 -216 MHz 43.5
2.4-2.4835GHz		216 -960 MHz 46
127.38dBuV/m @3m	54 dBuV/m @3m	ABOVE 960 MHz 54

REQUIREMENTS: Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

TEST DATA:

EMISSION FREQUENCY MHz	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRENGTH dBuV/m	FCC. LIMIT dB	MARGIN dB	ANT.
BASE TUNED FREQUENCY 904.20							
903.70	62.80	2.90	24.19	89.89	127.38	37.49	H
1808.40	31.30	1.00	27.23	59.53	69.89	10.36	V
2712.30R	17.00	1.14	29.78	47.92	54.00	6.08	V
3616.80R	4.80	1.27	32.04	38.11	54.00	15.89	V
5425.20R	14.40	1.54	34.60	50.55	54.00	3.45	V
BASE TUNED FREQUENCY 916.80							
916.30	62.80	2.90	24.13	89.83	127.38	37.55	V
1833.60	23.90	1.01	27.33	52.24	69.83	17.59	H
2750.10R	15.60	1.14	29.88	46.62	54.00	7.38	V
3667.20R	4.80	1.28	32.17	38.25	54.00	15.75	V
5500.80	11.50	1.56	34.69	47.74	54.00	6.26	V
BASE TUNED FREQUENCY 924.00							
923.70	61.70	2.90	24.11	88.71	127.38	38.67	V
1848.00	32.40	1.01	27.39	60.80	68.71	7.91	V
2771.50R	14.90	1.15	29.93	45.97	54.00	8.03	V
3696.00R	5.40	1.28	32.24	38.92	54.00	15.08	V
5544.00R	11.90	1.56	34.74	48.20	54.00	5.80	V

15.247(c),15.205 &15.209(b) Field strength of spurious emissions:

REQUIREMENTS:

FIELD STRENGTH OF FUNDAMENTAL:	FIELD STRENGTH OF HARMONICS	S15.209
		30 - 88 MHz 40 dBuV/m @3M
902-928 MHz		88 -216 MHz 43.5
2.4-2.4835GHz		216 -960 MHz 46
127.38dBuV/m @3m	54 dBuV/m @3m	ABOVE 960 MHz 54

REQUIREMENTS: Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

TEST DATA:

EMISSION FREQUENCY MHz	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRENGTH dBuV/m	FCC. LIMIT dB	MARGIN dB	ANT.
HANDSET TUNED FREQUENCY 925.20							
924.80	64.80	2.90	24.10	91.80	127.38	35.38	V
1850.40	16.50	1.01	27.40	44.91	71.80	26.89	V
2775.70R	12.90	1.15	29.94	43.99	54.00	10.01	H
3700.80R	6.40	1.29	32.25	39.94	54.00	14.06	H
4626.40R	1.30	1.42	33.70	36.43	54.00	17.57	H
5551.20	7.30	1.56	34.75	43.61	71.80	28.19	H
6476.40	2.10	1.70	35.79	39.59	71.80	32.21	H
7401.60R	4.30	1.84	36.83	42.97	54.00	11.03	H
HANDSET TUNED FREQUENCY 905.90							
905.50	64.60	2.90	24.18	91.68	127.38	35.70	V
1812.00	17.90	1.00	27.25	46.15	71.68	25.53	V
2718.30R	14.90	1.14	29.80	45.83	54.00	8.17	H
3624.00R	8.00	1.27	32.06	41.33	54.00	12.67	V
4530.30R	4.70	1.41	33.60	39.71	54.00	14.29	H
5436.00R	13.10	1.55	34.62	49.26	54.00	4.74	H
6341.70	4.90	1.68	35.63	42.22	71.68	29.46	H
7248.00	9.70	1.82	36.65	48.17	71.68	23.51	H
HANDSET TUNED FREQUENCY 918.00							
918.20	65.30	2.90	24.13	92.33	127.38	35.05	V
1836.00	16.40	1.01	27.34	44.75	72.33	27.58	V
2754.20R	14.20	1.14	29.89	45.23	54.00	8.77	H
3672.00R	5.10	1.28	32.18	38.56	54.00	15.44	V
4590.00R	0.20	1.42	33.66	35.28	54.00	18.72	H
5508.00	6.70	1.56	34.70	42.95	54.00	11.05	H
6425.70	1.20	1.69	35.73	38.62	72.33	33.71	H
7344.00R	5.00	1.83	36.76	43.59	54.00	10.41	H

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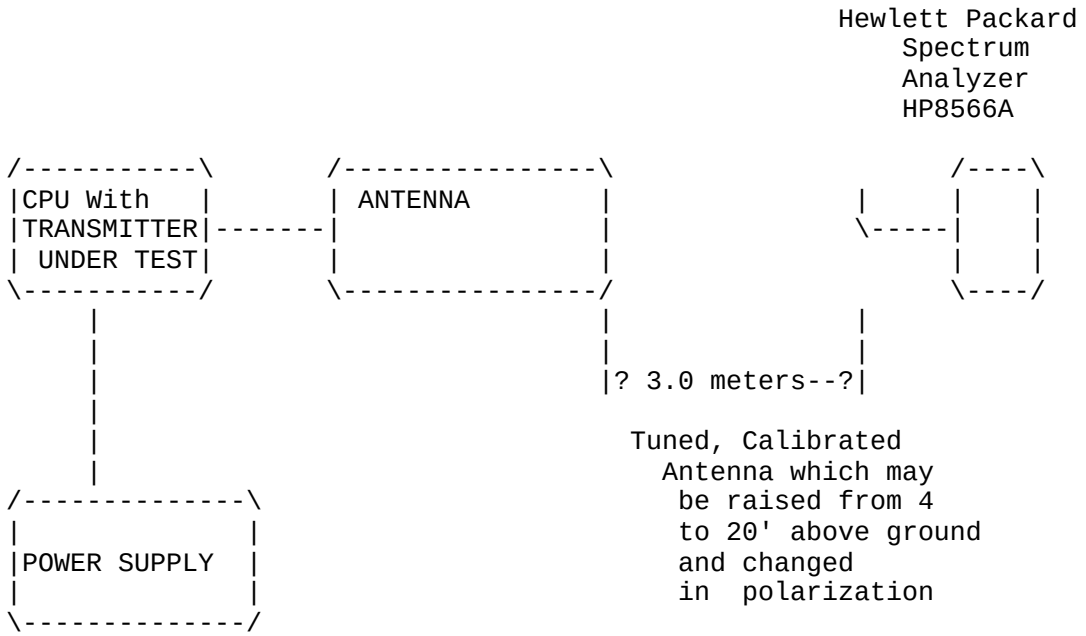
2.993(a)(b)
2.993(a)(b) Continued Field strength of spurious emissions:

METHOD OF MEASUREMENT: The procedure used was ANSI STANDARD C63.4-1992 & the Guidance on Measurements for Direct Sequence Spread Spectrum Systems. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, NEWBERRY, FL 32669.

Method of Measuring Radiated Spurious Emissions



Equipment placed 4' above ground
on a rotatable platform.

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NAME OF TEST: POWER SPECTRAL DENSITY

RULES PART NUMBER: 15.247(d)

REQUIREMENTS: The peak level measured must be no greater than +8.0dBm.

DATA: THE PLOTS ARE SHOWN IN EXHIBITS 15A & 15B.

BASE UNIT The HIGHEST level was at -43.97 dBm

HANDSET The HIGHEST level was at -41.57 dBm

The antenna was disconnected and the output was connected to a coaxial attenuator and to the Spectrum analyzer and the power spectral density was measured a the Low end of band, middle of band, and the high end of the band for both the handset & the base unit. The plots of the power spectral power density for the low end of the band, middle of the band, and the high end of the band for both the handset & the base are attached as exhibit 15 a-f.

RULES PART NUMBER: 15.247(e)

REQUIREMENTS:

DATA: The processing gain information supplied by the manufacturer is 10.0dB.