

**ADDENDUM 01 TO TEST REPORT OF 2.4 GHz  
RADIOLAN SERIES, BRAND NO WIRES NEEDED,  
IN CONFORMITY WITH FCC PART 15  
AND ANSI C63.4-1992;  
-TYPE PARROT 1100; WIRELESS ACCESS POINT,  
-TYPE PELICAN 1100; WIRELESS STATION  
ADAPTER,  
-TYPE WB-S1100; WIRELESS BASE STATION,  
-TYPE WB-C1100; WIRELESS BRIDGE CLIENT.**

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**

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

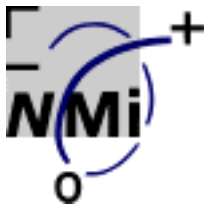
Offices: Delft, Bergum, Dordrecht, Niekerk, Utrecht,  
Tinton Falls NJ (USA), Kawasaki (Japan), Hortolândia SP (Brazil)

Subsidiary companies:

NMi Certin B.V. (27233418)

NMi Van Swinden Laboratorium B.V. (27228703)

NMi International B.V. (27239176)



FCC ID: OGD 10310308  
 Description of EUT: 2.4 GHz RLAN SERIES  
 Manufacturer: No Wires Needed B.V.  
 Brand mark: No Wires Needed B.V.  
 Types: Parrot 1100, Pelican 1100, WB-S1100, WB-C1100

## MEASUREMENT/TECHNICAL REPORT

**No Wires Needed B.V.**

**Models : Parrot 1100, Pelican 1100, WB-S1100, WB-C1100**

**FCC ID: OGD 10310308**

October 21, 1999

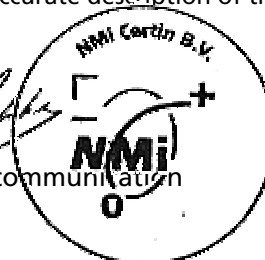
This report concerns (check one):		Original grant	Class II change
Equipment type: Direct Sequence Spread Spectrum Transceiver			
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?		yes	no
If yes defer until: _____			
No Wires Needed, Jan Steen laan 5, 3723 BS Bilthoven, The Netherlands agrees to notify 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 21, 1999

Signature:

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

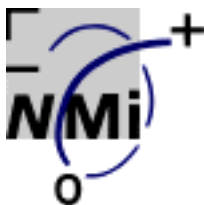




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# 1 General information.

## 1.1 Product description.

The No Wires Needed units add wireless functionality to existing Ethernet LANs. Standard Ethernet LAN Stations are wired to a common bus. When one of the stations sends a message, it assigns a destination address to the message and sends the message on the bus. All stations on the bus "hear" the message, but only the station with the proper address processes the message.

The 2.4 GHz transceiver range can be sub-divided in the following products:

- Wireless Access Point, type Parrot 1100
- Wireless Station Adapter, type Pelican 1100
- Wireless Base Station, type WB-S1100
- Wireless Bridge Client, type WB-C1100

The radio part of these products are identical. The digital front-end however differs and determines the functionality of the product. Each product, with its special functionality can operate with one or more external antenna's. The products, with a short explanation and the possible external antenna's are stated below.

### **Wireless Access Point, type Parrot 1100**

Laptop PC's equipped with No Wires Needed Swallow 1100 Wireless LAN PC Cards have full access to the enterprise network from anywhere in the facility where Parrot 1100 Access Points (referred to as EUT1 in this report) are installed. EUT1 is an Access Point to the Local Area Network. Each EUT1 provides an area of coverage of 50-300 square meters, in which PCs and Laptops equipped with the No Wires Needed Swallow 1100 PC Cards can roam freely, whilst maintaining high-speed access to the company's servers and other facilities, such as internet. The air interface is interoperable with IEEE 802.11. The EUT1 is powered from the included external 9V power supply.

The following antennas can be used with this system:

antenna model number	description	declared gain
--	standard omni antenna	1.9 dBi

These antennas can only be connected to the Parrot 1100 by means of dedicated antenna connector.

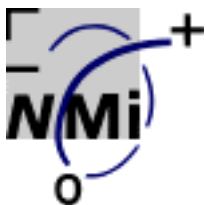
### **Wireless Station Adapter, type Pelican 1100**

Ethernet-based devices such as printer, iMac and workstations can be connected to the Pelican 1100 Station Adapter (referred to as EUT2 in this report), giving them full access to the enterprise network from anywhere in the facility where No Wires Needed Parrot 1100 Access Points are installed. Using standard RJ-45 connectors any Ethernet-based device can be connected to the Pelican 1100 providing access to the wireless LAN through external antennas. The Pelican 1100 features high-speed wireless connection, up to 11 Mbps. The air interface is interoperable with IEEE 802.11. The EUT2 is powered from the included external 9V power supply.

The following antennas can be used with this system:

antenna model number	description	declared gain
--	standard omni antenna	1.9 dBi

These antennas can only be connected to the Pelican 1100 by means of dedicated antenna connector.



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**Wireless Bridge Server, type WB-S1100**

The No Wires Needed Wireless bridge server, type WB-S1100 (referred to as EUT3 in this report), functions as an extension of any Ethernet network. Any second network with-in the range of the EUT3 and equipped with the WB-C1100 can be wireless linked with the network where the EUT3 is connected. The EUT3 features a high-speed connection of 11Mbps and the AirLock™ security system. The air interface is interoperable with IEEE802.11 and the Ethernet interface interoperable with IEEE802.3. The EUT3 is powered by an external power supply. Multiple antennas are available with the unit that varies in directivity and gain. The highest gain antenna available is 18dBi. The antennas are coupled via a unique connector to the EUT3.

The following antennas can be used with this system:

antenna model number	description	declared antenna assembly gain
103-80-103	high gain, dish antenna	18.0 dBi
103-80-114	medium gain, sector antenna	10.0 dBi
103-80-125	standard, omni antenna	2.0 dBi

These antennas can only be connected to the server by the supplied fixed length cable (7.3 meters) with unique antenna connectors.

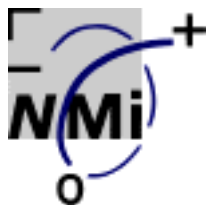
**Wireless Bridge Client, type WB-C1100**

The No Wires Needed Wireless Bridge Client, type WB-C1100 (referred to as EUT4 in this report), functions as an extension of any Ethernet network. Any second network with-in the range of the WB-S1100 and equipped with EUT4 can be wireless linked with the network where the WB-S1100 is connected. The EUT4 features a high-speed connection of 11Mbps and the AirLock™ security system. The air interface is interoperable with IEEE802.11 and the Ethernet interface interoperable with IEEE802.3. Ethernet interface interoperable with IEEE802.3. The EUT4 is powered by an external power supply. Multiple antennas are available with the unit that varies in directivity and gain. The highest gain antenna available is 18dBi. The antennas are coupled via a unique connector to the EUT4.

The following antennas can be used with this system:

antenna model number	description	declared antenna assembly gain
103-80-103	high gain, dish antenna	18.0 dBi
103-80-114	medium gain, sector antenna	10.0 dBi
103-80-125	standard, omni antenna	2.0 dBi

These antennas can only be connected to the client by the supplied fixed length cable (7.3 meters) with unique antenna connectors.



## 2 Radiated emission data

The following data lists the significant emission frequencies (worst case), measured levels in accordance with FCC 15.209.

### 2.1 Radiated emissions above 1 GHz for WB-C1100 connected to 103-80-103 high gain dish (18dBi) antenna

Vertical polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	34.1	54.0	-19.9

Table 1.1: Peak radiated emissions above 1GHz on channel 6 (Vertical)

Vertical polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	33.9	54.0	-20.1

Table 1.2: Average radiated emissions above 1GHz on channel 6 (Vertical)

Notes:

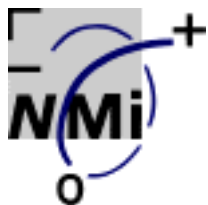
Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

The radiated emission measurement has been carried out with AC supply voltage of 120 V.

Test personnel:

Tester signature : Date: October 20, 1999

Typed/Printed name : Jan S. Sikkema



Horizontal polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	37.6	54.0	-16.4

**Table 1.3: Peak radiated emissions above 1GHz on channel 6 (Horizontal)**

Horizontal polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	37.2	54.0	-16.8

**Table 1.4: Average radiated emissions above 1GHz on channel 6 (Horizontal)**

**Notes:**

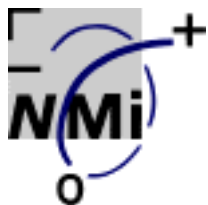
Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

The radiated emission measurement has been carried out with AC supply voltage of 120 V.

Test personnel:

Tester signature : Date: September 15, 1999

Typed/Printed name : Jan S. Sikkema



**2.2 Radiated emissions above 1 GHz for WB-C1100 connected to 103-80-114 medium gain sector (10dBi) antenna**

Vertical polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	37.8	54.0	-16.2

**Table 1.5: Peak radiated emissions above 1GHz on channel 6 (Vertical)**

Vertical polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	37.4	54.0	-16.6

**Table 1.6: Average radiated emissions above 1GHz on channel 6 (Vertical)**

Notes:

Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

The radiated emission measurement has been carried out with AC supply voltage of 120 V.

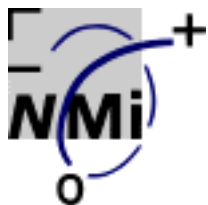
Test personnel:

Tester signature :

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Horizontal polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	37.6	54.0	-16.4

**Table 1.7: Peak radiated emissions above 1GHz on channel 6 (Horizontal)**

Horizontal polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	37.2	54.0	-16.8

**Table 1.8: Average radiated emissions above 1GHz on channel 6 (Horizontal)**

**Notes:**

Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

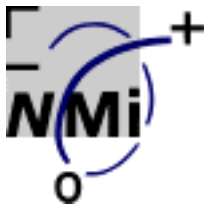
The radiated emission measurement has been carried out with AC supply voltage of 120 V.

Test personnel:

Tester signature :

Date: October 20, 1999

Typed/Printed name : Jan S. Sikkema



**2.3 Radiated emissions above 1 GHz for WB-C1100 connected to 103-80-125 standard omni (2dBi) antenna**

Vertical polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	37.2	54.0	-16.8

**Table 1.9: Peak radiated emissions above 1GHz on channel 6 (Vertical)**

Vertical polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	36.7	54.0	-17.3

**Table 1.10: Average radiated emissions above 1GHz on channel 6 (Vertical)**

**Notes:**

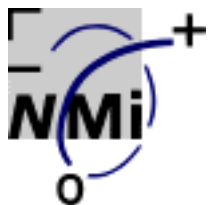
Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

The radiated emission measurement has been carried out with AC supply voltage of 120 V.

Test personnel:

Tester signature : Date: October 20, 1999

Typed/Printed name : Jan S. Sikkema



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Horizontal polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	36.1	54.0	-17.9

**Table 1.11: Peak radiated emissions above 1GHz on channel 6 (Horizontal)**

Horizontal polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	35.8	54.0	-18.2

**Table 1.12: Average radiated emissions above 1GHz on channel 6 (Horizontal)**

**Notes:**

Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

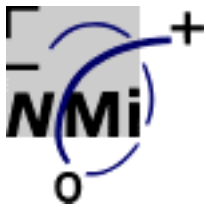
The radiated emission measurement has been carried out with AC supply voltage of 120 V.

Test personnel:

Tester signature :

Date: October 20, 1999

Typed/Printed name : Jan S. Sikkema



**2.4 Radiated emissions above 1 GHz for Pelican 1100 connected to 1.9 dBi antenna**

Vertical polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	33.4	54.0	-20.6

**Table 1.13: Peak radiated emissions above 1GHz on channel 6 (Vertical)**

Vertical polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	33.0	54.0	-21.0

**Table 1.14: Average radiated emissions above 1GHz on channel 6 (Vertical)**

Notes:

Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

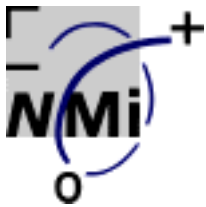
The radiated emission measurement has been carried out with AC supply voltage of 120 V.

Test personnel:

Tester signature :

Date: October 20, 1999

Typed/Printed name : Jan S. Sikkema



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Horizontal polarization			
Frequency	Measured Value Peak (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	32.4	54.0	-21.6

**Table 1.15: Peak radiated emissions above 1GHz on channel 6 (Horizontal)**

Horizontal polarization			
Frequency	Measured Value Avg. (3m)	FCC limit	FCC margin
MHz	dbuV/m	dbuV/m	dB
2157.2	32.0	54.0	-22.0

**Table 1.16: Average radiated emissions above 1GHz on channel 6 (Horizontal)**

**Notes:**

Polarization refers to measuring antenna, negative margin means it is below the limit. All radiated harmonic emissions were found to be > 25dB below limits.

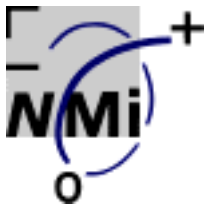
The radiated emission measurement has been carried out with AC supply voltage of 120 V.

Test personnel:

Tester signature :

Date: October 20, 1999

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### 3 Peak power

The peak power measurement was performed in accordance with FCC 15.247 (b).

**The peak value is measured using a wideband diode detector.**

Channel	Peak Power (dBm)
1	14.8
6	17.3
11	16.5

**Table 2.1: Peak Power measured with a wideband peak detector**

Test personnel:

Tester signature :

Date: October 20, 1999

Typed/Printed name : Jan S. Sikkema

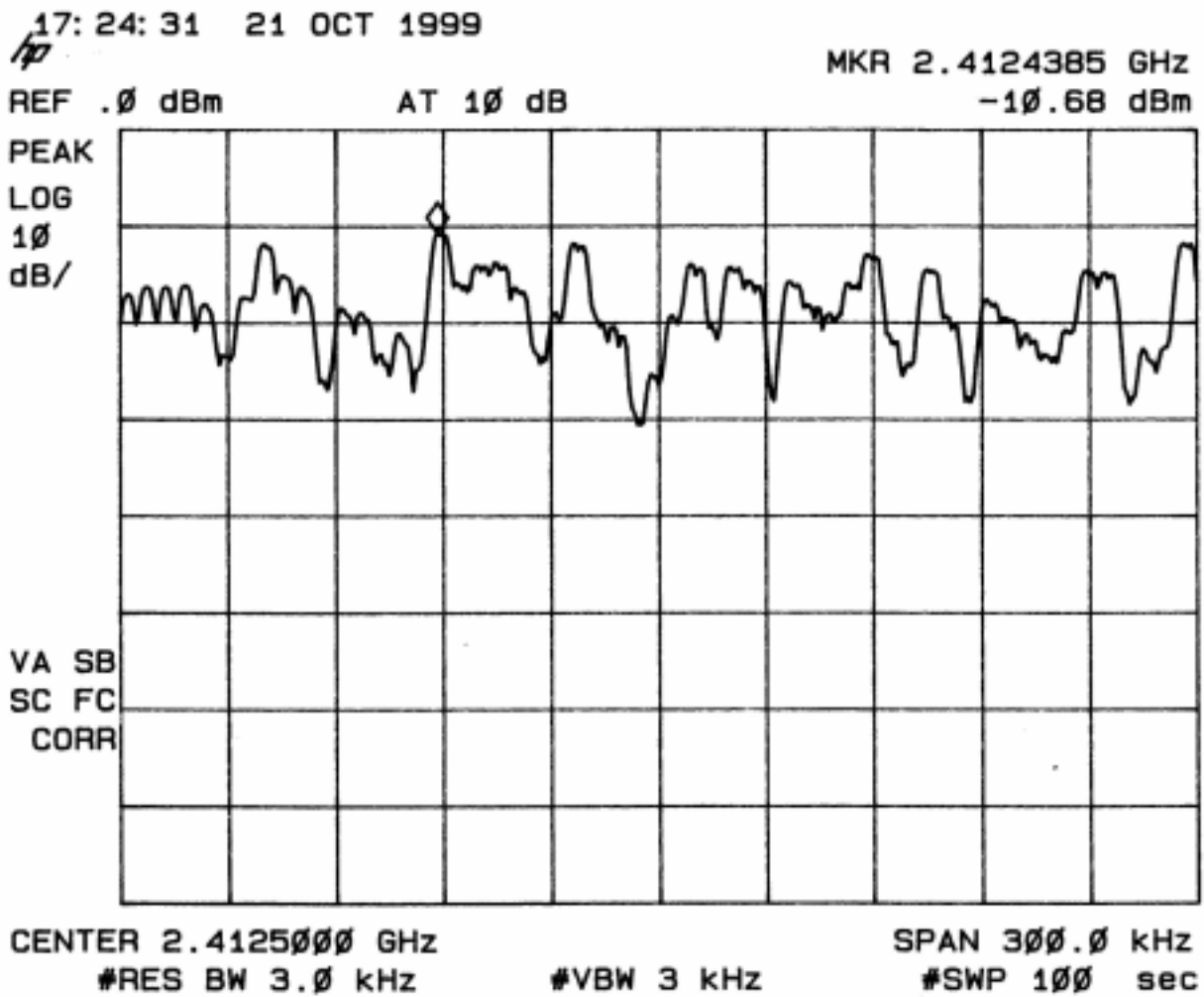


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## 4 Peak power density

The peak power measurement was performed in accordance with FCC 15.247 (d)

### 4.1 Channel 1



Plot 3.1: Peak Power Spectral Density plot of channel 1

Modulation = 11.0 Mbps

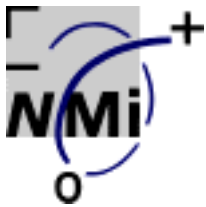
The peak power spectral density on channel 1 : -10.68 dBm.

Test personnel:

Tester signature :

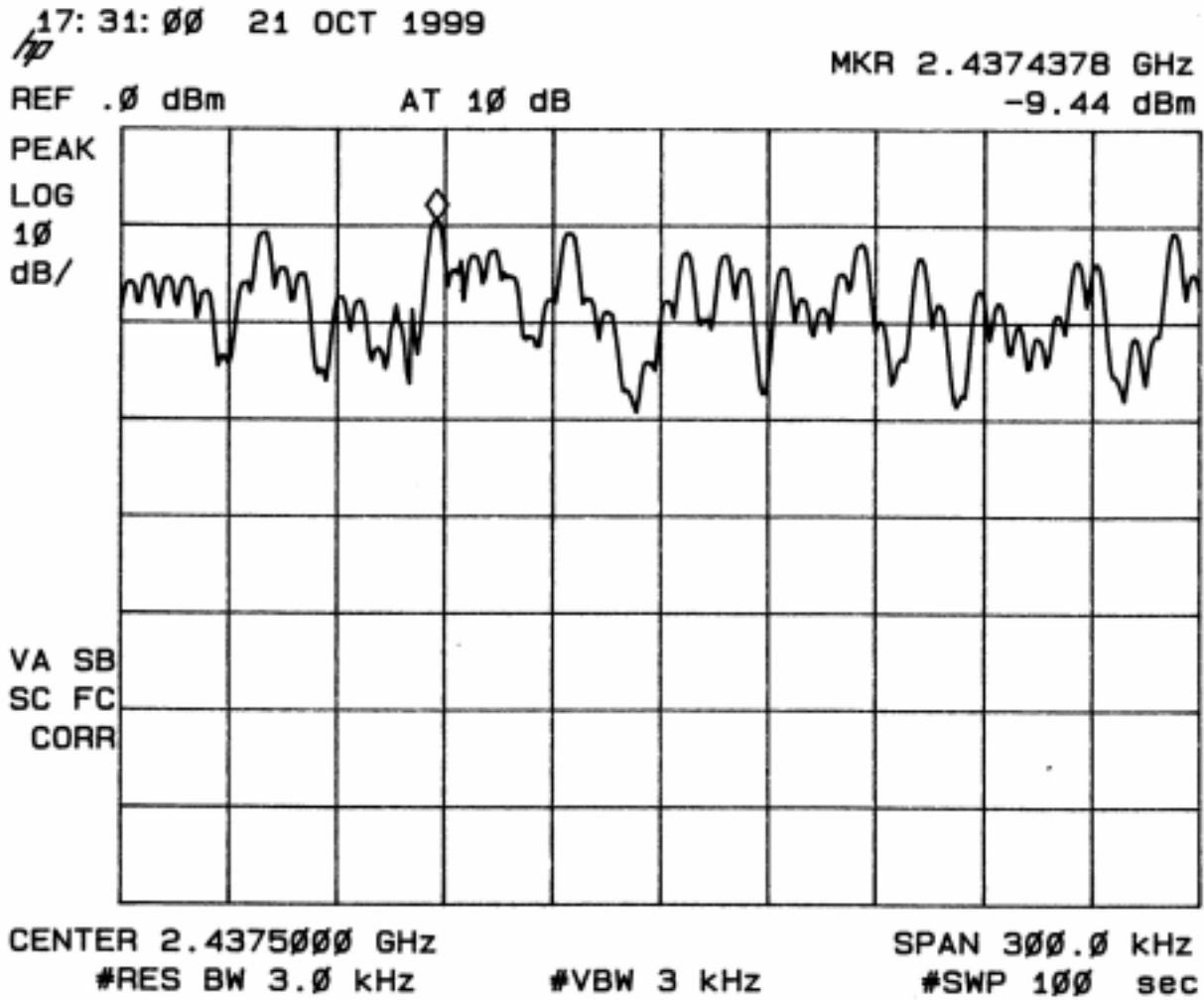
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## 4.2 Channel 6



Plot 3.2: Peak Power Spectral Density plot of channel 6

Modulation = 11.0 Mbps

The peak power spectral density on channel 6 : -9.44 dBm.

Test personnel:

Tester signature :

Date: October 21, 1999

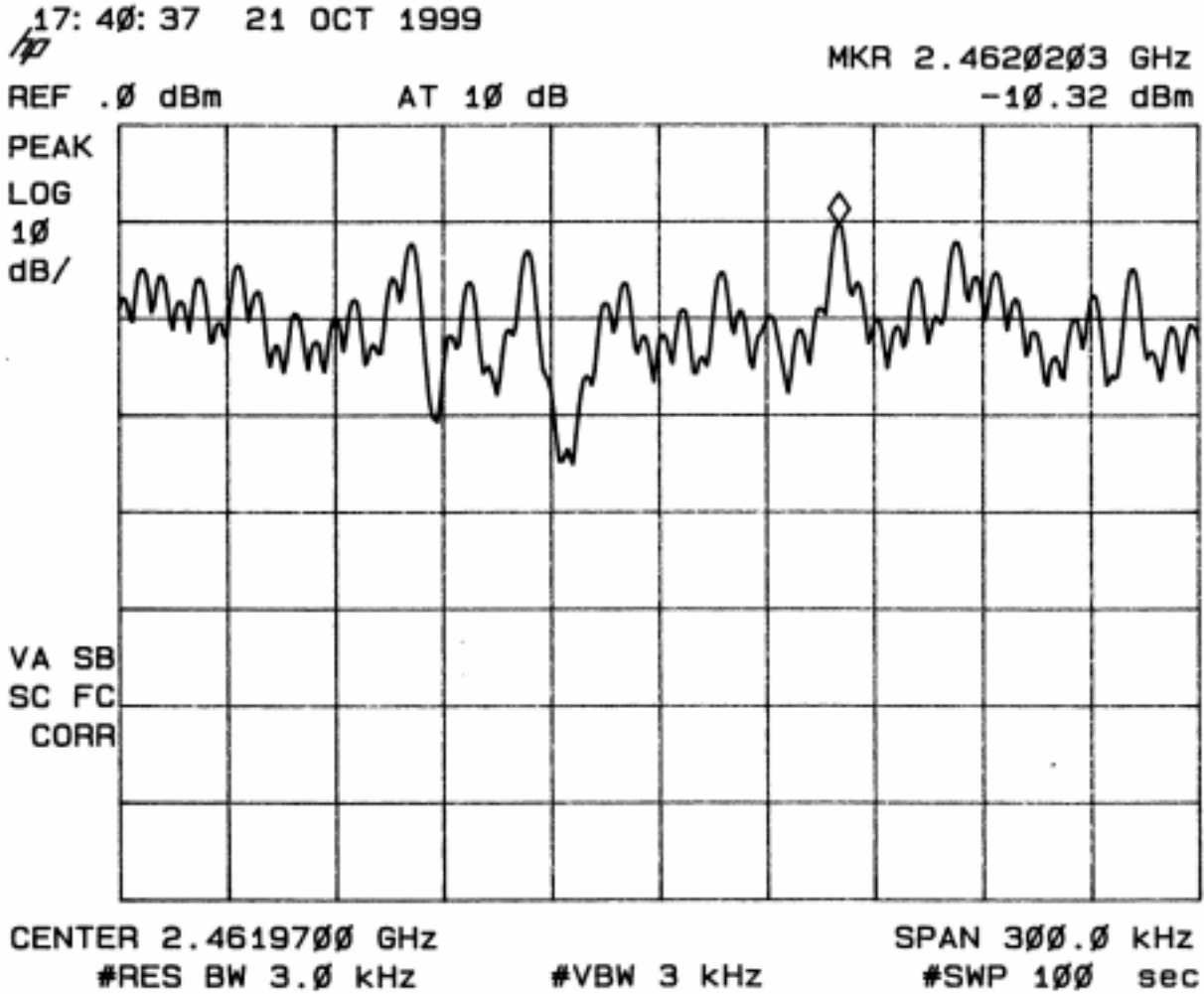
Typed/Printed name : Jan S. Sikkema





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### 4.3 Channel 11



Plot 3.3: Peak Power Spectral Density plot of channel 11

Modulation = 11.0 Mbps

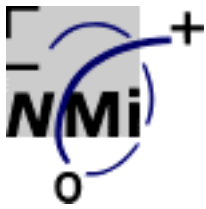
The peak power spectral density on channel 11 : -10.32 dBm.

Test personnel:

Tester signature :

Date: October 21, 1999

Typed/Printed name : Jan S. Sikkema



## 5 Processing Gain

### 5.1 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:

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

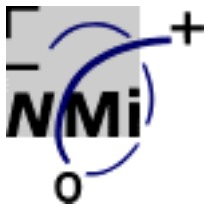
with:

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

$L_{sys} = 2$  dB

$M_j = -1.6$  dB

$$G_p = 13.2 \text{ dB} + (-1.6) \text{ dB} + 2 \text{ dB} = 13.6 \text{ dB (for 2mbps modulation)}$$



## 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 (Swallow 1100 to Parrot 1100)

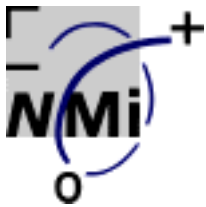
Frequency (MHz)	frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2446.70	+100 x 50	-51.7	-51.0	-0.7
2446.65	+99 x 50	-51.5	-51.0	-0.5
2446.60	+98 x 50	-51.4	-51.0	-0.4
2446.55	+97 x 50	-51.3	-51.0	-0.3
2446.50	+96 x 50	-51.1	-51.0	-0.1
2446.45	+95 x 50	-50.9	-51.0	+0.1
2446.40	+94 x 50	-50.8	-51.0	+0.2
2446.35	+93 x 50	-50.6	-51.0	+0.4
2446.30	+92 x 50	-50.4	-51.0	+0.6
2446.25	+91 x 50	-52.0	-51.0	-1.0
2446.20	+90 x 50	-51.1	-51.0	-0.1
2446.15	+89 x 50	-51.6	-51.0	-0.6
2446.10	+88 x 50	-51.6	-51.0	-0.6
2446.05	+87 x 50	-51.9	-51.0	-0.9
2446.00	+86 x 50	-51.0	-51.0	+0.0
2445.95	+85 x 50	-51.1	-51.0	-0.1
2445.90	+84 x 50	-51.5	-51.0	-0.5
2445.85	+83 x 50	-51.4	-51.0	-0.4
2445.80	+82 x 50	-51.4	-51.0	-0.4
2445.75	+81 x 50	-51.6	-51.0	-0.6
2445.70	+80 x 50	-51.2	-51.0	-0.2
2445.65	+79 x 50	-51.5	-51.0	-0.5
2445.60	+78 x 50	-51.4	-51.0	-0.4
2445.55	+77 x 50	-51.1	-51.0	-0.1
2445.50	+76 x 50	-51.3	-51.0	-0.3
2445.45	+75 x 50	-51.0	-51.0	+0.0
2445.40	+74 x 50	-51.0	-51.0	+0.0
2445.35	+73 x 50	-50.9	-51.0	+0.1
2445.30	+72 x 50	-51.0	-51.0	+0.0
2445.25	+71 x 50	-51.4	-51.0	-0.4
2445.20	+70 x 50	-51.4	-51.0	-0.4
2445.15	+69 x 50	-52.0	-51.0	-1.0
2445.10	+68 x 50	-52.1	-51.0	-1.1
2445.05	+67 x 50	-52.4	-51.0	-1.4
2445.00	+66 x 50	-51.8	-51.0	-0.8
2444.95	+65 x 50	-53.0	-51.0	-2.0
2444.90	+64 x 50	-52.8	-51.0	-1.8
2444.85	+63 x 50	-52.8	-51.0	-1.8
2444.80	+62 x 50	-52.7	-51.0	-1.7
2444.75	+61 x 50	-51.9	-51.0	-0.9
2444.70	+60 x 50	-52.1	-51.0	-1.1
2444.65	+59 x 50	-52.1	-51.0	-1.1
2444.60	+58 x 50	-52.1	-51.0	-1.1
2444.55	+57 x 50	-52.2	-51.0	-1.2
2444.50	+56 x 50	-51.6	-51.0	-0.6
2444.45	+55 x 50	-51.7	-51.0	-0.7
2444.40	+54 x 50	-52.1	-51.0	-1.1



FCC ID: OGD 10310308  
 Description of EUT: 2.4 GHz RLAN SERIES  
 Manufacturer: No Wires Needed B.V.  
 Brand mark: No Wires Needed B.V.  
 Types: Parrot 1100, Pelican 1100,  
 WB-S1100, WB-C1100

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

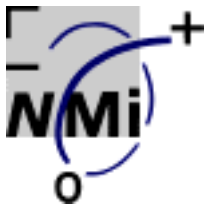
Frequency (MHz)	Frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2444.35	+53 x 50	-52.1	-51.0	-1.1
2444.30	+52 x 50	-51.4	-51.0	-0.4
2444.25	+51 x 50	-51.8	-51.0	-0.8
2444.20	+50 x 50	-51.4	-51.0	-0.4
2444.15	+49 x 50	-51.8	-51.0	-0.8
2444.10	+48 x 50	-52.2	-51.0	-1.2
2444.05	+47 x 50	-52.6	-51.0	-1.6
2444.00	+46 x 50	-53.1	-51.0	-2.1
2443.95	+45 x 50	-53.1	-51.0	-2.1
2443.90	+44 x 50	-53.9	-51.0	-2.9
2443.85	+43 x 50	-52.7	-51.0	-1.7
2443.80	+42 x 50	-52.5	-51.0	-1.5
2443.75	+41 x 50	-52.3	-51.0	-1.3
2443.70	+40 x 50	-52.6	-51.0	-1.6
2443.65	+39 x 50	-52.7	-51.0	-1.7
2443.60	+38 x 50	-52.6	-51.0	-1.6
2443.55	+37 x 50	-52.6	-51.0	-1.6
2443.50	+36 x 50	-52.8	-51.0	-1.8
2443.45	+35 x 50	-52.8	-51.0	-1.8
2443.40	+34 x 50	-51.8	-51.0	-0.8
2443.35	+33 x 50	-51.9	-51.0	-0.9
2443.30	+32 x 50	-51.5	-51.0	-0.5
2443.25	+31 x 50	-51.1	-51.0	-0.1
2443.20	+30 x 50	-52.2	-51.0	-1.2
2443.15	+29 x 50	-52.2	-51.0	-1.2
2443.10	+28 x 50	-52.2	-51.0	-1.2
2443.05	+27 x 50	-52.6	-51.0	-1.6
2443.00	+26 x 50	-52.4	-51.0	-1.4
2442.95	+25 x 50	-55.3	-51.0	-4.3
2442.90	+24 x 50	-55.5	-51.0	-4.5
2442.85	+23 x 50	-56.0	-51.0	-5.0
2442.80	+22 x 50	-55.8	-51.0	-4.8
2442.75	+21 x 50	-52.0	-51.0	-1.0
2442.70	+20 x 50	-52.8	-51.0	-1.8
2442.65	+19 x 50	-53.1	-51.0	-2.1
2442.60	+18 x 50	-53.1	-51.0	-2.1
2442.55	+17 x 50	-52.5	-51.0	-1.5
2442.50	+16 x 50	-52.3	-51.0	-1.3
2442.45	+15 x 50	-52.2	-51.0	-1.2
2442.40	+14 x 50	-52.5	-51.0	-1.5
2442.35	+13 x 50	-52.5	-51.0	-1.5
2442.30	+12 x 50	-52.6	-51.0	-1.6
2442.25	+11 x 50	-52.1	-51.0	-1.1
2442.20	+10 x 50	-53.1	-51.0	-2.1
2442.15	+09 x 50	-53.2	-51.0	-2.2
2442.10	+08 x 50	-52.9	-51.0	-1.9
2442.05	+07 x 50	-53.0	-51.0	-2.0
2442.00	+06 x 50	-53.2	-51.0	-2.2
2441.95	+05 x 50	-52.8	-51.0	-1.8
2441.90	+04 x 50	-52.9	-51.0	-1.9
2441.85	+03 x 50	-52.5	-51.0	-1.5
2441.80	+02 x 50	-52.9	-51.0	-1.9
2441.75	+01 x 50	-51.8	-51.0	-0.8
2441.70	+00 x 50	-51.7	-51.0	-0.7



FCC ID: OGD 10310308  
 Description of EUT: 2.4 GHz RLAN SERIES  
 Manufacturer: No Wires Needed B.V.  
 Brand mark: No Wires Needed B.V.  
 Types: Parrot 1100, Pelican 1100,  
 WB-S1100, WB-C1100

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

Frequency (MHz)	Frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2436.70	-100 x 50	-47.9	-51.0	+3.1
2436.75	-99 x 50	-49.0	-51.0	+2.0
2436.80	-98 x 50	-49.0	-51.0	+2.0
2436.85	-97 x 50	-49.5	-51.0	+1.5
2436.90	-96 x 50	-49.8	-51.0	+1.2
2436.95	-95 x 50	-50.3	-51.0	+0.7
2437.00	-94 x 50	-50.9	-51.0	+0.1
2437.05	-93 x 50	-51.3	-51.0	-0.3
2437.10	-92 x 50	-51.3	-51.0	-0.3
2437.15	-91 x 50	-51.4	-51.0	-0.4
2437.20	-90 x 50	-51.3	-51.0	-0.3
2437.25	-89 x 50	-51.5	-51.0	-0.5
2437.30	-88 x 50	-51.4	-51.0	-0.4
2437.35	-87 x 50	-51.4	-51.0	-0.4
2437.40	-86 x 50	-51.9	-51.0	-0.9
2437.45	-85 x 50	-51.1	-51.0	-0.1
2437.50	-84 x 50	-51.0	-51.0	+0.0
2437.55	-83 x 50	-50.9	-51.0	+0.1
2437.60	-82 x 50	-50.5	-51.0	+0.5
2437.65	-81 x 50	-50.4	-51.0	+0.6
2437.70	-80 x 50	-50.5	-51.0	+0.5
2437.75	-79 x 50	-51.1	-51.0	-0.1
2437.80	-78 x 50	-50.6	-51.0	+0.4
2437.85	-77 x 50	-51.2	-51.0	-0.2
2437.90	-76 x 50	-51.7	-51.0	-0.7
2437.95	-75 x 50	-52.0	-51.0	-1.0
2438.00	-74 x 50	-52.0	-51.0	-1.0
2438.05	-73 x 50	-52.4	-51.0	-1.4
2438.10	-72 x 50	-52.4	-51.0	-1.4
2438.15	-71 x 50	-51.6	-51.0	-0.6
2438.20	-70 x 50	-51.4	-51.0	-0.4
2438.25	-69 x 50	-51.5	-51.0	-0.5
2438.30	-68 x 50	-51.7	-51.0	-0.7
2438.35	-67 x 50	-51.8	-51.0	-0.8
2438.40	-66 x 50	-51.8	-51.0	-0.8
2438.45	-65 x 50	-51.0	-51.0	+0.0
2438.50	-64 x 50	-51.4	-51.0	-0.4
2438.55	-63 x 50	-51.0	-51.0	+0.0
2438.60	-62 x 50	-51.0	-51.0	+0.0
2438.65	-61 x 50	-50.9	-51.0	+0.1
2438.70	-60 x 50	-50.7	-51.0	+0.3
2438.75	-59 x 50	-50.8	-51.0	+0.2
2438.80	-58 x 50	-50.8	-51.0	+0.2
2438.85	-57 x 50	-51.5	-51.0	-0.5
2438.90	-56 x 50	-52.0	-51.0	-1.0
2438.95	-55 x 50	-52.6	-51.0	-1.6
2439.00	-54 x 50	-52.8	-51.0	-1.8
2439.05	-53 x 50	-52.6	-51.0	-1.6
2439.10	-52 x 50	-52.0	-51.0	-1.0
2439.15	-51 x 50	-51.8	-51.0	-0.8



FCC ID: OGD 10310308  
 Description of EUT: 2.4 GHz RLAN SERIES  
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 Brand mark: No Wires Needed B.V.  
 Types: Parrot 1100, Pelican 1100,  
 WB-S1100, WB-C1100

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

Frequency (MHz)	Frequency offset (kHz)	J (dBm)	S (dBm)	J/S (dB)
2439.20	-50 x 50	-51.5	-51.0	-0.5
2439.25	-49 x 50	-51.6	-51.0	-0.6
2439.30	-48 x 50	-51.8	-51.0	-0.8
2439.35	-47 x 50	-51.5	-51.0	-0.5
2439.40	-46 x 50	-51.5	-51.0	-0.5
2439.45	-45 x 50	-51.6	-51.0	-0.6
2439.50	-44 x 50	-52.0	-51.0	-1.0
2439.55	-43 x 50	-51.5	-51.0	-0.5
2439.60	-42 x 50	-51.5	-51.0	-0.5
2439.65	-41 x 50	-51.2	-51.0	-0.2
2439.70	-40 x 50	-51.4	-51.0	-0.4
2439.75	-39 x 50	-51.0	-51.0	+0.0
2439.80	-38 x 50	-51.1	-51.0	-0.1
2439.85	-37 x 50	-51.7	-51.0	-0.7
2439.90	-36 x 50	-52.2	-51.0	-1.2
2439.95	-35 x 50	-52.4	-51.0	-1.4
2440.00	-34 x 50	-52.6	-51.0	-1.6
2440.05	-33 x 50	-52.7	-51.0	-1.7
2440.10	-32 x 50	-52.6	-51.0	-1.6
2440.15	-31 x 50	-52.1	-51.0	-1.1
2440.20	-30 x 50	-52.0	-51.0	-1.0
2440.25	-29 x 50	-51.8	-51.0	-0.8
2440.30	-28 x 50	-52.4	-51.0	-1.4
2440.35	-27 x 50	-52.5	-51.0	-1.5
2440.40	-26 x 50	-52.9	-51.0	-1.9
2440.45	-25 x 50	-52.1	-51.0	-1.1
2440.50	-24 x 50	-52.0	-51.0	-1.0
2440.55	-23 x 50	-52.1	-51.0	-1.1
2440.60	-22 x 50	-51.8	-51.0	-0.8
2440.65	-21 x 50	-51.5	-51.0	-0.5
2440.70	-20 x 50	-51.2	-51.0	-0.2
2440.75	-19 x 50	-51.4	-51.0	-0.4
2440.80	-18 x 50	-51.8	-51.0	-0.8
2440.85	-17 x 50	-52.1	-51.0	-1.1
2440.90	-16 x 50	-52.0	-51.0	-1.0
2440.95	-15 x 50	-52.8	-51.0	-1.8
2441.00	-14 x 50	-55.2	-51.0	-4.2
2441.05	-13 x 50	-52.8	-51.0	-1.8
2441.10	-12 x 50	-53.4	-51.0	-2.4
2441.15	-11 x 50	-56.0	-51.0	-5.0
2441.20	-10 x 50	-54.9	-51.0	-3.9
2441.25	-09 x 50	-51.4	-51.0	-0.4
2441.30	-08 x 50	-52.9	-51.0	-1.9
2441.35	-07 x 50	-52.5	-51.0	-1.5
2441.40	-06 x 50	-54.2	-51.0	-3.2
2441.45	-05 x 50	-54.6	-51.0	-3.6
2441.50	-04 x 50	-52.0	-51.0	-1.0
2441.55	-03 x 50	-51.6	-51.0	-0.6
2441.60	-02 x 50	-51.8	-51.0	-0.8
2441.65	-01 x 50	-51.8	-51.0	-0.8