

KTL Test Report: 0R03330.1

Applicant: VTECH Engineering Canada
200-7671 Alderbridge Way
Richmond, BC
V6X 1Z9

**Equipment Under Test:
(E.U.T.)** VTECH 2431 Cordless Telephone

FCC ID: EW780-5001-00

In Accordance With: **FCC Part 15, Subpart C**
Frequency Hopping Transmitters
2400 - 2483.5 MHz

Tested By: KTL Ottawa Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:

G. Westwell, Technologist

Date:

Total Number of Pages: 15

EQUIPMENT: VTECH 2431 Cordless Telephone
FCC ID: EW780-5001-00

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EQUIPMENT: VTECH 2431 Cordless Telephone
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Section 1. Summary of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C, Paragraph 15.247 for Frequency Hopping Spread Spectrum devices. Radiated tests were conducted in accordance with ANSI C63.4-1992. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

☐

New Submission

☒

Production Unit

☒

Class II Permissive Change

☐

Pre-Production Unit

E	T	S
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Equipment Code

☐

Family Listing

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST
SPECIFICATIONS HAVE BEEN MADE.
See " Summary of Test Data".



NVLAP LAB CODE: 100351-0

TESTED BY: _____ DATE: _____
Russell Grant, Wireless Group Manager

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EQUIPMENT: VTECH 2431 Cordless Telephone
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Summary Of Test Data

Name Of Test	Para. No.	Result
Powerline Conducted Emissions	15.207(a)	Not Applicable
Channel Separation	15.247(a)(1)	Not Applicable
Pseudorandom Hopping Algorithm	15.247(a)(1)	Not Applicable
Time of Occupancy	15.247(a)(1)(ii)	Not Applicable
20 dB Occupied Bandwidth	15.247(a)(1)	Not Applicable
Peak Power Output	15.247(b)	Not Applicable
Spurious Emissions (Antenna Conducted)	15.247(c)	Not Applicable
Spurious Emissions (Radiated)	15.247(c)	Complies

Footnotes For N/A's:

This equipment has been previously approved for use in the United States/Canada (See attached certificate). The manufacturer has made the following changes to the RF circuit:

Delta List for Step-5 to Step-6 Radio

<u>Item</u>	<u>Step-6 (New)</u>	<u>Step-5 (Old)</u>
(1) Base Antenna	Single Inverted-F	Dual Inverted-F (Diversity)
(2) Front End Filter	Microstrip Printed Bandpass	Ceramic Bandpass
(3) VCO	Internal to RFIC	External to RFIC
(4) IF	864 kHz	110.592 MHz

Therefore it was necessary to retest the equipment for spurious emissions.

EQUIPMENT: VTECH 2431 Cordless Telephone
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COPY

FEDERAL COMMUNICATIONS
COMMISSION
WASHINGTON, D.C. 20554GRANT OF EQUIPMENT
AUTHORIZATION
Certification

COPY

VTech Communications Ltd
23/F Tai Ping Ind Center Block 1

Date of Grant: 02/09/2000

57 Ting Kok Rd Tai Po NT, Hong Kong

Application Dated: 11/10/1999

Attention: Bruce Bernard

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for
the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER EW780-5001-00

Name of Grantee VTech Communications Ltd

Equipment Class: Part 15 Cordless Telephone
SystemNotes: 2.4 GHZ CORDLESS
TELEPHONE

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
68	15	2401.056 - 2481.408	0.066		843KF1D
		2401.056 - 2481.408	0.128		843KF1D

68: This grant does not pertain to Registration requirements under Part 68.

Mail To:
Joseph Poon, Regulatory Compliance Engineer
VTech Engineering Canada Ltd
200-7671 Alderbridge Way
Richmond, V6X 1Z9
CANADA

EA95930

EQUIPMENT: VTECH 2431 Cordless Telephone
FCC ID: EW780-5001-00

Industry
CanadaIndustrie
Canada

1241 Clyde Avenue
Ottawa, Ontario
K2C 1Y3

Tel. No. (613) 952-3200
Fax. No. (613) 952-1088

January 18, 2000

Our File: 46327-1135
Submission No.31034

Vtech Engineering Canada Ltd.
200-7671 Alderbridge Way
Richmond, BC
V6X 1Z9, Canada

Attention: Mr. Joseph Poon

Dear Mr. Poon;

This is in reply to the application for certification submitted on your behalf by Ktl Ottawa Inc. for the model listed below.

I have reviewed the documents provided and the equipment has been certified as requested. Our field offices have been notified of the approval and certification certificates are attached for:

Model	Certificate No.	Certification No.	Labels
2431	11397 22923	11351021814A 1135 10489A	150

The assigned certification number and the name of your firm must be shown on each equipment model. This certification identification information may be shown on the equipment model identification plate or on a separate label that shall be indelible and tamper proof. The certification number shall be prefixed with the word "CANADA" or "CAN" if space is very restricted.

To expedite future requests for changes in existing certifications, family approvals, or multiple listings, please refer to the certification certificate number shown in the upper right hand corner of the certificate.

A web site has been established to allow clients to view the status of applications for certifications, reassessments, and label orders in progress, and to view or download various documents associated with the certification process. The address is:
<http://spectrum.ic.gc.ca/~cert>

Sincerely,

Gabriel H. Clavel, C.E.T.
Telecom Engineering Specialist
Telecom Certification Section

GHC/
Att: certificates as above, 150 labels
cc. Mrs. Joanne Backes, Ktl Ottawa Inc.

Canada

EQUIPMENT: VTECH 2431 Cordless Telephone
FCC ID: EW780-5001-00

Section 2. General Equipment Specification

Manufacturer:	VTECH Engineering Canada
Model No.:	2431
Serial No.:	Base Station = 360000374031713 Handset = PA14F
Date Received In Laboratory:	November 24, 2000
KTL Identification No.:	Base Station = Item 1 Handset = Item 2
Frequency Range:	2401.056 – 2481.408 MHz
Tunable Bands:	1
Number of Channels:	94
Channel Spacing:	0.864 MHz
Emissions Designator:	843KF1D

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Section 3. Spurious Emissions (Radiated)

Para. No.: 15.247 (c)

Test Performed By: Russell Grant	Date of Test: December 7, 2000
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Test Results: Complies. The worst case emission level is 52.8 dB μ V/m @ 3m at 4962.816 MHz. This is 1.2 dB below the specification limit.

Measurement Data: See attached table.

EQUIPMENT: VTECH 2431 Cordless Telephone
FCC ID: EW780-5001-00**Test Data - Radiated Emissions**

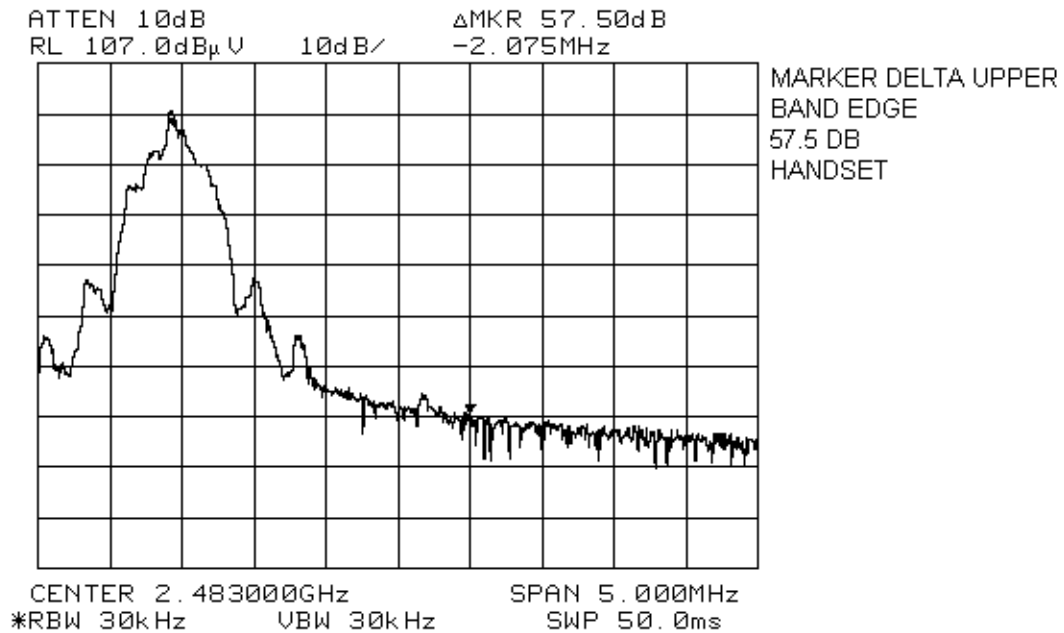
Test Distance (meters) : 3		Range: A Tower		Receiver: ESVP		RBW(kHz): 1000		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBµV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Dist. Corr. (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Handset									
2401.056	Hrn2	V	84.5	36.7			121.2	131.0	9.8
2401.056	Hrn2	H	81.0	36.7			117.7	131.0	13.3
4802.112	Hrn2	V	77.0	44.6	-55.6	-20.0	46.0	54.0	8.0
4802.112	Hrn2	H	77.7	44.6	-55.6	-20.0	46.7	54.0	7.3
7203.168	Hrn2	V	64.5	51.8	-55.8		60.5	101.2	40.7
7203.168	Hrn2	H	62.8	51.8	-55.8		58.8	101.2	42.4
2441.664	Hrn2	V	87.7	36.2			123.9	131.0	7.1
2441.664	Hrn2	H	82.3	36.2			118.5	131.0	12.5
4883.328	Hrn2	V	75.7	43.9	-55.4	-20.0	44.2	54.0	9.8
4883.328	Hrn2	H	79.5	43.9	-55.4	-20.0	48.0	54.0	6.0
7324.992	Hrn2	V	65.8	50.9	-55.7	-20.0	41.0	54.0	13.0
7324.992	Hrn2	H	63.2	50.9	-55.7	-20.0	38.4	54.0	15.6
2481.408	Hrn2	V	90.8	36.4			127.2	131.0	3.8
2481.408	Hrn2	H	82.3	36.4			118.7	131.0	12.3
4962.816	Hrn2	V	76.5	44.2	-55.2	-20.0	45.5	54.0	8.5
4962.816	Hrn2	H	74.8	44.2	-55.2	-20.0	43.8	54.0	10.2
7444.224	Hrn2	V	68.8	51.2	-55.7	-20.0	44.3	54.0	9.7
7444.224	Hrn2	H	69.0	51.2	-55.7	-20.0	44.5	54.0	9.5
Base Station									
2401.056	Hrn2	V	82.2	36.0			118.2	131.0	12.8
2401.056	Hrn2	H	78.8	36.0			114.8	131.0	16.2
4802.112	Hrn2	V	78.2	43.6	-55.6	-20.0	46.2	54.0	7.8
4802.112	Hrn2	H	83.0	43.6	-55.6	-20.0	51.0	54.0	3.0
7203.168	Hrn2	V	75.0	50.7	-55.8		69.9	98.2	28.3
7203.168	Hrn2	H	78.7	50.7	-55.8		73.6	98.2	24.6
2441.664	Hrn2	V	83.5	36.2			119.7	131.0	11.3
2441.664	Hrn2	H	80.3	36.2			116.5	131.0	14.5
4883.328	Hrn2	V	77.3	43.9	-55.4	-20.0	45.8	54.0	8.2
4883.328	Hrn2	H	83.7	43.9	-55.4	-20.0	52.2	54.0	1.8
Notes: B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole * Re-measured using dipole antenna. ** Includes cable loss when amplifier is not used. *** Includes cable loss. () Denotes failing emission level. N.D. = Not Detected									

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Test Data - Radiated Emissions, continued

Test Distance (meters) : 3		Range: A Tower		Receiver: ESVP		RBW(kHz): 1000		Detector: Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBμV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Dist. Corr. (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Base Station									
7324.992	Hrn2	V	72.8	50.9	-55.7	-20.0	48.0	54.0	6.0
7324.992	Hrn2	H	75.0	50.9	-55.7	-20.0	50.2	54.0	3.8
2481.408	Hrn2	V	83.0	36.4			119.4	131.0	11.6
2481.408	Hrn2	H	78.7	36.4			115.1	131.0	15.9
4962.816	Hrn2	V	76.3	44.2	-55.2	-20.0	45.3	54.0	8.7
4962.816	Hrn2	H	83.8	44.2	-55.2	-20.0	52.8	54.0	1.2
7444.224	Hrn2	V	72.5	51.2	-55.7	-20.0	48.0	54.0	6.0
7444.224	Hrn2	H	74.5	51.2	-55.7	-20.0	50.0	54.0	4.0
Notes: B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole * Re-measured using dipole antenna. ** Includes cable loss when amplifier is not used. *** Includes cable loss. () Denotes failing emission level. N.D. = Not Detected									

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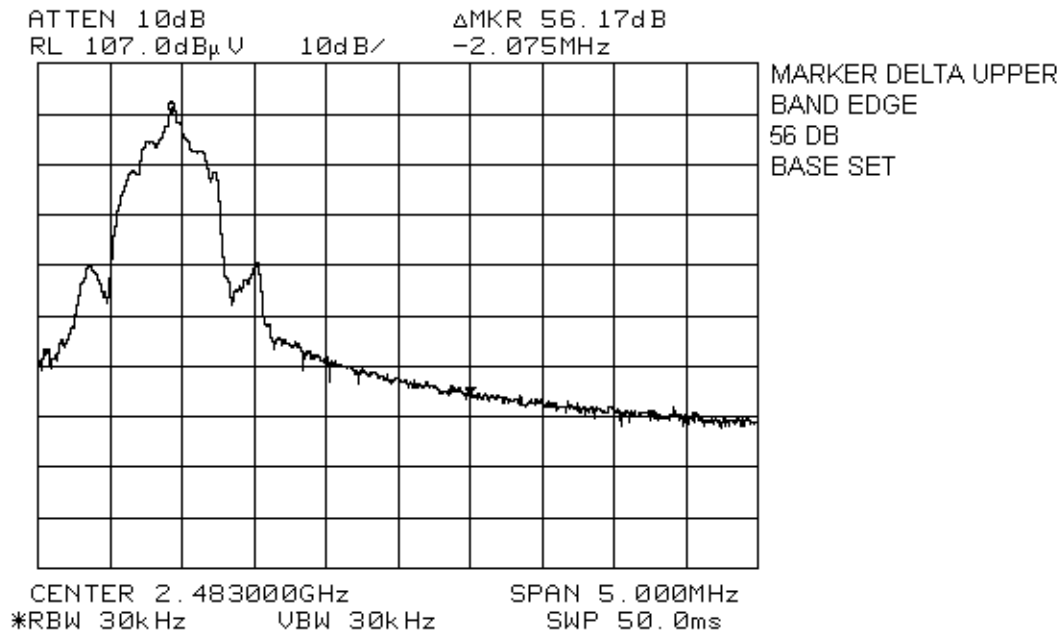


2483.5 MHz

$$\text{Peak} = 127.2 - 57.5 = 69.7 \text{ dB}\mu\text{V/m}$$

$$\text{Average} = 69.7 - 20 = 49.7 \text{ dB}\mu\text{V/m}$$

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2483.5 MHz

$$\text{Peak} = 119.4 - 56.2 = 63.2 \text{ dB}\mu\text{V/m}$$

$$\text{Average} = 63.2 - 20 = 43.2 \text{ dB}\mu\text{V/m}$$

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Section 4. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 16/00	June 16/01
1 Year	Horn Antenna	EMCO #2	3115	4336	Nov. 11/99	Nov. 11/00
1 Year	RF AMP	JCA	2-4 GHz	FA001496	May 31/00	May 31/01
1 Year	RF AMP	JCA	1-2 GHz	FA001498	May 31/00	May 31/01
1 Year	RF AMP	JCA	4-8 GHz	FA001497	May 31/00	May 31/01

NA: Not Applicable
NCR: No Cal Required
COU: CAL On Use

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Annex A

Block Diagrams

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Test Site For Radiated Emissions

