Lab Code: 200707-0

FCC PART 22H, 24E

TEST REPORT

For

Unical Enterprises, Inc.

16960 Gale Avenue, City of Industry, CA 91745, USA

FCC ID: LZXDM1500C

Report Type:	Product Type:
Original Report	DECT6.0 Cordless Telephone with 3G Cell Phone

Test Engineer:	Bruce Zhang
Report Number:	RSZ110517004-22H&24E
Report Date:	2011-12-16
Reviewed By:	Alvin Huang EMC Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Unical Enterprises, Inc.'s* product, model number: *X1500C-2HS (FCC ID: LZXDM1500C)* (the "EUT") in this report is a DECT6.0 Cordless Telephone with 3G Cell Phone, which was measured approximately: 11.7 cm (L) x 15.0 cm (W) x 3.0 cm (H), rated input voltage: DC 9.5 V from adapter

Adapter information: Switching Power Supply
Model: YJS03-0951500U
Input: 100-240VAC 50/60Hz 500mA
Output: 9.5VDC 1500mA

Note: The series product, model X1500C, X1500C-2HS and X1500 Series are electrically identical, and the differences between them were explained for details in the attached declaration letter. Model X1500C-2HS was selected for fully testing.

** All measurement and test data in this report was gathered from production sample serial number: 1105086 (Assigned by BACL, Shenzhen). The EUT was received on 2011-05-17.*

Objective

This type approval report is prepared on behalf of *Unical Enterprises Inc.* in accordance with Part 2, Subpart J, Part 22 Subpart H, and Part 24 Subpart E of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, band edge and radiated margin.

The CDMA module built into the device is from Sierra Wireless Inc (FCC ID: N7N-MC5728), the manufacturer does not change anything for the module itself, all conducted data of original module can be accurately represented under the new condition in this application, the radiated output power (ERP/EIRP) and the radiated spurious emissions have been investigated by the test lab.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP, Part 15D PUB submissions of base unit with FCC ID: LZXDM1500C.
FCC Part 22H/24E module with FCC ID: N7N-MC5728.
FCC Part 15D PUE submission of handset with FCC ID: LZXDM150HS.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services

Applicable Standards: TIA/EIA 603-C, ANSI C63.4-2009.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2007070.htm

SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to TIA/EIA-603-C.

The Cellular/PCS item test was performed with the EUT operating at normal mode.

Equipment Modifications

No modifications were made to the EUT.

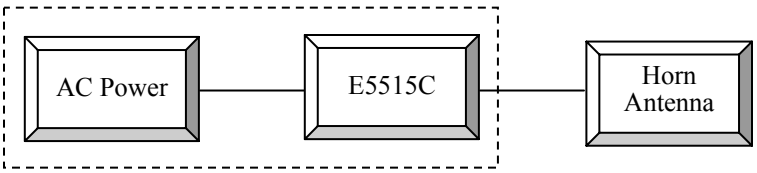
Local Support Equipment List and Details

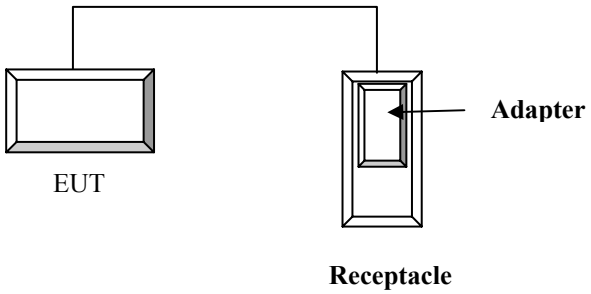
Manufacturer	Description	Model	Serial Number
Agilent	Wireless Communications Test Set	E5515C	N/A

External I/O Cable

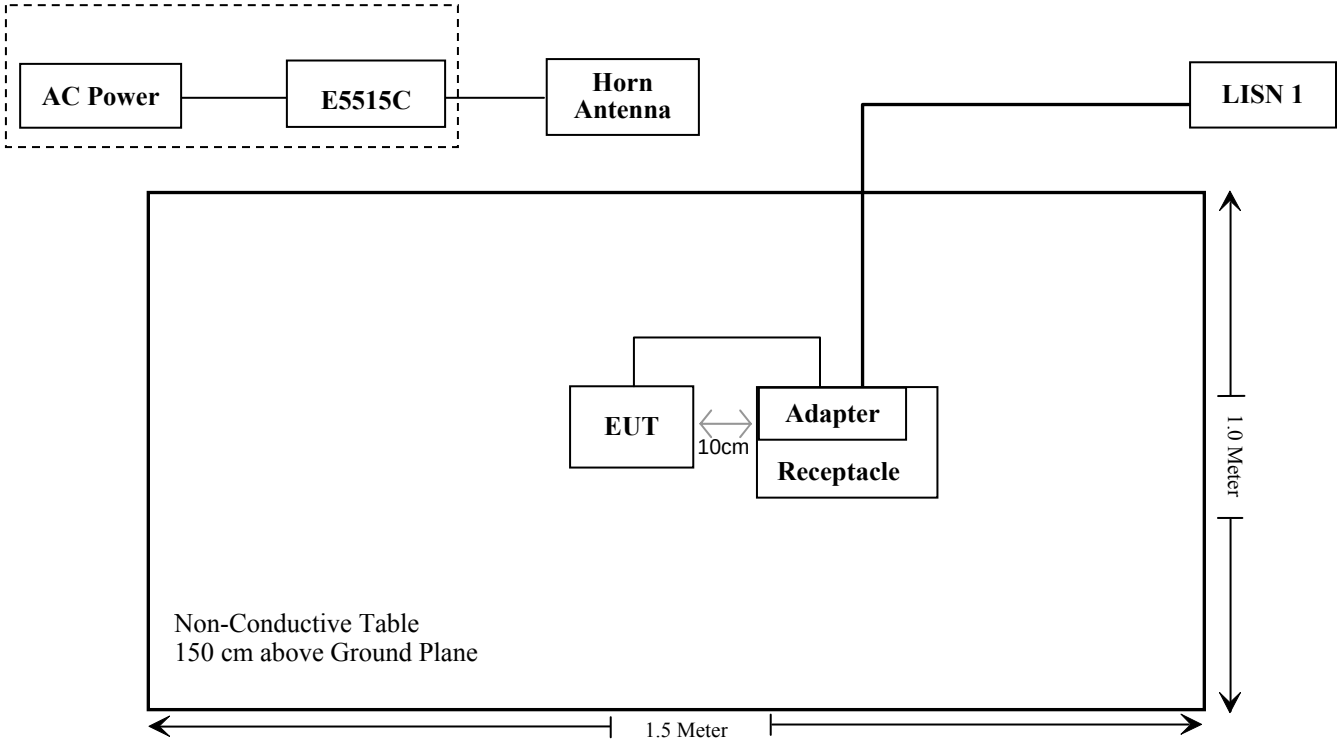
Cable Description	Length (m)	From/Port	To
Unshielded Detectable Power Cable	1.8	Adapter	EUT

Configuration of Test Setup





Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1091	RF Exposure	Compliance
§2.1046; §22.913 (a); §24.232 (c)	RF Output Power	Compliance
§2.1047	Modulation Characteristics	N/A
§2.1049; §22.905 §22.917; §24.238	99% & 26 dB Occupied Bandwidth	Compliance*
§2.1051, §22.917 (a); §24.238 (a)	Spurious Emissions at Antenna Terminal	Compliance*
§2.1053 §22.917 (a); §24.238 (a)	Field Strength of Spurious Radiation	Compliance
§22.917 (a); §24.238 (a)	Out of band emission, Band Edge	Compliance*
§2.1055 §22.355; §24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance*

Note: * Please refer to CDMA module report (FCC ID: N7N-MC5728).

FCC §1.1307 & §2.1091 - RF RADIATION EXPOSURE

Limit

According to FCC KDB 447498, section 7 (ii), The antenna separation distance and MPE compliance boundary requirements that enable all simultaneous transmitting antennas incorporated within the host to comply with MPE limits are specified in the application filing of at least one of the certified transmitters incorporated in the host device.32 In addition, when transmitters certified for portable use are incorporated in a mobile host device the antenna(s) must be ≥ 5 cm from all other simultaneous transmitting antennas. All antennas must be at least 20 cm from users and nearby persons.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	842/f	2.19/f	*(180/f\2\)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

Test Data

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., mW).
G = power gain of the antenna in the direction of interest relative to an isotropic radiator,
The power gain factor is normally numeric gain.
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Band	Frequency (MHz)	EIRP (dBm)	Minimum Distance (cm)	MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Result
Cellular	824.70	24.15	20	0.052	0.55	Pass
PCS	1851.25	21.27	20	0.027	1.0	Pass
UPCS	1924.992	19.04	20	0.016	1.0	Pass

Note: 1) The distance between DECT antenna and Cellular/PCS antenna is 10.5 cm > 5 cm.
2) The minimum distance between antennas of product and nearby person is 20 cm.

Result: The device meets FCC MPE limit at 20 cm distance.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC §2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC §2.1046, §22.913 (a) & §24.232 (c) - RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications..

Test Procedure

Radiated method:

TIA 603-C section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-01
HP	Synthesized Sweeper	8341B	2624A00116	2010-11-07	2011-11-06
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-24
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-16

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Bruce Zhang on 2011-10-09.

Conducted Output Power: Please refer to FCC ID: N7N-MC5728.

Radiated Output Power (ERP/EIRP):

Cellular Band (Part 22H)

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBd)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H	
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				Limit (dBm)	Margin (dB)
1xEVDO												
824.7	93.27	170	1.8	H	824.7	14.8	H	0	0.5	14.3	38.45	24.15
824.7	102.58	75	1.5	V	824.7	22.4	V	0	0.5	21.9	38.45	16.55
836.52	93.05	160	1.9	H	836.52	14.6	H	0	0.5	14.1	38.45	24.35
836.52	102.31	75	1.5	V	836.52	22.1	V	0	0.5	21.6	38.45	16.85
848.31	92.64	160	1.8	H	848.31	14.2	H	0	0.5	13.7	38.45	24.75
848.31	101.37	75	1.5	V	848.31	21.3	V	0	0.5	20.8	38.45	17.65
1xRTT												
824.7	93.66	170	1.8	H	824.7	15.1	H	0	0.5	14.6	38.45	23.85
824.7	102.68	75	1.5	V	824.7	22.5	V	0	0.5	22.0	38.45	16.45
836.52	93.43	160	1.9	H	836.52	14.8	H	0	0.5	14.3	38.45	24.15
836.52	102.45	75	1.5	V	836.52	22.3	V	0	0.5	21.8	38.45	16.65
848.31	92.87	160	1.8	H	848.31	14.3	H	0	0.5	13.8	38.45	24.65
848.31	101.92	75	1.5	V	848.31	21.8	V	0	0.5	21.3	38.45	17.15

PCS Band (Part 24E)

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 24E	
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				Limit (dBm)	Margin (dB)
1xEVDO												
1851.25	84.33	171	1.3	H	1851.25	12.2	H	6.3	1.03	17.47	33	15.53
1851.25	85.67	152	1.5	V	1851.25	15.8	V	6.3	1.03	21.07	33	11.93
1880	84.09	180	2.3	H	1880	11.9	H	6.3	1.06	17.14	33	15.86
1880	85.48	180	2.3	V	1880	15.6	V	6.3	1.06	20.84	33	12.16
1908.75	84.12	138	1.5	H	1908.75	12	H	6.3	1.06	17.24	33	15.76
1908.75	85.37	204	1.7	V	1908.75	15.5	V	6.3	1.06	20.74	33	12.26
1xRTT												
1851.25	84.62	180	2.3	H	1851.25	12.5	H	6.3	1.03	17.77	33	15.23
1851.25	85.89	180	2.3	V	1851.25	16	V	6.3	1.03	21.27	33	11.73
1880	84.31	180	2.3	H	1880	12.2	H	6.3	1.06	17.44	33	15.56
1880	85.86	180	2.3	V	1880	15.9	V	6.3	1.06	21.14	33	11.86
1908.75	84.08	180	2.3	H	1908.75	12	H	6.3	1.06	17.24	33	15.76
1908.75	85.33	180	2.3	V	1908.75	15.5	V	6.3	1.06	20.74	33	12.26

FCC §2.1049, §22.917, §22.905 & §24.238 - OCCUPIED BANDWIDTH

Applicable Standard

FCC §2.1049, §22.917, §22.905 and §24.238.

Test Data

Please refer to FCC ID: N7N-MC5728.

FCC §2.1051, §22.917(a) & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

FCC §2.1051, §22.917(a) and §24.238(a).

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Data

Please refer to FCC ID: N7N-MC5728.

FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917 and § 24.238.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-01
HP	Synthesized Sweeper	8341B	2624A00116	2010-11-07	2011-11-06
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-24
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-16

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0kPa

The testing was performed by Bruce Zhang on 2011-10-09.

Test mode: Transmitting

Cellular Band (Part 22H)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
CDMA 1x EVDO Mode Middle Channel											
40.0	36.3	180	1.1	V	40.0	-59.8	0	0.24	-60.04	-13	47.04
208.0	35.2	300	1.1	V	208.0	-60.2	0	0.29	-60.49	-13	47.49
208.0	31.3	160	1.1	H	208.0	-63.6	0	0.29	-63.89	-13	50.89
40.0	30.8	120	1.0	H	40.0	-64.3	0	0.24	-64.54	-13	51.54
CDMA 1xRTT Middle Channel											
40.0	36.4	186	2.1	V	40.0	-59.8	0	0.24	-60.04	-13	47.04
208.0	35.3	307	1.6	V	208.0	-60.2	0	0.29	-60.49	-13	47.49
40.0	31.5	153	1.0	H	40.0	-63.6	0	0.24	-63.84	-13	50.84
208.0	31.2	164	1.1	H	208.0	-63.7	0	0.29	-63.99	-13	50.99

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
CDMA 1x EVDO Mode Middle Channel											
1673.04	54.49	190	1.8	V	1673.04	-45.8	6.2	0.94	-40.54	-13	27.54
1673.04	48.40	280	2.0	H	1673.04	-55.1	6.2	0.94	-49.84	-13	36.84
2509.56	36.33	210	1.2	H	2509.56	-65.1	7.3	1.19	-58.99	-13	45.99
2509.56	35.37	150	1.4	V	2509.56	-68.1	7.3	1.19	-61.99	-13	48.99
CDMA 1xRTT Middle Channel											
1673.04	54.92	186	2.1	V	1673.04	-45.3	6.2	0.94	-40.04	-13	27.04
1673.04	47.77	153	1.0	H	1673.04	-55.7	6.2	0.94	-50.44	-13	37.44
2509.56	35.82	164	1.1	H	2509.56	-65.6	7.3	1.19	-59.49	-13	46.49
2509.56	36.22	307	1.6	V	2509.56	-67.2	7.3	1.19	-61.09	-13	48.09

PCS Band (Part 24E)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
CDMA 1x EVDO Mode Middle Channel											
40.0	36.1	200	1.0	V	40.0	-60.0	0	0.24	-60.24	-13	47.24
208.0	34.8	300	1.0	V	208.0	-60.6	0	0.29	-60.89	-13	47.89
208.0	31.5	180	1.0	H	208.0	-63.4	0	0.29	-63.69	-13	50.69
40.0	30.6	180	1.0	H	40.0	-64.5	0	0.24	-64.74	-13	51.74
CDMA 1xRTT Middle Channel											
40.0	35.9	186	1.1	V	40.0	-60.3	0	0.24	-60.54	-13	47.54
208.0	35.0	307	1.0	V	208.0	-60.5	0	0.29	-60.79	-13	47.79
208.0	31.1	164	1.1	H	208.0	-63.7	0	0.29	-63.99	-13	50.99
40.0	30.8	153	1.0	H	40.0	-64.3	0	0.24	-64.54	-13	51.54

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
CDMA 1x EVDO Mode Middle Channel											
3760	44.81	185	2.0	H	3760	-49.7	6.9	1.47	-44.27	-13	31.27
3760	43.08	200	1.4	V	3760	-51.3	6.9	1.47	-45.87	-13	32.87
5640	37.87	30	1.8	V	5640	-53.8	8.3	1.76	-47.26	-13	34.26
5640	36.29	185	2.0	H	5640	-57.0	8.3	1.76	-50.46	-13	37.46
CDMA 1xRTT Middle Channel											
3760	43.80	278	2.5	H	3760	-50.8	6.9	1.47	-45.37	-13	32.37
3760	43.52	196	2.4	V	3760	-50.8	6.9	1.47	-45.37	-13	32.37
5640	36.46	350	1.9	H	5640	-56.8	8.3	1.76	-50.26	-13	37.26
5640	34.68	178	1.5	V	5640	-57.0	8.3	1.76	-50.46	-13	37.46

FCC §22.917(a) & §24.238(a) - BAND EDGES

Applicable Standard

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Test Data

Please refer to FCC ID: N7N-MC5728.

FCC §2.1055, §22.355 & §24.235 - FREQUENCY STABILITY

Applicable Standard

FCC §2.1055 (a), §2.1055 (d), §22.355, §24.235

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to FCC §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Data

Please refer to FCC ID: N7N-MC5728.

PRODUCT SIMILARITY DECLARATION LETTER

UNICAL
ENTERPRISES, INC.
Tel.: 626-9655588 Fax.: 626-9122258

Product Similarity Declaration

To Whom It May Concern,

We, Unical Enterprises Inc. hereby declare that our (Product Name:DECT6.0 cordless telephone with 3G cell phone), Model Number: X1500C and X1500 Series are electrically identical with the Model Number: X1500C-2HS that was certified by BACL.

The only difference between X1500C-2HS and X1500C and X1500 Series is that:
1. X1500C-2HS contains two multiple handsets in the same box
2. X1500C contains only one cordless handset in the same box
3. X1500 Series contains only one cordless handset in the box without Baseunit

This is just package configuration difference and there are no electrically different components or uncertified products contained

Please contact me if you have any question.

Signature:
Andy Chung
Assistant to the president
Date:2011-10-18

16960 Gale Avenue, City of Industry, California 91745

******* END OF REPORT *******