

September 22, 2009

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Dear Lisa B. Clardy:

Enclosed you will find your file copy of a Part 15 Certification (FCC ID: ACEW425P). Model: W425Pro, W425D, C410.  
ACEW425P

For your reference, TCB will normally take another 15 to 20 days for reviewing the report. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,



Nip Ming Fung, Melvin  
Supervisor

Enclosure

## List of Exhibits

Exhibit type	File Description	filename
Test Report	Test Report	report.pdf
Operational Description	Technical Description	descri.pdf
Cover Letter	Confirmation	confirmation.pdf
Test Setup Photos	Radiated & Conducted Emission Test Configuration	config photos.pdf
Test Report	Emission Plot	emission.pdf
Test Report	Conducted Emission Test Result	conduct.pdf
External Photos	External Photo	external photos.pdf
Internal Photos	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location Info	Label Artwork and Location	label.pdf
Users Manual	User Manual	manual.pdf
Cover Letter	Letter of Agency	letter of agency.pdf

**Clarity, A Division Of Plantronics, Inc.**

Application  
For  
Certification

900MHz Analog Modulation Cordless Phone

**(FCC ID: ACEW425P)**

HK09030227-1  
MN/cl  
September 22, 2009

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**Intertek Testing Services Hong Kong Ltd.**

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Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: [www.hk.intertek-etsemko.com](http://www.hk.intertek-etsemko.com)

# INTERTEK TESTING SERVICES

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## MEASUREMENT/TECHNICAL REPORT

**Clarity, A Division Of Plantronics, Inc. - Model: W425Pro, W425D, C410  
FCC ID: ACEW425P**

This report concerns (check one:)      Original Grant       Class II Change

Equipment Type : DXT - Cordless Telephone

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Deferred grant requested per 47 CFR  
0.457(d)(1)(ii)?      Yes       No

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.

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Transition Rules Request per 15.37 ?      Yes       No

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-08  
Edition] Provision.

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Report prepared by:      Nip Ming Fung, Melvin  
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# INTERTEK TESTING SERVICES

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 1**  
**GENERAL DESCRIPTION**

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## 1.0 General Description

### 1.1 Product Description

The W425Pro, W425D and C410 are 900MHz Analog Modulation Cordless Phone. They operate at frequency range of Base Unit and Handset 902.200MHz to 904.000MHz and 926.000MHz to 927.800MHz respectively with 10 channels. Base Units are powered by adaptor 100-240VAC to 7.5VDC 500mA. Handsets are powered by "Ni-MH" type rechargeable battery pack (3.6VDC, 600mAh). The circuit wiring is consistent under the requirement of part 68.

The antennas used in base unit and handset are integral, and the tested samples are prototypes.

The base of Model: W425Pro is the same as the base of Model: W425D in hardware aspect. The difference in model number serves as the marketing strategy.

The circuit description is saved with filename: descri.pdf

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

### 1.2 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Preliminary radiated scans were performed in the Open Area Test Site only to determine worst case modes. All radiated measurements were performed in Open Area Test Sites. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Justification Section"** of this Application.

### 1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data and conducted data are 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.

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 2**  
**SYSTEM TEST CONFIGURATION**

# INTERTEK TESTING SERVICES

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## 2.0 System Test Configuration

### 2.1 Justification

For emissions testing, the equipment under test (EUT) was setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) 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 unit as possible to ensure full power transmission from the base unit. Else, the base unit 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. 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.

Measurements of the radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

All relevant operation modes have been tested, and the worst-case data is included in this report.

### 2.2 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

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### 2.3 Details of EUT and Description of Peripherals

#### Details of EUT:

An AC adaptor and/or a battery (provided with the unit) were used to power the device. Their description are listed below.

- (1) Base Unit of model W425Pro: An AC adaptor (100-240VAC to 7.5VDC 500mA, Model: SSA-5W-09 US 075050F) (Supplied by Client)
- (2) Base Unit of model C410: An AC adaptor (100-240VAC to 7.5VDC 500mA, Model: SSA-5W-09 US 075050F) (Supplied by Client)
- (3) Handset of model W425Pro: A "Ni-MH" type rechargeable battery Pack (3.6V, 600mAh) (Supplied by Client)
- (4) Handset of model C410: A "Ni-MH" type rechargeable battery Pack (3.6V, 600mAh) (Supplied by Client)

#### Description of Peripherals:

- (1) Telecommunication cable with RJ11C connectors (1m, unshielded), terminated (Supplied by Intertek)
- (2) A headset for telephone use with 1.2m unshielded cable. (Supplied by Intertek)

## INTERTEK TESTING SERVICES

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### 2.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty test has been considered.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

### 2.5 Equipment Modification

Any modifications installed previous to testing by Clarity, A Division Of Plantronics, Inc. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Commercial & Electrical Division, Intertek Testing Services Hong Kong Ltd.

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

*Confirmed by:*

*Nip Ming Fung, Melvin  
Supervisor  
Intertek Testing Services  
Agent for Clarity, a Division of Plantronics, Inc.*



Signature

September 22, 2009      Date

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 3**  
**EMISSION RESULTS**

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### 3.0 Emission Results

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.

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### 3.1 Field Strength Calculation

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

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

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

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

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:-

$$FS = RR + LF$$

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

RR = RA - AG in  $\text{dB}\mu\text{V}$

LF = CF + AF in dB

Assume a receiver reading of 52.0  $\text{dB}\mu\text{V}$  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, giving a field strength of 32  $\text{dB}\mu\text{V}/\text{m}$ . This value in  $\text{dB}\mu\text{V}/\text{m}$  was converted to its corresponding level in  $\mu\text{V}/\text{m}$ .

$$RA = 52.0 \text{ dB}\mu\text{V}$$

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

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

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

$$FS = RR + LF$$

$$FS = 23 + 9 = 32 \text{ dB}\mu\text{V}/\text{m}$$

$$RR = 23.0 \text{ dB}\mu\text{V}$$

$$LF = 9.0 \text{ dB}$$

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

## INTERTEK TESTING SERVICES

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### 3.2 Radiated Emission Configuration Photograph - Base Unit

Worst Case Radiated Emission

Model W425Pro: at 2706.600 MHz

Model C410: at 902.200 MHz

The worst case radiated emission configuration photographs are saved with filename: config photos.pdf

### 3.3 Radiated Emission Data - Base Unit

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

Judgement : Model W425Pro: Passed by 2.6 dB margin

Model C410: Passed by 3.0 dB margin

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#### **TEST PERSONNEL:**



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Tester Signature

Koo Wai Ip, Engineer  
Typed/Printed Name

September 22, 2009  
Date

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425Pro

Mode : TX-Channel 1

Table 1, Base unit

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	902.200	74.6	16	32.0	90.6	94.0	-3.4
V	1804.400	54.0	33	27.2	48.2	54.0	-5.8
V	*2706.600	54.0	33	30.4	51.4	54.0	-2.6
V	*3608.800	48.1	33	33.3	48.4	54.0	-5.6
H	*4511.000	45.7	33	34.9	47.6	54.0	-6.4
H	*5413.200	44.5	33	35.7	47.2	54.0	-6.8
H	6315.400	42.9	33	36.9	46.8	54.0	-7.2
H	7217.600	40.5	33	37.9	45.4	54.0	-8.6

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425Pro

Mode : TX-Channel 10

Table 2, Base unit

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	904.000	74.5	16	32.0	90.5	94.0	-3.5
V	1808.000	54.7	33	27.2	48.9	54.0	-5.1
V	*2712.000	53.8	33	30.4	51.2	54.0	-2.8
V	*3616.000	47.9	33	33.3	48.2	54.0	-5.8
H	*4520.000	45.9	33	34.9	47.8	54.0	-6.2
H	*5424.000	44.7	33	35.7	47.4	54.0	-6.6
H	6328.000	43.0	33	36.9	46.9	54.0	-7.1
H	7232.000	40.4	33	37.9	45.3	54.0	-8.7

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: C410

Mode : TX-Channel 1

Table 3, Base unit

**Radiated Emissions  
Pursuant to FCC Part 15 Section 15.249(a) Requirements**

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	902.200	75.0	16	32.0	91.0	94.0	-3.0
H	1804.400	55.4	33	27.2	49.6	54.0	-4.4
H	*2706.600	53.4	33	30.4	50.8	54.0	-3.2
H	*3608.800	48.2	33	33.3	48.5	54.0	-5.5
H	*4511.000	46.5	33	34.9	48.4	54.0	-5.6
H	*5413.200	44.9	33	35.7	47.6	54.0	-6.4
H	6315.400	43.0	33	36.9	46.9	54.0	-7.1

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: C410

Mode : TX-Channel 10

Table 4, Base unit

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	904.000	74.8	16	32.0	90.8	94.0	-3.2
H	1808.000	55.2	33	27.2	49.4	54.0	-4.6
H	*2712.000	53.2	33	30.4	50.6	54.0	-3.4
H	*3616.000	48.3	33	33.3	48.6	54.0	-5.4
H	*4520.000	46.6	33	34.9	48.5	54.0	-5.5
H	*5424.000	44.9	33	35.7	47.6	54.0	-6.4
H	6328.000	42.9	33	36.9	46.8	54.0	-7.2

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425Pro

Mode : Talk

Table 5, Base unit

### Radiated Emissions Pursuant to FCC Part 15 Section 15.209 Requirements

Polari-zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	38.706	39.4	16	10.0	33.4	40.0	-6.6
V	53.629	38.6	16	11.0	33.6	40.0	-6.4
V	64.247	39.8	16	9.0	32.8	40.0	-7.2
H	72.689	41.4	16	7.0	32.4	40.0	-7.6
H	*108.308	32.6	16	14.0	30.6	43.5	-12.9
H	*135.724	32.2	16	14.0	30.2	43.5	-13.3

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: C410

Mode : Talk

Table 6, Base unit

### Radiated Emissions Pursuant to FCC Part 15 Section 15.209 Requirements

Polari-zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	38.472	39.4	16	10.0	33.4	40.0	-6.6
V	53.629	38.6	16	11.0	33.6	40.0	-6.4
V	64.782	39.4	16	9.0	32.4	40.0	-7.6
H	72.279	41.0	16	7.0	32.0	40.0	-8.0
H	*108.594	32.9	16	14.0	30.9	43.5	-12.6
H	*136.682	31.4	16	14.0	29.4	43.5	-14.1

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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### 3.4 Radiated Emission Configuration Photograph - Handset

Worst Case Radiated Emission

Model W425Pro: at 927.800 MHz

Model W425D: at 927.800 MHz

Model C410: at 3711.200 MHz

The worst case radiated emission configuration photographs are saved with filename: config photos.pdf

### 3.5 Radiated Emission Data - Handset

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

Judgement : Model W425Pro: Passed by 2.6 dB margin

Model W425D: Passed by 2.6 dB margin

Model C410: Passed by 0.4 dB margin

\*\*\*\*\*

#### **TEST PERSONNEL:**



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*Tester Signature*

Koo Wai Ip, Engineer  
*Typed/Printed Name*

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September 22, 2009  
*Date*

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425Pro

Mode : TX-Channel 1

Table 7, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	926.000	74.3	16	33.0	91.3	94.0	-2.7
V	1852.000	55.2	33	27.2	49.4	54.0	-4.6
V	*2778.000	53.2	33	30.4	50.6	54.0	-3.4
H	*3704.000	48.2	33	33.3	48.5	54.0	-5.5
H	*4630.000	46.3	33	34.9	48.2	54.0	-5.8
H	5556.000	43.6	33	36.6	47.2	54.0	-6.8
H	6482.000	43.0	33	36.9	46.9	54.0	-7.1
H	7408.000	41.3	33	37.9	46.2	54.0	-7.8

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425Pro

Mode : TX-Channel 10

Table 8, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	927.800	74.4	16	33.0	91.4	94.0	-2.6
V	1855.600	55.1	33	27.2	49.3	54.0	-4.7
V	*2783.400	53.0	33	30.4	50.4	54.0	-3.6
H	*3711.200	48.3	33	33.3	48.6	54.0	-5.4
H	*4639.000	46.5	33	34.9	48.4	54.0	-5.6
H	5566.800	43.6	33	36.6	47.2	54.0	-6.8
H	6494.600	42.9	33	36.9	46.8	54.0	-7.2
H	7422.400	41.4	33	37.9	46.3	54.0	-7.7

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425D

Mode : TX-Channel 1

Table 9, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	926.000	74.2	16	33.0	91.2	94.0	-2.8
V	1852.000	54.4	33	27.2	48.6	54.0	-5.4
H	*2778.000	52.0	33	30.4	49.4	54.0	-4.6
H	*3704.000	47.9	33	33.3	48.2	54.0	-5.8
H	*4630.000	46.0	33	34.9	47.9	54.0	-6.1
H	5556.000	43.3	33	36.6	46.9	54.0	-7.1
H	6482.000	42.1	33	36.9	46.0	54.0	-8.0

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425D

Mode : TX-Channel 10

Table 10, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	927.800	74.4	16	33.0	91.4	94.0	-2.6
V	1855.600	54.3	33	27.2	48.5	54.0	-5.5
H	*2783.400	51.8	33	30.4	49.2	54.0	-4.8
H	*3711.200	48.0	33	33.3	48.3	54.0	-5.7
H	*4639.000	45.9	33	34.9	47.8	54.0	-6.2
H	5566.800	43.2	33	36.6	46.8	54.0	-7.2
H	6494.600	42.3	33	36.9	46.2	54.0	-7.8

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: C410

Mode : TX-Channel 1

Table 11, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	926.000	73.2	16	33.0	90.2	94.0	-3.8
H	1852.000	58.8	33	27.2	53.0	54.0	-1.0
H	*2778.000	55.4	33	30.4	52.8	54.0	-1.2
H	*3704.000	53.2	33	33.3	53.5	54.0	-0.5
H	*4630.000	51.2	33	34.9	53.1	54.0	-0.9
H	5556.000	48.8	33	36.6	52.4	54.0	-1.6
H	6482.000	46.5	33	36.9	50.4	54.0	-3.6

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: C410

Mode : TX-Channel 10

Table 12, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.249(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	927.800	73.4	16	33.0	90.4	94.0	-3.6
H	1855.600	58.6	33	27.2	52.8	54.0	-1.2
H	*2783.400	55.7	33	30.4	53.1	54.0	-0.9
H	*3711.200	53.3	33	33.3	53.6	54.0	-0.4
H	*4639.000	50.9	33	34.9	52.8	54.0	-1.2
H	5566.800	48.7	33	36.6	52.3	54.0	-1.7
H	6494.600	46.9	33	36.9	50.8	54.0	-3.2

NOTES:

1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated 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 radiated 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 is used for the emission over 1000MHz.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425Pro

Mode : Talk

Table 13, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.209(a) Requirements

Polari-zation	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	38.709	35.9	16	10.0	29.9	40.0	-10.1
V	53.254	38.2	16	11.0	33.2	40.0	-6.8
V	64.786	39.6	16	9.0	32.6	40.0	-7.4
H	72.285	41.4	16	7.0	32.4	40.0	-7.6
H	*108.459	33.2	16	14.0	31.2	43.5	-12.3
H	*136.248	32.8	16	14.0	30.8	43.5	-12.7

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: W425D

Mode : Talk

Table 14, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.209(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	32.600	39.8	16	10.0	33.8	40.0	-6.2
V	65.200	40.6	16	9.0	33.6	40.0	-6.4
H	97.800	38.1	16	12.0	34.1	43.5	-9.4
H	*130.400	36.0	16	14.0	34.0	43.5	-9.5
H	195.600	33.6	16	16.0	33.6	43.5	-9.9
H	228.200	30.4	16	18.0	32.4	46.0	-13.6

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Clarity, A Division Of Plantronics, Inc. Date of Test: March 16-May 22, 2009

Model: C410

Mode : Talk

Table 15, Handset

### Radiated Emissions Pursuant to FCC Part 15 Section 15.209(a) Requirements

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	32.500	39.9	16	10.0	33.9	40.0	-6.1
V	65.000	40.6	16	9.0	33.6	40.0	-6.4
H	97.500	38.1	16	12.0	34.1	43.5	-9.4
H	*130.000	36.2	16	14.0	34.2	43.5	-9.3
H	195.000	32.6	16	16.0	32.6	43.5	-10.9
H	227.500	30.4	16	18.0	32.4	46.0	-13.6

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated 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 radiated 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.

\* Emission within the restricted band meets the requirement of part 15.205.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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### 3.6 Radiated Emission on the Bandedge - Base Unit and Handset, FCC Rule 15.249(d)

From the following plots, they show that the fundamental emissions are confined in the specified band (902MHz to 928MHz). In case of the fundamental emissions are within two standard bandwidths from the bandedge, the delta measurement technique is used for determining bandedge compliance. Standard bandwidth is the bandwidth specified by ANSI C63.4 (2003) for frequency being measured.

Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation, which meet the requirement of part 15.249(d).

Radiated emission on bandedge plots are saved with filename: emission.pdf

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 54dB $\mu$ V/m.

Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

## INTERTEK TESTING SERVICES

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### 3.7 Line Conducted Configuration Photograph - Base Unit and Handset

Worst Case Line-Conducted Configuration

Base Unit of model C410: at 0.303 MHz

Handset of model C410: at 3.548 MHz

The worst case line conducted configuration photographs are saved with filename: config photos.pdf

## INTERTEK TESTING SERVICES

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### 3.8 Line Conducted Emission Data - Base Unit and Handset

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

Judgement : Base Unit of model W425Pro: Passed by 15.8 dB margin compared with quasi-peak limit or average limit

Base Unit of model C410: Passed by 17.58 dB margin compared with average limit

Handset of model W425D & W425Pro: Passed by more than 20 dB margin

Handset of model C410: Passed by 19.45 dB margin compared with quasi-peak limit

### TEST PERSONNEL:



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*Tester Signature*

Koo Wai Ip, Engineer  
Typed/Printed Name

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September 22, 2009

Date

## **INTERTEK TESTING SERVICES**

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Company: Clarity, A Division Of Plantronics, Inc.      Date of Test: March 16-May 22, 2009  
Model: W425Pro, W425D, C410

### **Conducted Emissions Pursuant to FCC Part 15 Section 15.207 Requirements**

The conducted emission test result is saved with filename: conduct.pdf

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 4**  
**EQUIPMENT LIST**

## INTERTEK TESTING SERVICES

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### 4.0 Equipment List

#### 1) Radiated Emissions Test

Equipment	EMI Test Receiver		Biconical Antenna
Registration No.	EW-0016	EW-0014	EW-0954
Manufacturer	R&S	R&S	EMCO
Model No.	ESVS30	ESVS30	3104C
Calibration Date	Apr. 14, 2009	May. 09, 2008	Sep. 30, 2008
Calibration Due Date	Apr. 14, 2010	May. 09, 2009	Mar. 30, 2010

Equipment	Spectrum Analyzer	Double Ridged Guide Antenna	Log Periodic Antenna
Registration No.	EW-2188	EW-1015	EW-0446
Manufacturer	AGILENTTECH	EMCO	EMCO
Model No.	E4407B	3115	3146
Calibration Date	Dec. 18, 2008	Jul. 28, 2008	Oct. 02, 2008
Calibration Due Date	Dec. 18, 2009	Jan. 28, 2010	Apr. 02, 2010

#### 2) Conducted Emissions Test

Equipment	EMI Test Receiver	
Registration No.	EW-0015	EW-2251
Manufacturer	R&S	R&S
Model No.	ESHS30	ESCI
Calibration Date	Jul. 30, 2008	Oct. 28, 2008
Calibration Due Date	Jul 30, 2009	Oct. 28, 2009

Equipment	Artificial Mains	Pulse Limiter
Registration No.	EW-0192	EW-0700
Manufacturer	R&S	R&S
Model No.	ESH3-Z5	ESH3-Z2
Calibration Date	Nov. 12, 2008	Dec. 04, 2007
Calibration Due Date	Nov. 12, 2009	Jun. 04, 2009



**INTERTEK TESTING SERVICES**

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**APPENDIX**  
**EXHIBITS FOR APPLICATION OF CERTIFICATION**