

Cybiotronics Limited

Application  
For  
Certification

2.4GHz 92 Channel Direct Sequence Spread Spectrum Cordless Phone  
with Caller ID and Speakerphone

**(FCC ID: CAC373001)**

04089681  
TL/Ann Choy  
March 16, 2005

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report shall not be reproduced except in full without prior authorization from Intertek Testing Services Hong Kong Limited.
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

**Intertek Testing Services Hong Kong Ltd.**

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

Tel: (852) 2173 8888 Fax: (852) 2741 1693 Website: [www.hk.intertek-etlsemko.com](http://www.hk.intertek-etlsemko.com)

## LIST OF EXHIBITS

### *INTRODUCTION*

<i>EXHIBIT 1:</i>	Summary of Tests
<i>EXHIBIT 2:</i>	General Description
<i>EXHIBIT 3:</i>	System Test Configuration
<i>EXHIBIT 4:</i>	Measurement Results
<i>EXHIBIT 5:</i>	Equipment Photographs
<i>EXHIBIT 6:</i>	Product Labelling
<i>EXHIBIT 7:</i>	Technical Specifications
<i>EXHIBIT 8:</i>	Instruction Manual
<i>EXHIBIT 9:</i>	Security Code Information
<i>EXHIBIT 10:</i>	Confidentiality Request

# INTERTEK TESTING SERVICES

## MEASUREMENT/TECHNICAL REPORT

**Cybiotronics Limited- MODEL: CY-373(XXX), BS-373(XXX), SBC373(XXX),  
CYBIOLINK 373(XXX), CY-373B(XXX),  
BS-373B(XXX), SBC373B(XXX),  
CYBIOLINK 373B(XXX), CY-371(XXX), BS-371(XXX),  
SBC371(XXX), CYBIOLINK 371(XXX)**

**FCC ID: CAC373001**

This report concerns (check one)    Original Grant <input checked="" type="checkbox"/> Class II Change <input type="checkbox"/>	
Equipment Type: <u>DSS-Part 15 Spread Spectrum Transmitter</u>	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
If yes, defer until : _____ date	
Company Name agrees to notify the Commission by: _____ date	
of the intended date of announcement of the product so that the grant can be issued on that date.	
Transition Rules Request per 15.37?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [12-08-03 Edition] provision.	
Report prepared by:	Tommy Leung Intertek Testing Services 2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. Phone:        852-2173-8538 Fax:          852-2741-1693

---

# INTERTEK TESTING SERVICES

---

## Table of Contents

1.0 <b><u>Summary of test results</u></b> .....	2
2.0 <b><u>General Description</u></b> .....	4
2.1 Product Description .....	4
2.2 Related Submittal(s) Grants .....	5
2.3 Test Methodology .....	5
2.4 Test Facility .....	5
3.0 <b><u>System Test Configuration</u></b> .....	7
3.1 Justification .....	7
3.2 EUT Exercising Software .....	7
3.3 Support Equipment List and Description .....	8
3.4 Equipment Modification .....	9
4.0 <b><u>Measurement Results</u></b> .....	11
4.1 Maximum Conducted Output Power at Antenna Terminals .....	11
4.2 Minimum 6dB RF Bandwidth .....	14
4.3 Maximum Power Density .....	17
4.4 Out of Band Conducted Emissions .....	20
4.5 Out of Band Radiated Emissions .....	21
4.6 Transmitter Radiated Emissions in Restricted Bands .....	21
4.7 Field Strength Calculation .....	22
4.8 Radiated Emission Configuration Photograph - Base Unit .....	23
4.9 Radiated Emission Data - Base Unit .....	24
4.10 Radiated Emission Configuration Photograph - Handset .....	31
4.11 Radiated Emission Data - Handset Unit .....	32
4.12 AC Line Conducted Emission .....	36
4.13 Line Conducted Configuration Photograph - Base Unit .....	37
4.14 Line Conducted Emission Configuration Data .....	38
4.15 Radiated Emission from Digital Section of Transceiver .....	39
4.16 Transmitter Duty Cycle Calculation and Measurements .....	43
5.0 <b><u>Equipment Photographs</u></b> .....	45
6.0 <b><u>Product Labelling</u></b> .....	47
7.0 <b><u>Technical Specifications</u></b> .....	49
8.0 <b><u>Instruction Manual</u></b> .....	51
9.0 <b><u>Security Code Information</u></b> .....	53
10.0 <b><u>Confidentiality Request</u></b> .....	55

---

## INTERTEK TESTING SERVICES

---

### List of attached file

Exhibit type	File Description	filename
Cover Letter	Confidentiality Request	request.pdf
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission for Base	config photos.doc
Test Setup Photo	Radiated Emission for Handset	config photos.doc
Test Report	Maximum Output Power Plot	bmaxop.pdf, hmaxop.pdf
Test Report	6 dB Bandwidth Plot	b6dB.pdf, h6dB.pdf
Test Report	Maximum Power Density Plot	bpowden.pdf, hpowden.pdf
Test Report	Out Band Antenna Conducted Emission Plot	bobantcon.pdf, hobantcon.pdf
Test Report	Duty Cycle Calculation and Measurement	bdcc.pdf, hdcc.pdf
Test Setup Photo	Conducted Emission	config photos.doc
Test Report	Conducted Emission Test Result	conduct.pdf
External Photo	External Photo	external photos.doc
Internal Photo	Internal Photo	internal photos-base.doc, internal photos-handset.doc
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
User Manual	FCC Information	FCC information.pdf
RF Exposure Info	RF Safety	RF exposure info.pdf

**EXHIBIT 1**  
**SUMMARY OF TEST RESULTS**

---

## INTERTEK TESTING SERVICES

---

### 1.0 Summary of Test

**Cybiotronics Limited - MODEL: CY-373(XXX), BS-373(XXX), SBC373(XXX),  
CYBIOLINK 373(XXX), CY-373B(XXX),  
BS-373B(XXX), SBC373B(XXX),  
CYBIOLINK 373B(XXX), CY-371(XXX), BS-371(XXX),  
SBC371(XXX), CYBIOLINK 371(XXX)**

**FCC ID: CAC373001**

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(d)	Pass
Out of Band Antenna Conducted Emission	15.247(c)	Pass
Radiated Emission in Restricted Bands	15.247(c)	Pass
AC Conducted Emission	15.207	Pass
Radiated Emission from Digital Part	15.109	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses a permanently attached antenna, which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

**EXHIBIT 2**  
**GENERAL DESCRIPTION**

---

## INTERTEK TESTING SERVICES

---

### 2.0 General Description

#### 2.1 Product Description

The CY-373 is a 2.4GHz 92 Channel Direct Sequence Spread Spectrum Cordless Phone with Caller ID and Speakerphone. It operates at frequency range of 2401.920 MHz to 2480.544 MHz with 92 Channels. The unit is capable of either tone or pulse dialing. The internal power supply's isolation is accomplished through a power transformer having an adequate dielectric rating. The circuit wiring is consistent under the requirement of part 68.

The handset unit consists of a keypad with twelve standard keys (0,...9,\*,#), fourteen function keys (5 Softkeys, Scroll Key-up, Scroll Key-down, Spk, Bye, Mute, Redial/Pause, Flash, Int., Conf.). A Line 1 key and a Line 2 key are provided to control pick/ release telephone line 1 and line 2 in a toggle base.

The base unit has a page key, which is used to communicate with handset unit.

The antennas used in base unit and handset are integral, and the test sample is a prototype.

The Model: CY-373 is one of the Model: CY-373(XXX), and the Models: BS-373(XXX), SBC373(XXX), and CYBIOLINK 373(XXX) are the same as the Model: CY-373(XXX) in hardware aspect. The Models: CY-371(XXX), BS-371(XXX), SBC371(XXX), and CYBIOLINK 371(XXX) are an additional identical handset with an extra charger for selling handset standalone, and the Models: CY-373B(XXX), BS-373B(XXX), SBC373B(XXX), and CYBIOLINK 373B(XXX) have one base plus two handsets with a charger. The suffix, (XXX), followed by the model number stands for color difference. The model numbers are identical in electrical, mechanical, and physical design. The difference in model number serves as marketing strategy.

The circuit description is saved with filename: descri.pdf

Connection between the device and the telephone network is accomplished through the use of USOC RJ11C in the 2-wire loop calling central office line.

## INTERTEK TESTING SERVICES

---

### 2.2 Related Submittal(s) Grants

This is an application for Certification of a DSS-Part 15 Spread Spectrum Cordless Telephone System. Two transmitters are included in this application. The device is also subject to Part 68 Registration.

### 2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2001). All measurements were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

### 2.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC.

**EXHIBIT 3**  
**SYSTEM TEST CONFIGURATION**

### 3.0 **System Test Configuration**

#### 3.1 Justification

For emissions testing, the equipment under test (EUT) was setup to transmit continuously to simplify the measurement methodology. As the EUT included two RF modules, which could transmit simultaneously in different channels, all the combinations of the RF modules operating in the first, middle and last channels had been checked. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The handset was powered by a fully charged battery.

For the measurements, the EUT is attached to a plastic stand if necessary and placed on the wooden turntable. If the base unit attaches to peripherals, they are connected and operational (as typical as possible). The handset is remotely located as far from the antenna and the base as possible to ensure full power transmission from the base. Else, the base is wired to transmit full power without modulation.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Detector function is in peak mode. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1MHz or greater for frequencies above 1000MHz.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9kHz to 25GHz.

#### 3.2 EUT Exercising Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

---

## INTERTEK TESTING SERVICES

---

### 3.3 Support Equipment List and Description

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system (included inserted cards, which have grants) are:

#### *HARDWARE:*

The unit was operated standalone. An AC adapter and a battery (provided with the unit) were used to power the device. Their description are listed below.

- (1) Base Unit: An AC adapter (120VAC to 9VDC, Model: AD-091AL)
- (2) Handset: A rechargeable operated battery (3.6V, 600mAh, Model: 3KR-500AAL)
- (3) An Extra Charger: AC adapter (120VAC to 9VDC, Model: SA35-39A)

#### *CABLES:*

- (1) 1 x Telecommunication cable with RJ14C connectors (1m, unshielded), terminated
- (2) 2 x Telecommunication cable with RJ11C connectors (1m, unshielded), terminated

#### *OTHERS:*

- (1) A headset for telephone use with 1.2m unshielded cable permanently affixed. (Supplied by Intertek)

## INTERTEK TESTING SERVICES

---

### 3.4 Equipment Modification

Any modifications installed previous to testing by Cybiotronics Limited will be incorporated in each production model sold/leased in the United States.

No modifications were installed by ETL Division, Intertek Testing Services Hong Kong Ltd.

All the items listed under section 2.0 of this report are confirmed by:

*Confirmed by:*

*Tommy Leung  
Assistant Manager  
Intertek Testing Services Hong Kong Ltd.  
Agent for Cybiotronics Limited*



\_\_\_\_\_  
Signature

March 16, 2005 \_\_\_\_\_  
Date

**EXHIBIT 4**  
**MEASUREMENT RESULTS**

## INTERTEK TESTING SERVICES

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.0 Measurement Results

#### 4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b) :

- ☐ The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.
- ☒ The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set for RBW> 6dB bandwidth and power was read directly in dBm. External attenuation and cable loss were compensated for using to OFFSET function of the analyzer.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm).

(Base Unit, RF module 1) Antenna Gain = 2 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2402.400	9.71	9.35
Middle Channel: 2441.968	11.61	14.49
High Channel: 2480.848	13.37	21.73

Cable loss : 0.5 dB External Attenuation : N/A dB

Cable loss, external attenuation: ☒ included in OFFSET function  
☐ added to SA raw reading

dBm max. output level = 13.37 dBm (30 dBm or less)

Please refer to the attached plots for details:

Plot B1a (RF module 1): Low Channel Output Power  
Plot B1b (RF module 1): Middle Channel Output Power  
Plot B1c (RF module 1) High Channel Output Power

## INTERTEK TESTING SERVICES

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b) - Continued:

(Base Unit, RF module 2) Antenna Gain = 2 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2402.016	13.21	20.94
Middle Channel: 2441.616	12.60	18.20
High Channel: 2480.576	14.20	26.30

Cable loss : 0.5 dB External Attenuation : N/A dB

Cable loss, external attenuation: [ x ] included in OFFSET function  
[ ] added to SA raw reading

dBm max. output level = 14.20 dBm (30 dBm or less)

Please refer to the attached plots for details:

Plot B1a (RF module 2): Low Channel Output Power  
Plot B1b (RF module 2): Middle Channel Output Power  
Plot B1c (RF module 2): High Channel Output Power

---

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b) - Continued:

(Handset Unit) Maximum Antenna Gain = 0 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2402.448	15.57	36.06
Middle Channel: 2442.368	16.21	41.78
High Channel: 2480.864	17.28	53.46

Cable loss : 0.5 dB External Attenuation : N/A dB

Cable loss, external attenuation: [ x ] included in OFFSET function  
[ ] added to SA raw reading

dBm max. output level = 17.28 dBm (30 dBm or less)

Please refer to the attached plots for details:

Plot H1a: Low Channel Output Power  
Plot H1b: Middle Channel Output Power  
Plot H1c: High Channel output Power

For electronic filing, the above plots are saved with filename: bmaxop.pdf, hmaxop.pdf.

For RF safety, the information is saved with filename: RF exposure info.pdf.

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Base Unit, RF module 1	
Frequency (MHz)	6 dB Bandwidth (kHz)
2401.920	1520

Refer to the following plots for 6 dB bandwidth sharp:

Plot B2a (RF module 1): Low Channel 6 dB RF Bandwidth

Plot B2b (RF module 1): Middle Channel 6 dB RF Bandwidth

Plot B2c (RF module 1): High Channel 6 dB RF Bandwidth

Limit: at least 500kHz

---

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a)(2) - Continued:

Base Unit, RF module 2	
Frequency (MHz)	20 dB Bandwidth (kHz)
2480.386	1570

Refer to the following plots for 6 dB bandwidth sharp:

Plot B2a (RF module 2): Low Channel 6 dB RF Bandwidth

Plot B2b (RF module 2): Middle Channel 6 dB RF Bandwidth

Plot B2c (RF module 2): High Channel 6 dB RF Bandwidth

Limit: at least 500kHz

For electronic filing, the above plots for RF module 1 & 2 of base unit are saved with filename: b6dB.pdf.

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a)(2) - Continued:

Handset Unit	
Frequency (MHz)	20 dB Bandwidth (kHz)
2480.544	1730

Refer to the following plots for 6 dB bandwidth sharp:

Plot H2a: Low Channel 6 dB RF Bandwidth  
Plot H2b: Middle Channel 6 dB RF Bandwidth  
Plot H2c: High Channel 6 dB RF Bandwidth

Limit: at least 500kHz

For electronic filing, the above plots are saved with filename: h6dB.pdf

---

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.3 Maximum Power Density Reading, FCC Rule 15.247(d) :

The spectrum analyzer RES BW was set to 3 kHz. The START and STOP frequencies were set to the band edges of the maximum output passband. If there is no clear maximum amplitude in any given portion of the band, it may be necessary to make measurements at a number of bands defined by several START and STOP frequency pairs. The specification calls for a 1 second interval at each 3 kHz bandwidth; total SWEEP TIME is calculated as follows:

$$\text{SWEEP TIME (SEC)} = (\text{Fstop, kHz} - \text{Fstart, kHz})/3\text{kHz}$$

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Base Unit, RF module 1	
Frequency (MHz)	Power Density (dBm)
2480.765	2.14

Frequency Span = 1.8MHz

Sweep Time = Frequency Span/3kHz  
= 600 seconds

Cable Loss: 0.5 dB

Refer to the following plots for power density data :

Plot B3a (RF module 1): Low Channel power density

Plot B3b (RF module 1): Middle Channel power density

Plot B3c (RF module 1): High Channel power density

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Maximum Power Density Reading, FCC Rule 15.247(d) - Continued:

Base Unit, RF module 2	
Frequency (MHz)	Power Density (dBm)
2480.969	2.38

Frequency Span = 1.8MHz

Sweep Time = Frequency Span/3kHz  
= 600 seconds

Cable Loss: 0.5 dB

Refer to the following plots for power density data :

Plot B3a (RF module 2): Low Channel power density  
Plot B3b (RF module 2): Middle Channel power density  
Plot B3c (RF module 2): High Channel power density

For electronic filing, the above plots for RF module 1 & 2 of base unit are saved with filename: bpowden.pdf.

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Maximum Power Density Reading, FCC Rule 15.247(d) – Continued:

Handset Unit	
Frequency (MHz)	Power Density (dBm)
2480.971	5.13

Frequency Span = 2.4MHz

Sweep Time = Frequency Span/3kHz  
= 800 seconds

Cable Loss: 0.5 dB

Refer to the following plots for power density data :

Plot H3a: Low Channel power density  
Plot H3b: Middle Channel power density  
Plot H3c: High Channel power density

For electronic filing, the above plots are saved with filename: hpowden.pdf.

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.4 Out of Band Conducted Emissions, FCC Rule 15.247(c):

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the following plots for out of band conducted emissions data:

#### Base Unit:

Plot B4ab1.1-2 (RF module 1), Plot B4ac1.1-2 (RF module 1): Low Channel Emissions  
Plot B4ba1.1-2 (RF module 1), Plot B4bc1.1-2 (RF module 1): Middle Channel Emissions  
Plot B4ca1.1-2 (RF module 1), Plot B4cb1.1-2 (RF module 1): High Channel Emissions  
Plot B4a1 (RF module 1), Plot B4c1 (RF module 1): Modulation Products Emissions

Plot B4ab2.1-2 (RF module 2), Plot B4ac2.1-2 (RF module 2): Low Channel Emissions  
Plot B4ba2.1-2 (RF module 2), Plot B4bc2.1-2 (RF module 2): Middle Channel Emissions  
Plot B4ca2.1-2 (RF module 2), Plot B4cb2.1-2 (RF module 2): High Channel Emissions  
Plot B4a2 (RF Module 2), Plot B4c2 (RF module 2): Modulation Products Emissions

#### Handset:

Plot H4a.1 - H4a.2: Low Channel Emissions  
Plot H4b.1 - H4b.2: Middle Channel Emissions  
Plot H4c.1 - H4c.2: High Channel Emissions  
Plot H4d.1 - H4d.2: Modulation Products Emissions

The plots showed the 2<sup>nd</sup> harmonic and modulation products at the band edges of 2400 MHz and 2483.5 MHz. In addition, all spurious emission and up to the tenth harmonic was measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

For the electronic filing, the above plots are saved with filename: bobantcon.pdf, hobantcon.pdf.

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(c):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

- ☒ Not required  
☐ See attached data sheet

### 4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

### 4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD + AV$$

where FS = Field Strength in dB $\mu$ V/m

RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

PD = Pulse Desensitization in dB

AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD + AV$$

#### Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm} [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

## INTERTEK TESTING SERVICES

---

### 4.8 Radiated Emission Configuration Photograph - Base Unit

Worst Case Radiated Emission  
at  
7322.400 MHz

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: config photos.doc.

## INTERTEK TESTING SERVICES

---

### 4.9 Radiated Emission Data

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 1.7 dB

\*\*\*\*\*

#### **TEST PERSONNEL:**



---

*Tester Signature*

---

Ken Sit, Lead Engineer  
*Typed/Printed Name*

---

March 16, 2005  
*Date*

---

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373  
Mode : TX-Channel 0

Date of Test: May 19-September 1, 2004

Table 1 Base Unit, RF module 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	*1601.280	51.2	34	26.5	43.7	7.7	36.0	54	-18.0
V	*4003.200	47.8	34	34.2	48.0	7.7	40.3	54	-13.7
H	*4803.840	48.3	34	34.0	48.3	7.7	40.6	54	-13.4
V	*12208.960	41.9	34	40.2	48.1	7.7	40.4	54	-13.6
V	*12009.600	42.1	34	40.2	48.3	7.7	40.6	54	-13.4
V	*19215.360	38.7	34	43.5	48.2	7.7	40.5	54	-13.5

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

Company: Cybionics Limited  
Model: CY-373  
Mode : TX-Channel 45

Date of Test: May 19-September 1, 2004

Table 2 Base Unit, RF module 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	*4068.000	52.1	34	34.2	52.3	7.7	44.6	54	-9.4
V	*4881.600	53.9	34	34.0	53.9	7.7	46.2	54	-7.8
V	*7322.400	41.8	34	37.0	44.8	7.7	37.1	54	-16.9
V	*8136.000	43.2	34	38.1	47.3	7.7	39.6	54	-14.4
V	*11390.400	41.6	34	40.2	47.8	7.7	40.1	54	-13.9
V	*12204.000	42.1	34	40.2	48.3	7.7	40.6	54	-13.4
V	*19526.400	36.7	34	45.3	48.0	7.7	40.3	54	-13.7

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

Company: Cybionics Limited  
 Model: CY-373  
 Mode : TX-Channel 91

Date of Test: May 19-September 1, 2004

Table 3 Base Unit, RF module 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	**2480.544	111.6	34	29.1	106.7	7.7	99.0	---	---
V	*4134.240	48.1	34	34.2	48.3	7.7	40.6	54	-13.4
V	*4961.088	54.7	34	34.0	54.7	7.7	47.0	54	-7.0
V	*7441.632	41.8	34	37.0	44.8	7.7	37.1	54	-16.9
V	*8268.480	41.2	34	38.1	45.3	7.7	37.6	54	-16.4
V	*9095.328	41.7	34	38.7	46.4	7.7	38.7	54	-15.3
V	*10749.024	41.3	34	40.0	47.3	7.7	39.6	54	-14.4
V	*11575.872	41.2	34	40.6	47.8	7.7	40.1	54	-13.9
V	*12402.720	41.9	34	40.2	48.1	7.7	40.4	54	-13.6
V	*19844.352	37.6	34	45.3	48.9	7.7	41.2	54	-12.8
V	*22324.896	37.4	34	45.3	48.7	7.7	41.0	54	-13.0

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.
- \*\* Fundamental emission was measured for determining band-edge compliance of using delta measurement technique.

Test Engineer: Ken Sit

---

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373  
Mode : TX-Channel 0

Date of Test: May 19-September 1, 2004

Table 4 Base Unit, RF module 2

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	*1601.280	65.3	34	26.5	57.8	7.5	50.3	54	-3.7
V	*4003.200	52.2	34	34.2	52.4	7.5	44.9	54	-9.1
V	*4803.840	58.0	34	34.0	58.0	7.5	50.5	54	-3.5
V	*12208.960	42.1	34	40.2	48.3	7.5	40.8	54	-13.2
V	*12009.600	42.2	34	40.2	48.4	7.5	40.9	54	-13.1
V	*19215.360	38.8	34	43.5	48.3	7.5	40.8	54	-13.2

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

Company: Cybionics Limited  
Model: CY-373  
Mode : TX-Channel 45

Date of Test: May 19-September 1, 2004

Table 5 Base Unit, RF module 2

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	*4068.000	53.8	34	34.2	54.0	7.5	46.5	54	-7.5
V	*4881.600	59.0	34	34.0	59.0	7.5	51.5	54	-2.5
V	*7322.400	56.8	34	37.0	59.8	7.5	52.3	54	-1.7
V	*8136.000	43.2	34	38.1	47.3	7.5	39.8	54	-14.2
V	*11390.400	41.7	34	40.2	47.9	7.5	40.4	54	-13.6
V	*12204.000	42.2	34	40.2	48.4	7.5	40.9	54	-13.1
V	*19526.400	36.9	34	45.3	48.2	7.5	40.7	54	-13.3

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

Company: Cybionics Limited  
 Model: CY-373  
 Mode : TX-Channel 91

Date of Test: May 19-September 1, 2004

Table 6 Base Unit, RF module 2

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	**2480.544	113.7	34	29.1	108.8	7.5	101.3	---	---
V	*4134.240	53.2	34	34.2	53.4	7.5	45.9	54	-8.1
V	*4961.088	58.1	34	34.0	58.1	7.5	50.6	54	-3.4
V	*7441.632	55.6	34	37.0	58.6	7.5	51.1	54	-2.9
V	*8268.480	53.9	34	38.1	58.0	7.5	50.5	54	-3.5
V	*9095.328	54.6	34	38.7	59.3	7.5	51.8	54	-2.2
V	*10749.024	41.2	34	40.0	47.2	7.5	39.7	54	-14.3
V	*11575.872	41.3	34	40.6	47.9	7.5	40.4	54	-13.6
V	*12402.720	42.1	34	40.2	48.3	7.5	40.8	54	-13.2
V	*19844.352	37.3	34	45.3	48.6	7.5	41.1	54	-12.9
V	*22324.896	37.2	34	45.3	48.5	7.5	41.0	54	-13.0

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.
- \*\* Fundamental emission was measured for determining band-edge compliance of using delta measurement technique.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.10 Radiated Emission Configuration Photograph - Handset

Worst Case Radiated Emission  
at  
7441.632 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: config photos.doc

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.11 Radiated Emission Data

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 0.9 dB

\*\*\*\*\*

### **TEST PERSONNEL:**



---

*Tester Signature*

---

Ken Sit, Lead Engineer  
*Typed/Printed Name*

---

March 16, 2005  
*Date*

## INTERTEK TESTING SERVICES

Company: Cybionics Limited  
Model: CY-373  
Mode : TX-Channel 0

Date of Test: May 19-September 1, 2004

Table 7, Handset

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	*1601.280	63.8	34	26.5	56.3	7.5	48.8	54	-5.2
V	*4003.200	57.3	34	34.2	57.5	7.5	50.0	54	-4.0
V	*4803.840	46.2	34	34.0	46.2	7.5	38.7	54	-15.3
V	*12208.960	42.1	34	40.2	48.3	7.5	40.8	54	-13.2
V	*12009.600	42.4	34	40.2	48.6	7.5	41.1	54	-12.9
V	*19215.360	38.9	34	43.5	48.4	7.5	40.9	54	-13.1

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.

Test Engineer: Ken Sit

---

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373  
Mode : TX-Channel 45

Date of Test: May 19-September 1, 2004

Table 8, Handset

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	*4068.000	56.4	34	34.2	56.6	7.5	49.1	54	-4.9
V	*4881.600	55.9	34	34.0	55.9	7.5	48.4	54	-5.6
V	*7322.400	44.7	34	37.0	47.7	7.5	40.2	54	-13.8
V	*8136.000	43.9	34	38.1	48.0	7.5	40.5	54	-13.5
V	*11390.400	42.1	34	40.2	48.3	7.5	40.8	54	-13.2
V	*12204.000	42.5	34	40.2	48.7	7.5	41.2	54	-12.8
V	*19526.400	37.2	34	45.3	48.5	7.5	41.0	54	-13.0

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

Company: Cybionics Limited  
 Model: CY-373  
 Mode : TX-Channel 91

Date of Test: May 19-September 1, 2004

Table 9, Handset

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Average Factor (-dB)	Calculated at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	**2480.544	117.4	34	29.1	112.5	7.5	105.0	---	---
V	*4134.240	56.9	34	34.2	57.1	7.5	49.6	54	-4.4
V	*4961.088	55.8	34	34.0	55.8	7.5	48.3	54	-5.7
V	*7441.632	57.6	34	37.0	60.6	7.5	53.1	54	-0.9
V	*8268.480	43.9	34	38.1	48.0	7.5	40.5	54	-13.5
V	*9095.328	43.7	34	38.7	48.4	7.5	40.9	54	-13.1
V	*10749.024	42.6	34	40.0	48.6	7.5	41.1	54	-12.9
V	*11575.872	42.4	34	40.6	49.0	7.5	41.5	54	-12.5
V	*12402.720	42.9	34	40.2	49.1	7.5	41.6	54	-12.4
V	*19844.352	38.0	34	45.3	49.3	7.5	41.8	54	-12.2
V	*22324.896	37.7	34	45.3	49.0	7.5	41.5	54	-12.5

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emissions over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1000MHz also meet corresponding 20 dB permitted peak limit with a peak detector function.
- \*\* Fundamental emission was measured for determining band-edge compliance of using delta measurement technique.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.12 AC Line Conducted Emission, FCC Rule 15.207:

- ☐ Not required; battery operation only
- ☒ Test data attached

## INTERTEK TESTING SERVICES

---

### 4.13 Line Conducted Configuration Photograph

Worst Case Line-Conducted Configuration  
at  
19.200 MHz

For electronic filing, the worst case line conducted configuration photographs are saved with filename: config photos.doc.

## INTERTEK TESTING SERVICES

---

### 4.14 Line Conducted Emission Data

The data on the following pages list the significant emission frequencies, the limit, and the margin of compliance.

Judgement : Passed by more than 19.0 dB margin

For electronic filing, the conducted emission test result is saved with filename: conduct.pdf.

### **TEST PERSONNEL:**



---

*Tester Signature*

---

Ken Sit, Lead Engineer  
*Typed/Printed Name*

---

March 16, 2005  
*Date*

## INTERTEK TESTING SERVICES

---

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

4.15 Radiated Emissions from Digital Section of Transceiver (Transmitter), FCC Ref: 15.109

☐ Not required - No digital part

☒ Test results are attached

☐ Included in the separated DOC report.

---

---

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Table 10, Base Unit, RF module 1 & 2

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
H	38.398	31.6	16	11.2	26.8	40.0	-13.2
H	57.597	35.3	16	11.0	30.3	40.0	-9.7
H	76.797	45.0	16	6.3	35.3	40.0	-4.7
H	93.306	35.6	16	9.4	29.0	43.5	-14.5
H	95.996	46.8	16	10.6	41.4	43.5	-2.1
H	98.306	32.1	16	10.6	26.7	43.5	-16.8
H	103.673	31.6	16	11.6	28.1	43.5	-13.2
H	110.594	35.3	16	12.6	28.3	43.5	-9.7
H	114.039	45.0	16	12.6	28.6	43.5	-4.7
H	115.196	39.0	16	12.8	35.8	43.5	-7.7
H	134.396	39.8	16	12.3	36.1	43.5	-7.4
H	134.776	35.0	16	12.3	31.3	43.5	-12.2
H	145.143	46.8	16	11.6	28.6	43.5	-2.1
H	147.457	32.1	16	11.6	26.7	43.5	-16.8
H	153.594	41.5	16	11.9	37.4	43.5	-6.1
H	155.509	32.5	16	12.4	28.9	43.5	-14.6
H	165.877	31.7	16	13.8	26.7	43.5	-15.2
H	172.794	41.0	16	14.7	39.7	43.5	-3.8
H	176.244	39.0	16	15.5	26.3	43.5	-7.7
H	191.993	42.0	16	17.1	43.1	43.5	-0.4
H	196.609	39.0	16	17.3	28.3	43.5	-7.7
H	196.979	39.8	16	17.3	28.1	43.5	-7.4

- NOTES: 1. Quasi-peak detector is used for the emission below or equal to 1000MHz.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

Company: Cybionics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Table 10, Base Unit, RF module 1 & 2 - cont'd

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	211.192	46.5	16	11.8	42.3	43.5	-1.2
H	230.391	43.7	16	11.4	39.1	46.0	-6.9
H	249.591	45.6	16	11.4	41.0	46.0	-5.0
H	268.790	44.2	16	12.4	40.6	46.0	-5.4
H	287.990	42.2	16	13.3	39.5	46.0	-6.5
H	307.189	32.4	16	14.3	30.7	46.0	-15.3
H	326.388	37.9	16	14.6	36.5	46.0	-9.5
H	345.588	37.0	16	14.6	35.6	46.0	-10.4
H	364.787	32.1	16	14.9	31.0	46.0	-15.0
H	383.987	36.2	16	15.4	35.6	46.0	-10.4
H	403.186	39.2	16	15.9	39.1	46.0	-6.9
H	422.385	39.7	16	15.9	39.6	46.0	-6.4
H	441.585	34.3	16	16.3	34.6	46.0	-11.4
H	460.784	42.3	16	16.8	43.1	46.0	-2.9
H	479.984	40.8	16	17.3	42.1	46.0	-3.9
H	499.183	44.5	16	17.3	45.8	46.0	-0.2
H	518.382	41.8	16	18.0	43.8	46.0	-2.2
H	537.582	43.6	16	18.2	45.8	46.0	-0.2
H	556.781	42.0	16	18.3	44.3	46.0	-1.7
H	575.980	38.4	16	18.6	41.0	46.0	-5.0
H	595.179	38.0	16	18.6	40.6	46.0	-5.4
H	633.578	34.8	16	19.2	38.0	46.0	-8.0

- NOTES:
1. Quasi-peak detector is used for the emission below or equal to 1000MHz.
  2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.

Test Engineer: Ken Sit

---

## INTERTEK TESTING SERVICES

---

Company: Cybionics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

Table 11, Handset

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	30.190	28.8	16	11.6	24.4	40	-15.6
H	31.090	29.2	16	11.6	24.8	40	-15.2
H	32.920	29.7	16	11.6	25.3	40	-14.7
H	35.650	31.1	16	11.2	26.3	40	-13.7
H	38.380	31.6	16	11.2	26.8	40	-13.2
H	41.110	30.9	16	11.7	26.6	40	-13.4
H	41.430	30.7	16	11.7	26.4	40	-13.6

- NOTES: 1. Quasi-peak detector is used for the emission below or equal to 1000MHz.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.

Test Engineer: Ken Sit

## INTERTEK TESTING SERVICES

Company: Cybiotronics Limited  
Model: CY-373

Date of Test: May 19-September 1, 2004

### 4.16 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEPT function on the analyzer was set to ZERO SPAN. The transmitter ON time was determined from the resultant time-amplitude display:

Base Unit, RF module 1:

$$\begin{aligned}\text{Duty cycle} &= \text{Maximum ON time in } 6\text{ms}/6\text{ms} = 2.46\text{ms}/6\text{ms} \\ &= 0.41\end{aligned}$$

$$\begin{aligned}\text{Duty Cycle correction, dB} &= 20 \cdot \log (\text{Duty Cycle}) \\ &= 20 \cdot \log (0.41) \\ &= -7.744 \text{ dB}\end{aligned}$$

Base Unit, RF module 2:

$$\begin{aligned}\text{Duty cycle} &= \text{Maximum ON time in } 6\text{ms}/6\text{ms} = 2.52\text{ms}/6\text{ms} \\ &= 0.42\end{aligned}$$

$$\begin{aligned}\text{Duty Cycle correction, dB} &= 20 \cdot \log (\text{Duty Cycle}) \\ &= 20 \cdot \log (0.42) \\ &= -7.54 \text{ dB}\end{aligned}$$

Handset:

$$\text{Duty Cycle} = \text{Maximum ON time in } 30\text{ms}/30\text{ms} = 2.52\text{ms}/6\text{ms}$$

$$\begin{aligned}\text{Duty Cycle correction, dB} &= 20 \cdot \log (\text{Duty Cycle}) \\ &= 20 \cdot \log (0.42) \\ &= -7.54 \text{ dB}\end{aligned}$$

X	See attached spectrum analyzer chart (s) for transmitter timing Base Unit: Plot B5a.1-2 (RF module 1), Plot B5a.1-2 (RF module 2), Plot H5a.1-2
	See transmitter timing diagram provided by manufacturer
	Not applicable, duty cycle was not used.

For electronic filing, the above plots are saved with filename: bdcc.pdf, hdcc.pdf

**EXHIBIT 5**  
**EQUIPMENT PHOTOGRAPHS**

### 5.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.doc, internal photos-base.doc, & internal photos-handset.doc.

**EXHIBIT 6**  
**PRODUCT LABELLING**

### 6.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

**EXHIBIT 7**  
**TECHNICAL SPECIFICATIONS**

### 7.0 **Technical Specifications**

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

**EXHIBIT 8**  
**INSTRUCTION MANUAL**

### 8.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

Please note that the required FCC Information to the User is saved with filename: FCC information.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

**EXHIBIT 9**  
**SECURITY CODE INFORMATION**

### 9.0 **Security code information**

The CY-373 has an internal security code with  $2^{24}$  possible combinations. Each time the handset is registered with the base unit, the code is randomly set to a new combination via RF link.

**EXHIBIT 10**  
**CONFIDENTIALITY REQUEST**

### 10.0 **Confidentiality Request**

For electronic filing, a confidentiality request is saved with filename: request.pdf.