



Test Report:

4W08260

Applicant:

VTech Engineering Canada Ltd. Suite 200 – 7671 Alderbridge Way Richmond, B.C., Canada V6X 1Z9

Equipment Under Test: (EUT)

5853, 5866, 5803, 5807

FCC Part 15, Subpart C Frequency Hopping Systems Class II Permissive Change

 FCC ID:
 Base
 EW780-5412-00

 Handset
 EW780-5412-01

In Accordance With:

Tested By:

Nemko Canada Inc. 303 River Road, R.R. 5 Ottawa, Ontario K1V 1H2

= Can

Authorized By:

Kevin Carr, EMC/EMI/Wireless Specialist

Date:

27 July 2004

Total Number of Pages: 50

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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 is 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.

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. TESTING FOR SUPPORT OF A CLASS 1 PERMISSIVE CHANGE See " Summary of Test Data".

TESTED BY:

Daxesh Thakker, Wireless Test Engineer

DATE: 16 July 2004

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Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation.

Summary Of Test Data

Name Of Test	Para. No.	Result
Powerline Conducted Emissions	15.207(a)	Complied
Channel Separation	15.247(a)(1)	Complied
Time of Occupancy	15.247(a)(1)(iii)	Complied
20 dB Occupied Bandwidth	15.247(a)(1)	Complied
Number of Hopping Channels	15.247(a)(1)(iii)	Complied
Peak Power Output	15.247(b)(1)	Complied
Spurious Emissions (Antenna Conducted)	15.247(c)	N/A
Spurious Emissions (Radiated)	15.247(c)	Complied

Footnotes For N/A's:No Access PortAdditional Note:This report is intended to support a class 1 permissive change as
dictated by the clientThe two systems use the same RF modules, so only one handset &
one base were assessed. Base station, Model i5853 was selected
due to it's extra keypad circuitry. Handset, model i5807 was
selected due to its additional USB port.Test Conditions:Temperature: 22°C

Indoor	Humidity:	40%
Outdoor	Temperature: Humidity:	20°C 42%

This submission is for Reassessment as a Class II Permissive Change. Please refer the following information provided by the customer.

The original testing was (for new FCC ID) on AT&T model: Nemko Project # 3W07618. For VTech model, Class I verification report is 4W07733. This is a cost reduction for Class II permissive change testing.

The Base & the handset have been tested fully and all new results are used in this report.

CLASS I CHANGES

BS RF Module changes

1) PLL, 3.3GHz VCO (LO for Up conversion), Up converter and Driver amplifier will be replaced by Microlinear (ML5824) Transverter

2) 5.8GHz 1 watt PA changed for the cost reduction purpose from MuRata XM5060PC to MuRata XM5060PE

3) 2.4GHz Rx Antenna changes from Coax Dipole to Metal Wire L – Antenna.

4) Base Station Tx Ant. Gain from 5.6dBi to 2.0dBi

HS RF Module Changes

1) 5.8GHz LNA, PLL, 3.3GHz VCO (LO for Down conversion) and Down Converter will be replaced by Microlinear (ML5824) Transverter

2) 2.4GHz Tx Discrete Lumped LPF is replaced by MuRata 2.4GHz LPF (to reduces the Power and Harmonic suppression variations).

The original FCC ID# of the Nemko project report 3W07618 is EW780-5412-00/01.

Section 2. Genera	General Equipment Specification			
Manufacturer:		VTech (Dongguan) Electronics and Communications Ltd. Xia Ling Bei Management Zone, Liaobu, Dongguan, guangdong, China 523411		
Model No.:		5853, 5866, 5803, 5807		
Serial No.:		None		
Date Received In Laboratory:		9 July. 2004		
Nemko Identification No.:		1, 2, 3 & 4		
Frequency Range:		BS TX 5744.736 – 5825.952 MHz HS TX 2401.056 – 2482.272 MHz HS RX 5744.736 – 5825.952 MHz BS RX 2401.056 – 2482.272 MHz		
Tunable Bands:		1		
Number of Channels:		2.4GHz Link (HS->BS) is a 17 channel system 5.8GHz Link (BS->HS) is a 75 channel system		
Min. Channel Spacing:	Handset Base	867kHz 858kHz		
Emissions Designator:	Handset Base	700KF1D 675KF1D		
User Frequency Adjustment:		None		
Rated Output Power:	Base Handset	0.754W, 28.77dBm, measured 0.072W, 18.57dBm, measured		



Equipment Configuration List:						
Item	Description	Identi	fication: (M/N	#, S/N #, P/N #, Rev.)		
(A)	Handset	P/N 5	807, S/N None			
(B)	Base	P/N 5	853, S/N None			
(C)	Headset	None				
(D)	VTech Power Adapter	M/NU	J070090D3001			
(E)	DC Feed and Ring-up Unit	P/N C	L01, S/N 001			
(F)	Toshiba Lap Top	M/N I	PS210C-199K6	S/N 9014309		
	EUT Ports:					
Item	Description			Q	Qty	
i.	Headset				1	
ii.	USB Port				1	
iii.	POTS Port			1		
iv.	Power Port			1		
	Inter-Connection Cables:					
Item	Description		Shielded?	Ferrite	Length (m)	
(1)	Integrated headset cable		Y	Ν	1.0	
(2)	USB Cable		Y	Y	2.0	
(3)	4 Conductor Telco cable		Ν	Ν	2.0	
(4)	Integrated 2 Conductor		Ν	Ν	1.5	

Section 3. Power line Conducted Emissions

Para. No.: 15.207 (a)

Test Performed By: Daxesh Thakker		Date of Test: July 13, 2004
Test Results:	Complied	
Measurement Data:	The EUT was tested compartment in addi deemed worst case. S	with flat batteries in the base units charge tion the system was off hook. This was See attached graph(s).

EQUIPMENT: 5853, 5866, 5803, 5807



Power line Conducted Emission Plots

FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260



FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807

Set-up Photo:





Section 4. Channel Separation

Para. No.: 15.247 (a)(1)

Test Performed By: Daxesh Thakker			Date of Test: July 12, 2004
Test Results:	Complies		
Measurement Data:	Measured 2 Channel Sep	0 dB bandwidth: paration:	
	Base: Handset:	858kHz 867kHz	

Channel Separation Plots:

Handset



Base



Section 5. Number of Hopping Channels

Para. No.: 15.247(a)(1)(iii)

Test Performed By: Da	xesh Thakker		Date of Test: July 12, 2004
Test Results:	Complies		
Measurement Data:	Number of	Hopping Frequenc	ies:
	Base: Handset:	75 17	

Number of Hopping Channel Plots: Handset



Total No. of channels = 6 + 11 = 17

Base





FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260



Total No. of channels = 6 + 24 + 23 + 21 + 1 = 75

Section 6. Time of Occupancy

Para. No.: 15.247 (a)(1)(iii)

Test Performed By: Daxesh Thakker		Date of Test: 12 July, 2004
Test Results:	Complies	
Measurement Data:	Maximum I See Plots.	Owell Time On Any Channel:
	Base: Handset:	10.72ms 176.4ms

Time Of Occupancy Plots

Handset



FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807



Active Slot showing 840us On-Time

Time of Occupancy Showing 210 hits per 30 sec 210 * 0.840 = 176.4ms

FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807

Base



FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807



Active Slot showing 268us On-Time

Time of Occupancy Showing 40 hits per 30 sec 40 * 0.268 = 10.72ms

Section 7. Occupied Bandwidth

Para. No.: 15.247 (a)(1))

Test Performed By: Da	xesh Thakker		Date of Test: July 12, 2004
Test Results:	Complied.		
Measurement Data:	See Plots.		
	Base: 99%: 20 dB:	675kHz 750kHz	
	Handset 99%: 20 dB:	700kHz 750kHz	

Occupied Bandwidth Plots:

Handset







FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807

Base





FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260



Section 8. Peak Power Output

Para. No.: 15.247 (b)(1)

Test Performed By: Daxesh Thakker	Date of Test: July 15, 2004

Test Results:

Complies. The maximum peak power output of the transmitter is

 $P = \{E^2 R^2 / 30G\}$ where

	E, V/mtr @ 3m	R, mtr	G
Base	2.0	3	1.58
Handset	0.55	3	1.26

Base = 0.754W, 28.77dBm Handset = 0.072W, 18.57dBm

The Base Station was tested at +/- 15% of AC line voltage. The received level did not change The Handset was tested with fresh batteries. This EUT was searched in 3 orthogonal axes to determine worstcase emissions.

Measurement Data:	Detachable antenna?	Yes	No No	

If yes, state the type of non-standard connector used at the antenna port:

Base	
Field Strength:	126.0 dBuV/m@ 3m or 2.0 V/m @ 3m
Handset	
Field Strength:	114.8 dBuV/m@ 3m or 0.55 V/m @ 3m.

Antennas:

Device	Gain (dBi)	Gain Numeric		
Handset	1.0 dBi	1.26		
Base Station	2.0dBi	1.58		

Radiated Disturbance Test Data

Test Date: 1	Test Date: 14 July 2004								
Engineer's Name: Daxesh Thakker									
Base Station fundamental emissions									
Tested as per: Table Top									
Test Distance	e (meters):	3			Range: 1				
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Field Strength (dBµV/m)		
5744.79	Horn2	V	80.7	34.5	N/A	9.7	125.2		
5744.79	Horn2	Н	74.5	34.7	N/A	9.7	118.8		
5785.51	Horn2	V	80.8	34.5	N/A	9.8	125.4		
5785.54	Horn2	Н	77.3	34.7	N/A	9.8	121.8		
5826.13	Horn2	V	81.0	34.5	N/A	10.2	126.0		
5826.13	Horn2	Н	77.2	34.7	N/A	10.2	122.1		
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW Notes: Measurement Receiver = H P 8565F, RBW/VBW = 1/3MHz									
					_, // 2 //	-,			

Test Date: 14	Test Date: 14 July 2004									
Engineer's Name: Daxesh Thakker										
Handset fundamental emissions										
Tested as per: Table Top										
Test Distanc	e (meters)): 3			Range: 1					
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Field Strength (dBµV/m)			
2401.2500	Horn2	V	81.1	28.9	N/A	4.8	114.8			
2401.0300	Horn2	Н	80.8	28.9	N/A	4.8	114.5			
2441.6500	Horn2	V	79.3	28.9	N/A	5.3	113.5			
2441.8000	Horn2	Н	80.0	28.9	N/A	5.3	114.2			
2482.4500	Horn2	V	78.9	29.2	N/A	5.9	114.0			
2482.3500	Horn2	Н	78.5	28.9	N/A	5.9	113.3			
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW										
Notes:		Measurer	nent Receiv	ver = H.P.8565	E, RBW/VBW =	= 1/3MHz				

Section 9. Spurious Emissions (Radiated)

Para. No.: 15.247 (c)

Test Performed By: Daxe	esh Thak	ker	Date of Test: July 15, 2004
Test Results:	Compli	ies	
	The wo MHz.	orst-case emission level is This is 11.4 dB below the	e 42.6 dBµV/m @ 3m at 11489.5 e specification limit.
Measurement Data:	See atta	ached table.	
Duty Cycle Calculation:	See Plo	ots	
	Handse	et: 20Log{(10 X 0.91mS) 20dB	(100) = -20.9 dB, max. allowed
	Base:	20Log{(10 X 0.856mS 20dB	$)/100\} = -21.41$ dB, max. allowed

Notes:

The EUT was assed in the shield room using both modes of operation. "Off Hook, normal operation" as well as "On Hook, USB upload mode. The Base Station was left in the chamber during the On hook test. From the test data yielded from both sets of Pre-scans USB mode was deemed worst case.

This EUT's were searched in 3 orthogonal axes to determine worst-case emissions. The handset was tested with a fresh set of Batteries. Fundamental Tx frequencies where searched to the 10^{th} Harmonic. Digital emissions where searched to the 5^{th} Harmonic of the highest frequency used by the device.

Kaulateu	Radiated Distui Dance Test Data. Dignai Emissions										
Test Date: .	July 16, 2	2004									
Engineer's	Engineer's Name: Daxesh Thakker										
Temperature (C°): 22 Humidity %: 42											
Tested as per Table Top											
Test Distan	ice (meter	rs): 3				Ran	ge: 1				
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Field Strength (dBuV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Amp.
39.8050	BC2	V	13.1	11.0	N/A	0.8	24.9	40.0	15.1	Q-Peak	None
39.8050	BC2	Н	6.4	12.4	N/A	0.8	19.6	40.0	20.4	Q-Peak	None
43.1960	BC2	V	17.0	10.6	N/A	0.8	28.4	40.0	11.6	Q-Peak	None
43.1960	BC1	Н	6.9	11.7	N/A	0.8	19.4	40.0	20.6	Q-Peak	None
51.8400	BC2	V	21.0	9.8	N/A	0.8	31.6	40.0	8.4	Q-Peak	None
51.8400	BC2	Н	6.3	10.7	N/A	0.8	17.8	40.0	22.2	Q-Peak	None
580.6130	LP1	V	9.5	18.8	N/A	3.1	31.4	46.0	14.6	Q-Peak	None
580.6130	LP1	Н	11.1	19.3	N/A	3.1	33.5	46.0	12.5	Q-Peak	None
601.3470	LP1	V	14.5	18.9	N/A	3.2	36.6	46.0	9.4	Q-Peak	None
601.3470	LP1	Н	13.6	19.9	N/A	3.2	36.7	46.0	9.3	Q-Peak	None
622.0800	LP1	V	9.1	19.4	N/A	3.3	31.8	46.0	14.3	Q-Peak	None
622.0800	LP1	Н	8.2	20.1	N/A	3.3	31.6	46.0	14.4	Q-Peak	None
1202.0000	Horn2	V	58.3	25.8	46.5	3.1	40.7	54.0	13.3	Peak	1-2GHz
1202.8700	Horn2	Н	52.3	25.8	46.5	3.1	34.7	54.0	19.3	Peak	1-2GHz
Note 1: Anter Note 2: Detec	nna Legend ctor Legend	: BC = 1 1: Q-Peal	Biconical, E k = 120 kHz	BL = Bilog RBW, A	LP = Log verage = 1.	-Periodic, I 0 MHz RB	Horn = Horn, E W	D = EMCO D	Dipole		
Notes:											

Radiated Disturbance Test Data: Digital Emissions

Radiated Disturbance Test Data: Handset Harmonics, Avg.

Test Date: July 15, 2004											
Engineer's	Name: D	Daxesh	Thakker								
Tested as per: Table Top											
Test Distance (meters): 3 Range: 1											
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (-dB)	Duty Cycle Corr. Factor (-dB)	Cable Loss (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Amp.
Ch. 00											
4802.0000	Horn1	V	62.0	34.3	53.2	-20	8.1	31.2	54.0	22.8	4-8GHz
4802.3700	Horn1	Н	65.0	34.1	53.2	-20	8.1	34.0	54.0	20.0	4-8GHz
7203.5000	Horn1	V	62.8	36.5	53.7	-20	11.3	36.9	54.0	17.1	4-8GHz
7203.5700	Horn1	Н	65.0	36.5	53.7	-20	11.3	39.1	54.0	14.9	4-8GHz
Ch. 47											
4843.5800	Horn1	V	61.7	34.3	52.9	-20	8.5	32.3	54.0	21.7	4-8GHz
4843.5500	Horn1	Η	64.7	34.2	52.9	-20	8.5	35.1	54.0	18.9	4-8GHz
7245.4200	Horn1	V	62.1	36.5	53.7	-20	11.2	35.1	54.0	18.9	4-8GHz
7245.3000	Horn1	Η	62.8	36.5	53.7	-20	11.2	35.8	54.0	18.2	4-8GHz
Ch. 94											
4964.5000	Horn1	V	62.3	34.4	52.3	-20	9.5	33.9	54.0	20.1	4-8GHz
4964.8200	Horn1	Η	64.7	34.2	52.3	-20	9.5	36.1	54.0	17.9	4-8GHz
7446.9900	Horn1	V	62.7	36.5	53.2	-20	11.1	37.1	54.0	16.9	4-8GHz
7446.9700	Horn1	Η	62.8	36.5	53.2	-20	11.1	37.3	54.0	16.7	4-8GHz
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW Note 3: The EUT was searched up to 10th harmonics of the fundamental.											
1,0005.		11100		11000170				1, 51,1112,	using a pour		

Radiated Disturbance Test Data: Base Station, Harmonics, Average

Test Date: 16 July, 2004											
Engineer's	Engineer's Name: Daxesh Thakker										
Tested as per: Table Top											
Test Distar	Test Distance (meters): 3 Test Distance (meters): 3										
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp Gain (-dB)	Passband filter Loss (dB)	Duty Cycle Corr. (-dB)	Dist Corr. (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)
Low Ch.											
11489.5	Hr2	V	57.8	40.9	38.8	2.7	-20	0	42.6	54	11.4
11489.5	Hr2	Н	57.3	40.9	38.8	2.7	-20	0	42.1	54	11.9
22979.5	18-40GHz	V	56.1	45.7	39.3	0	-20	0	42.5	54	11.5
22978.6	18-40GHz	Н	55.3	45.7	39.3	0	-20	0	41.7	54	12.3
Mid Ch.							-20				
11570.7	Hr 2	V	56.6	40.9	38.8	2.7	-20	0	41.4	54	12.6
11571.3	Hr 2	Н	57.2	40.9	38.8	2.7	-20	0	42	54	12
High Ch.							-20				
11652.3	Hr 2	V	57.8	40.9	38.8	2.7	-20	0	42.6	54	11.4
11652.3	Hr 2	Н	56	40.9	38.8	2.7	-20	0	40.8	54	13.2
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW Note 3: The EUT was searched up to 10th harmonic of the fundamental.											
Notes:		Measu	rement R	eceiver	= H.P.8	3565E, RB	W = 1 MHz				

Ant.	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (-dB)	Passband filter Loss (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)		
Hr2	V	67.8	43.5	38.5	2.2	75	104.4	29.4		
Hr2	Н	67.3	43.5	38.5	2.2	74.5	104.4	29.9		
Hr 2	V	64.4	43.5	38.5	2.2	71.6	104.4	32.8		
Hr 2	Н	64.9	43.5	38.5	2.2	72.1	104.4	32.7		
18-40GHz	V	62.6	45.7	39.3	0	69	104.4	35.4		
18-40GHz	Н	62.3	45.7	39.3	0	68.7	104.4	35.1		
Hr 2	V	62	43.5	38.5	2.2	69.2	104.4	35.2		
Hr 2	Н	62.1	43.5	38.5	2.2	69.3	104.4	35.1		
18-40GHz	V	63.1	45.7	39.3	0	69.5	104.4	34.9		
18-40GHz	Н	62.8	45.7	39.3	0	69.2	104.4	35.2		
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW Note 3: The EUT was searched up to 10th harmonic of the fundamental. Notes:										
	Ant. Hr2 Hr2 Hr2 Hr 2 18-40GHz 18-40GHz Hr 2 Hr 2 Hr 2 18-40GHz 18-40GHz 18-40GHz 18-40GHz 18-40GHz 18-40GHz 18-40GHz	Ant.Pol. V/H Hr2VHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHr2HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	Ant. Pol. V/H RCVD Signal (dB μ V) Hr2 V 67.8 Hr2 H 67.3 Hr2 H 67.3 Hr2 H 67.3 Hr2 H 62.3 Hr2 H 64.9 18-40GHz H 62.3 Hr2 H 62.1 18-40GHz H 62.1 18-40GHz H 62.8 enna Legend: BC = Biconical, BL = ector Legend: Q-Peak = 120 kHz RE e EUT was searched up to 10th H Measurement Rec Measurement Rec	Ant. Pol. V/H RCVD Signal (dB μ V) Ant. Factor (dB) Hr2 V 67.8 43.5 Hr2 H 67.3 43.5 Hr2 H 67.3 43.5 Hr2 H 67.3 43.5 Hr2 H 64.9 43.5 Hr2 H 64.9 43.5 Hr2 H 62.6 45.7 18-40GHz H 62.3 45.7 Hr2 H 62.1 43.5 Hr2 H 62.1 43.5 Hr2 H 62.1 45.7 Hr3 H 62.8 45.7 Hr4 H 62.8 45.7 18-40GHz H 62.8 45.7 I8-40GHz H 62.8 45.7 enna Legend: BC = Biconical, BL = Bilog, LP = L Ector Legend: Q-Peak = 120 kHz RBW, Average = e eEUT was searched up to 10th harmonic of tt Measurement Receiver = H.P.	Ant. Pol. V/H RCVD Signal (dBµV) Ant. Factor (dB) Amp. Gain (-dB) Hr2 V 67.8 43.5 38.5 Hr2 H 67.3 43.5 38.5 Hr2 H 64.9 43.5 38.5 Hr2 H 64.9 43.5 38.5 18-40GHz V 62.6 45.7 39.3 Hr2 V 62 43.5 38.5 Hr2 H 62.3 45.7 39.3 Hr2 H 62.1 43.5 38.5 Hr2 H 62.1 43.5 38.5 Hr2 H 62.8 45.7 39.3 18-40GHz V 63.1 45.7 39.3 enna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horrector Legend:	Ant.Pol. V/HRCVD Signal (dB μ V)Ant. Factor (dB)Amp. Gain (-dB)Passband filter Loss (dB)Hr2V67.843.538.52.2Hr2H67.343.538.52.2Hr2H67.343.538.52.2Hr2H64.443.538.52.2Hr 2V64.443.538.52.2Hr 2H64.943.538.52.218-40GHzV62.645.739.3018-40GHzH62.345.739.30Hr 2V6243.538.52.2Hr 2H62.143.538.52.2Hr 2H62.143.538.52.2Is-40GHzV63.145.739.30Is-40GHzH62.845.739.30enna Legend:BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EEector Legend:Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBWe EUT was searched up to 10th harmonic of the fundamental.Measurement Receiver = H.P.8565E, RBW = 1MHz	Ant.Pol.RCVD Signal (dB μ V)Ant. Factor (dB)Amp. Gain (-dB)Passband filter Loss (dB)Level (dBuV)Hr2V67.843.538.52.275Hr2H67.343.538.52.274.5Hr2H67.343.538.52.274.5Hr2H64.443.538.52.271.6Hr 2H64.943.538.52.272.118-40GHzV62.645.739.306918-40GHzH62.345.739.3068.7Hr 2V6243.538.52.269.2Hr 2H62.143.538.52.269.318-40GHzV63.145.739.3069.518-40GHzH62.845.739.3069.518-40GHzH62.845.739.3069.2ena Legend:BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole69.2ector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBWeEUT was searched up to 10th harmonic of the fundamental.Measurement Receiver = H.P.8565E, RBW = 1MHz	Ant.Pol. V/HRCVD Signal (dBµV)Ant. Factor (dB)Amp. Gain (-dB)Passband filter Loss (dB)Level (dBuV)Limit (dBuV)Hr2V67.843.538.52.275104.4Hr2H67.343.538.52.274.5104.4Hr2H67.343.538.52.271.6104.4Hr2H64.443.538.52.271.6104.4Hr2H64.943.538.52.272.1104.4Hr4H62.645.739.3069104.418-40GHzV62.645.739.3068.7104.4Hr2H62.143.538.52.269.2104.4Hr2H62.143.538.52.269.2104.4Hr2H62.143.538.52.269.3104.4Hr2H62.143.538.52.269.3104.4Hr2H62.143.538.52.269.3104.4Hr2H62.143.538.52.269.3104.4Hr4H62.845.739.3069.5104.4Hr4H62.845.739.3069.2104.4Hr4H62.845.739.3069.2104.4H62.845.739.3069.2		

Radiated Disturbance Test Data: Base Station Harmonics, Peak



FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807

Base



Band Edge

Handset



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EQUIPMENT: 5853, 5866, 5803, 5807

Base



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FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807



Band Edge (Restricted Band) Marker Delta Method calculation

Date: 14.JUL.2004 03:23:46

Peak Level, Band Edge = 78.9 dBuV/m + 29.2dB + 5.9 = 114dBuV/m @ 3m. Peak Band Edge Level (Marker Delta): = 114 dBuV/m – 44.17 dB= 69.83 dBuV/m at 3 m. Average = 69.83 - 20 dB = 49.83 dBuV/m @ 3m. Limit is 54 dBuV/m @ 3m.

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FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807

Set up Photo's





FCC PART 15, SUBPART C FREQUENCY HOPPING SYSTEMS PROJECT NO.: 4W08260

EQUIPMENT: 5853, 5866, 5803, 5807

Set up Photo's Digital Emissions, On Hook, USB Mode





EQUIPMENT: 5853, 5866, 5803, 5807

Section 10. Block Diagrams

Test Site For Radiated Emissions



Conducted Emissions



Section 11. Test Equipment List

Conducted Disturbance at Mains Test Equipment Used:

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	LISN	EMCO	4825/2	FA001545	Oct. 30/03	Oct. 30/04
Extended	Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 26/04	May. 26/05
Extended	Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 26/04	May. 26/05
1 Year	Transient Limiter	Hewlett-Packard	1194 7A	FA000975	June 10, 04	June 10, 05

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use, OUT = Out For CAL/Repair

Equipment List - Radiated Emissions

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Receiver	Rohde & Schwarz	ESVS-30	FA001437	July. 24/03	July. 24/04
1 Year	Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	May 31/04	May 31/05
1 Year	Biconical (1) Antenna	EMCO	3109	FA000805	Apr. 23/04	Apr. 23/05
1 Year	Horn Antenna #1	EMCO	3115	FA000649	Dec. 18/03	Dec. 18/04
1 Year	Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Sept. 2/03	Sept. 2/04
1 Year	1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	June 18, 04	June 18, 05
1 Year	2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	June 18, 04	June 18, 05
1 Year	4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	June 18, 04	June 18, 05
1 Year	18-40 GHz Horn Antenna #5	ETS	3116	FA001847	Jan. 19/04	Jan. 19/05
1 Year	Horn Antenna #2	EMCO	3115	FA000825	Dec. 10/03	Dec. 10/04
COU	5.0 – 18.0 GHz Amplifier	NARDA	DWT-	FA001409	COU	COU
			186N23U40			
COU	18.0 – 26.0 GHz Amplifier	NARDA	BBS-	FA001550	COU	COU
			1826N612			

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use, OUT = Out For CAL/Repair