

**ADDENDUM 02 TO TEST REPORT
OF A 2.4 GHz RLAN PCMCIA CARD,
BRAND NO WIRES NEEDED,
TYPES SWALLOW 1100 AND FALCON 1100,
IN CONFORMITY WITH
FCC PART 15 AND ANSI C63.4-1992**

FCC report layout endorsed by the FCC by Public
Notice of March 11, 1992.

Accredited by	: STERLAB accreditation number L029 D.A.R., TTI-P-G.127/96-00
Competent body	: Article 10-2 EMC Directive
Notified body	: Article 10-5 EMC Directive Low Voltage Directive Number 0122 TTE Directive
Designated laboratory	: TTE Directive
Notified test service	: Automotive Directive
FCC listed	: 31040/SIT
VCCI listed	: R 592 and C 507
Certification body	: Electrical Products Safety Regulation Hong Kong

Nederlands Meetinstituut

**P.O. Box 15
9822 ZG Niekerk (NL)
Smidshornerweg 18
9822 TL Niekerk (NL)**

**Telephone: +31 594 505005
Telefax: +31 594 504804
E-mail: NMI@NMI.nl**

NMi B.V. (Chamber of Commerce Haaglanden No. 27228701)

Offices: Delft, Bergum, Dordrecht, Niekerk, Utrecht,
Tinton Falls NJ (USA), Kawasaki (Japan), Hortolândia SP (Brazil)

Subsidiary companies:

NMi Certin B.V. (27233418)

NMi Van Swinden Laboratorium B.V. (27228703)

NMi International B.V. (27239176)

MEASUREMENT/TECHNICAL REPORT

No Wires Needed B.V.

Models : Swallow 1100, Falcon 1100

FCC ID: OGD 10330209

October 20, 1999

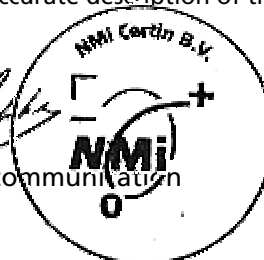
This report concerns (check one):		Original grant	Class II change
Equipment type: Direct Sequence Spread Spectrum Transceiver			
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?		yes	no
If yes defer until: _____			
No Wires Needed, Jan Steen laan 5, 3723 BS Bilthoven, The Netherlands agrees to notify the Commission by _____ 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	no
If no, assumed Part 15, Subpart B for unintentional radiators – the new 47 CFR (10-1-90 Edition) provision.			
Report prepared by:	Name	: Jan S. Sikkema B.Sc. E.E.	
	Company name	: NMI Certin B.V.	
	Address	: Smidshornerweg 18	
	Telephone number	: + 31-59450-50 05	
	Telefax number	: + 31-59450-48 04	
	Mailing address	: P.O. Box 15	
	City/Place/Postal cd.	: 9822 ZG NIEKERK	
	Country	: The Netherlands	

The data taken for this test and report herein was done in accordance with FCC Part 15 and measurement Procedures of ANSI C63.4-1992 and were relevant the procedures as specified in the sheets from the FCC attached to this test report. NMI Certin B.V. at Niekerk, The Netherlands, certifies that the data is accurate and contains a true representation of the emission-profile of the Equipment Under Test (EUT) on the date of the test noted in the test report. I have reviewed the test report and find it to be an accurate description of the test(s) performed and the EUT so tested.

Date: October 20, 1999

Signature:

P.A.J.M. Robben
Department EMC and Telecommunication



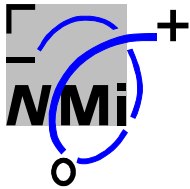


Table of Contents	Page
1 Processing Gain	4
1.1 section 15.247(e) Processing gain	4

1 Processing Gain

1.1 section 15.247(e) Processing gain

The processing gain is measured using the CW jamming margin method. A signal generator is stepped in 50 kHz increments across the passband of the system. At each point the generator level required to produce a Bit Error Rate equivalent to $BER=10E-5$ is recorded as the Jammer level (J). The output power of the transmitter is measured at the same point and recorded as Signal (S). The Jammer to Signal ratio (J/S) is then calculated with 20% of the worst datapoints discarded. The lowest remaining J/S ratio is used to calculate the processing gain using formula:

$$G_p = (S/N)_0 + M_j + L_{sys}$$

with:

$(S/N)_0 = 13.2$ dB for 2Mb/s (obtained from manufacturer's specification of spreading processor Harris semiconductor model HFA3860B)

$L_{sys} = 2$ dB

$M_j = -2.0$ dB

$$G_p = 13.2 \text{ dB} + (-2.0) \text{ dB} + 2 \text{ dB} = 13.2 \text{ dB (for 2mbps modulation)}$$

Processing Gain testresults tables

pass band = $f_0 \pm 5\text{MHz}$ (5000 kHz = 100 x 50 kHz)

channel: 07 = 2441.7 MHz 1 of 4 (Parrot 1100 to Swallow 1100)

Frequency (MHz)	frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2446.70	+100 x 50	-53.5	-51.0	-2.5
2446.65	+99 x 50	-53.4	-51.0	-2.4
2446.60	+98 x 50	-52.5	-51.0	-1.5
2446.55	+97 x 50	-52.2	-51.0	-1.2
2446.50	+96 x 50	-52.6	-51.0	-1.6
2446.45	+95 x 50	-52.2	-51.0	-1.2
2446.40	+94 x 50	-52.6	-51.0	-1.6
2446.35	+93 x 50	-52.1	-51.0	-1.1
2446.30	+92 x 50	-52.4	-51.0	-1.4
2446.25	+91 x 50	-53.1	-51.0	-2.1
2446.20	+90 x 50	-52.5	-51.0	-1.5
2446.15	+89 x 50	-52.2	-51.0	-1.2
2446.10	+88 x 50	-52.6	-51.0	-1.6
2446.05	+87 x 50	-52.9	-51.0	-1.9
2446.00	+86 x 50	-52.1	-51.0	-1.1
2445.95	+85 x 50	-53.0	-51.0	-2.0
2445.90	+84 x 50	-52.9	-51.0	-1.9
2445.85	+83 x 50	-52.8	-51.0	-1.8
2445.80	+82 x 50	-52.5	-51.0	-1.5
2445.75	+81 x 50	-52.8	-51.0	-1.8
2445.70	+80 x 50	-53.4	-51.0	-2.4
2445.65	+79 x 50	-53.0	-51.0	-2.0
2445.60	+78 x 50	-53.1	-51.0	-2.1
2445.55	+77 x 50	-53.1	-51.0	-2.1
2445.50	+76 x 50	-53.1	-51.0	-2.1
2445.45	+75 x 50	-52.7	-51.0	-1.7
2445.40	+74 x 50	-52.3	-51.0	-1.3
2445.35	+73 x 50	-52.3	-51.0	-1.3
2445.30	+72 x 50	-52.1	-51.0	-1.1
2445.25	+71 x 50	-52.6	-51.0	-1.6
2445.20	+70 x 50	-52.6	-51.0	-1.6
2445.15	+69 x 50	-52.5	-51.0	-1.5
2445.10	+68 x 50	-53.0	-51.0	-2.0
2445.05	+67 x 50	-53.0	-51.0	-2.0
2445.00	+66 x 50	-52.1	-51.0	-1.1
2444.95	+65 x 50	-53.5	-51.0	-2.5
2444.90	+64 x 50	-54.0	-51.0	-3.0
2444.85	+63 x 50	-53.4	-51.0	-2.4
2444.80	+62 x 50	-52.6	-51.0	-1.6
2444.75	+61 x 50	-52.2	-51.0	-1.2
2444.70	+60 x 50	-52.5	-51.0	-1.5
2444.65	+59 x 50	-52.0	-51.0	-1.0
2444.60	+58 x 50	-51.8	-51.0	-0.8
2444.55	+57 x 50	-52.0	-51.0	-1.0
2444.50	+56 x 50	-51.7	-51.0	-0.7
2444.45	+55 x 50	-51.8	-51.0	-0.8
2444.40	+54 x 50	-51.9	-51.0	-0.9

channel: 07 = 2441.7 Mhz 2 of 4 (Parrot 1100 to Swallow 1100)

Frequency (MHz)	Frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2444.35	+53 x 50	-52.2	-51.0	-1.2
2444.30	+52 x 50	-51.1	-51.0	-0.1
2444.25	+51 x 50	-51.4	-51.0	-0.4
2444.20	+50 x 50	-51.8	-51.0	-0.8
2444.15	+49 x 50	-52.0	-51.0	-1.0
2444.10	+48 x 50	-52.6	-51.0	-1.6
2444.05	+47 x 50	-53.0	-51.0	-2.0
2444.00	+46 x 50	-52.3	-51.0	-1.3
2443.95	+45 x 50	-52.8	-51.0	-1.8
2443.90	+44 x 50	-53.2	-51.0	-2.2
2443.85	+43 x 50	-52.9	-51.0	-1.9
2443.80	+42 x 50	-52.9	-51.0	-1.9
2443.75	+41 x 50	-53.1	-51.0	-2.1
2443.70	+40 x 50	-53.3	-51.0	-2.3
2443.65	+39 x 50	-53.5	-51.0	-2.5
2443.60	+38 x 50	-53.9	-51.0	-2.9
2443.55	+37 x 50	-53.5	-51.0	-2.5
2443.50	+36 x 50	-53.5	-51.0	-2.5
2443.45	+35 x 50	-53.5	-51.0	-2.5
2443.40	+34 x 50	-53.4	-51.0	-2.4
2443.35	+33 x 50	-53.3	-51.0	-2.3
2443.30	+32 x 50	-53.3	-51.0	-2.3
2443.25	+31 x 50	-52.9	-51.0	-1.9
2443.20	+30 x 50	-53.5	-51.0	-2.5
2443.15	+29 x 50	-52.9	-51.0	-1.9
2443.10	+28 x 50	-53.5	-51.0	-2.5
2443.05	+27 x 50	-53.8	-51.0	-2.8
2443.00	+26 x 50	-54.0	-51.0	-3.0
2442.95	+25 x 50	-53.6	-51.0	-2.6
2442.90	+24 x 50	-53.6	-51.0	-2.6
2442.85	+23 x 50	-53.7	-51.0	-2.7
2442.80	+22 x 50	-52.9	-51.0	-1.9
2442.75	+21 x 50	-52.7	-51.0	-1.7
2442.70	+20 x 50	-52.9	-51.0	-1.9
2442.65	+19 x 50	-52.9	-51.0	-1.9
2442.60	+18 x 50	-53.2	-51.0	-2.2
2442.55	+17 x 50	-52.8	-51.0	-1.8
2442.50	+16 x 50	-53.1	-51.0	-2.1
2442.45	+15 x 50	-52.7	-51.0	-1.7
2442.40	+14 x 50	-52.6	-51.0	-1.6
2442.35	+13 x 50	-53.0	-51.0	-2.0
2442.30	+12 x 50	-52.6	-51.0	-1.6
2442.25	+11 x 50	-52.6	-51.0	-1.6
2442.20	+10 x 50	-53.2	-51.0	-2.2
2442.15	+09 x 50	-53.4	-51.0	-2.4
2442.10	+08 x 50	-52.8	-51.0	-1.8
2442.05	+07 x 50	-52.9	-51.0	-1.9
2442.00	+06 x 50	-52.6	-51.0	-1.6
2441.95	+05 x 50	-52.8	-51.0	-1.8
2441.90	+04 x 50	-52.4	-51.0	-1.4
2441.85	+03 x 50	-52.7	-51.0	-1.7
2441.80	+02 x 50	-52.3	-51.0	-1.3
2441.75	+01 x 50	-51.6	-51.0	-0.6
2441.70	+00 x 50	-51.9	-51.0	-0.9

channel: 07 = 2441.7 MHz 3 of 4 (Parrot 1100 to Swallow 1100)

Frequency (MHz)	frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2436.70	-100 x 50	-48.0	-51.0	3.0
2436.75	-99 x 50	-48.3	-51.0	2.7
2436.80	-98 x 50	-48.9	-51.0	2.1
2436.85	-97 x 50	-49.0	-51.0	2.0
2436.90	-96 x 50	-49.5	-51.0	1.5
2436.95	-95 x 50	-50.1	-51.0	0.9
2437.00	-94 x 50	-50.3	-51.0	0.7
2437.05	-93 x 50	-51.2	-51.0	-0.2
2437.10	-92 x 50	-51.5	-51.0	-0.5
2437.15	-91 x 50	-52.2	-51.0	-1.2
2437.20	-90 x 50	-52.3	-51.0	-1.3
2437.25	-89 x 50	-52.1	-51.0	-1.1
2437.30	-88 x 50	-52.2	-51.0	-1.2
2437.35	-87 x 50	-52.0	-51.0	-1.0
2437.40	-86 x 50	-52.1	-51.0	-1.1
2437.45	-85 x 50	-52.6	-51.0	-1.6
2437.50	-84 x 50	-52.3	-51.0	-1.3
2437.55	-83 x 50	-52.5	-51.0	-1.5
2437.60	-82 x 50	-51.8	-51.0	-0.8
2437.65	-81 x 50	-51.7	-51.0	-0.7
2437.70	-80 x 50	-51.8	-51.0	-0.8
2437.75	-79 x 50	-51.9	-51.0	-0.9
2437.80	-78 x 50	-52.0	-51.0	-1.0
2437.85	-77 x 50	-51.4	-51.0	-0.4
2437.90	-76 x 50	-51.7	-51.0	-0.7
2437.95	-75 x 50	-51.9	-51.0	-0.9
2438.00	-74 x 50	-51.5	-51.0	-0.5
2438.05	-73 x 50	-52.0	-51.0	-1.0
2438.10	-72 x 50	-52.0	-51.0	-1.0
2438.15	-71 x 50	-51.8	-51.0	-0.8
2438.20	-70 x 50	-51.9	-51.0	-0.9
2438.25	-69 x 50	-51.5	-51.0	-0.5
2438.30	-68 x 50	-51.8	-51.0	-0.8
2438.35	-67 x 50	-52.1	-51.0	-1.1
2438.40	-66 x 50	-51.7	-51.0	-0.7
2438.45	-65 x 50	-51.3	-51.0	-0.3
2438.50	-64 x 50	-51.5	-51.0	-0.5
2438.55	-63 x 50	-50.9	-51.0	+0.1
2438.60	-62 x 50	-50.3	-51.0	+0.7
2438.65	-61 x 50	-50.3	-51.0	+0.7
2438.70	-60 x 50	-50.1	-51.0	+0.9
2438.75	-59 x 50	-50.2	-51.0	+0.8
2438.80	-58 x 50	-50.1	-51.0	+0.9
2438.85	-57 x 50	-50.6	-51.0	+0.4
2438.90	-56 x 50	-50.9	-51.0	+0.1
2438.95	-55 x 50	-51.6	-51.0	-0.6
2439.00	-54 x 50	-52.7	-51.0	-1.7
2439.05	-53 x 50	-51.6	-51.0	-0.6
2439.10	-52 x 50	-51.3	-51.0	-0.3
2439.15	-51 x 50	-51.4	-51.0	-0.4

channel: 07 =2441.7MHz 4 of 4 (Parrot 1100 to Swallow 1100)

Frequency (MHz)	frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2439.20	-50 x 50	-51.1	-51.0	-0.1
2439.25	-49 x 50	-50.6	-51.0	+0.4
2439.30	-48 x 50	-51.0	-51.0	+0.0
2439.35	-47 x 50	-51.2	-51.0	-0.2
2439.40	-46 x 50	-51.5	-51.0	-0.5
2439.45	-45 x 50	-51.7	-51.0	-0.7
2439.50	-44 x 50	-52.0	-51.0	-1.0
2439.55	-43 x 50	-51.6	-51.0	-0.6
2439.60	-42 x 50	-51.9	-51.0	-0.9
2439.65	-41 x 50	-51.7	-51.0	-0.7
2439.70	-40 x 50	-51.3	-51.0	-0.3
2439.75	-39 x 50	-51.5	-51.0	-0.5
2439.80	-38 x 50	-51.6	-51.0	-0.6
2439.85	-37 x 50	-51.8	-51.0	-0.8
2439.90	-36 x 50	-52.3	-51.0	-1.3
2439.95	-35 x 50	-51.9	-51.0	-0.9
2440.00	-34 x 50	-51.8	-51.0	-0.8
2440.05	-33 x 50	-52.4	-51.0	-1.4
2440.10	-32 x 50	-52.6	-51.0	-1.6
2440.15	-31 x 50	-52.5	-51.0	-1.5
2440.20	-30 x 50	-52.7	-51.0	-1.7
2440.25	-29 x 50	-52.3	-51.0	-1.3
2440.30	-28 x 50	-53.3	-51.0	-2.3
2440.35	-27 x 50	-53.2	-51.0	-2.2
2440.40	-26 x 50	-53.4	-51.0	-2.4
2440.45	-25 x 50	-53.8	-51.0	-2.8
2440.50	-24 x 50	-53.3	-51.0	-2.3
2440.55	-23 x 50	-53.0	-51.0	-2.0
2440.60	-22 x 50	-52.8	-51.0	-1.8
2440.65	-21 x 50	-52.4	-51.0	-1.4
2440.70	-20 x 50	-52.2	-51.0	-1.2
2440.75	-19 x 50	-51.6	-51.0	-0.6
2440.80	-18 x 50	-52.1	-51.0	-1.1
2440.85	-17 x 50	-52.3	-51.0	-1.3
2440.90	-16 x 50	-52.5	-51.0	-1.5
2440.95	-15 x 50	-53.0	-51.0	-2.0
2441.00	-14 x 50	-52.8	-51.0	-1.8
2441.05	-13 x 50	-53.0	-51.0	-2.0
2441.10	-12 x 50	-53.4	-51.0	-2.4
2441.15	-11 x 50	-52.9	-51.0	-1.9
2441.20	-10 x 50	-53.0	-51.0	-2.0
2441.25	-09 x 50	-51.6	-51.0	-0.6
2441.30	-08 x 50	-52.8	-51.0	-1.8
2441.35	-07 x 50	-53.0	-51.0	-2.0
2441.40	-06 x 50	-52.7	-51.0	-1.7
2441.45	-05 x 50	-52.6	-51.0	-1.6
2441.50	-04 x 50	-52.2	-51.0	-1.2
2441.55	-03 x 50	-51.6	-51.0	-0.6
2441.60	-02 x 50	-51.9	-51.0	-0.9
2441.65	-01 x 50	-51.8	-51.0	-0.8