5. Double Click "Create Connection" and put BD address of the slave device into the BDADDR box.   Click "OK"

6. In the "HCI Control" window,select"0 Vendor-specific commands". Double Click "Update UART Baud Rate". Select 3000000 then click OK.

A connection should establish now.   This can be verified by looking in the log windows for both devices, which should now contain Connection Complete events with "Success" in the status field.

NOTE: once the connection has been established, Inquiry and Page Scan can be disabled.   Also, go to: "7.3 Host Controller & Baseband Commands" →→ "Set Event Filter".   Select "Connection Setup"; Select "Allow Connections from all devices"; Select "Do NOT Auto accept the connection" and hit 'OK'.   This will make the slave device non-discoverable and increase throughput by reducing overhead.

SET UP AND EXECUTE THE THROUGHPUT TEST

SET UP THE SLAVE AS THE RECEIVER

1. On the **Slave** side, select "Transport" and then select "Throughput Tests".   Select UART.

2. In the "Receive Test" (Bottom half of the window), fill in a data pattern such as "abcdef", and fill in a count such as "1000000"

3. Close the "Log Window."   If this window is left open or minimized, then the throughput test will not achieve maximum throughput because of delay that is added by Windows every time the log window is updated.

SET UP THE MASTER AS THE TRANSMITTER AND START THE TEST

1. On the **Master** side, select "Transport" and then select "Throughput Tests".   Select UART.

2. In the "Transmit Test" window (top half of the window), fill in the same data pattern and count that was filled in for the receive test on the **Slave** side.

3. Close the "Log Window."   If this window is left open or minimized, then the throughput test will not achieve maximum throughput because of delay that is added by Windows every time the log window is updated.

4. On the **Slave** side, click "Execute Test" in the "Receive Test" window.

5. On the **Master** side, click "Execute Test" in the "Transmit Test" window.

Bluetooth throughput test is now running.

To stop the test, click "Abort Test" on the Master side first, then on the slave side.

RF Performance Test

The following procedure explains how to configure the AW-NM230NF-H for RF testing using Broadcom BlueTool. At the completion of the procedure, connect the Bluetooth test instrument to the AW-NM230NF-H with RF cable and performs the RF tests.

RESETTING THE USB DEVICE

To reset the USB device

•In **HCI Control**, in the HCI Control commands list, select **7.3: Host Controller & Baseband Commands (3 key)**, and then double-click **Reset**.

READING THE BLUETOOTH DEVICE ADDRESS

To read the Bluetooth Device Address

• In HCI Control, in the HCI Control commands list, select **7.4: Informational Parameters (4 key)**, and then double-click **Read_BD_ADDR**.
The Bluetooth Device Address (BD_ADDR) is displayed in the log window. The Bluetooth Device Address might be needed
by the Bluetooth tester

SETTING THE EVENT FILTER TO AUTOMATICALLY ALLOW CONNECTION

To set the event filter to automatically allow connection

1. In HCI Control, in the HCI Control commands list, select **7.3: Host Controller & Baseband Commands (3 key)**, and then double-click **Set_Event_Filter**.
2. In HCI Command: Set_Event_Filter:
a. In the **Filter_Type** list, select **Connection Setup.**
b. In the **Connection_Setup_Filter_Condition_Type** list, select **Allow Connections from all devices**.
c. In the **Auto_Accept_Flag** list, select **Do Auto accept the connection with role switch disabled**.

ENABLING WRITE SCAN

To enable Write Scan

1. In HCI Control, in the HCI Control commands list, select **7.3: Host Controller & Baseband Commands (3 key)**, and then double-click **Write_Scan_Enable**.
2. In HCI Command: Write_Scan_Enable, in the **Scan_Enable** list, select **Inquiry and Page Scan enabled**.

ENABLING TEST MODE

To enable Test Mode

• In HCI Control, in the HCI Control commands list, select **7.6: Testing Commands (6 key)**, and then double-click **Enable_Device_Under_Test_Mode**.

The AW-NM230NF-H is now ready to receive a connection request from the Bluetooth tester and begin testing specified RF parameters.

3.Statement

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that
to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
Country Code selection feature to be disabled for products marketed to the US/CANADA

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and

2) The transmitter module may not be co-located with any other transmitter or antenna,

3) For all products market in US, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 3 conditions above are met, further <u>transmitter</u> test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE

In the event that these conditions <u>can not be met</u> (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID <u>can not</u> be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: TLZ-NM230NF".

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Industry Canada statement:

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux CNR exemptes de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes:

(1) Ce dispositif ne peut causer d'interférences; et(2) Ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and

2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes:

1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et

2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 2 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

IMPORTANT NOTE:

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

NOTE IMPORTANTE:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains IC: 6100A-NM230NF".

Plaque signalétique du produit final

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 6100A-NM230NF ".

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.
The end user manual shall include all required regulatory information/warning as show in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.
Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

This radio transmitter (IC: 6100A-NM230NF) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device

Cet émetteur radio (IC: 6100A-NM230NF) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous avec le gain maximal admissible indiqué. Types d'antennes ne figurent pas dans cette liste, ayant un gain supérieur au gain maximum indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil

Model	Type	Connector
RFMTA340715IMLB301	PIFA	I-PEX
IHX-323XRSXX-999	Monopole	I-Pex

Taiwan 警語：

第十二條→經型式認證合格之低功率射頻電機，非經許可，公司，商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條→低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。 低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

1. 本模組於取得認證後將依規定於模組本體標示審驗合格標籤

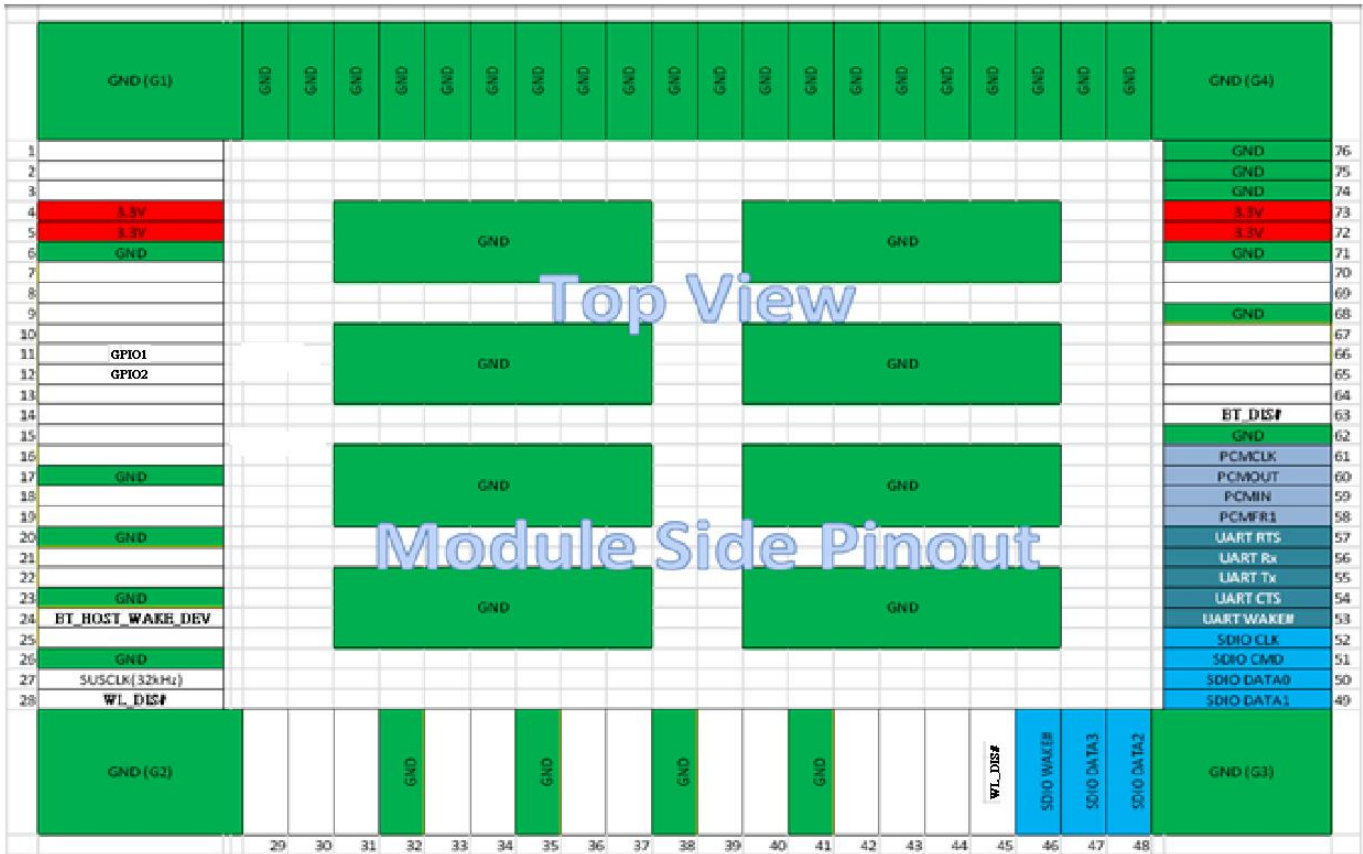2. 系統廠商應於平台上標示「本產品內含射頻模組: CC XX xx YY yyy Z z W」字樣

4. Pin Definition / Pin Map

Pin No	Definition	Basic Description	Type	Voltage
1	NC	No Connect	Floating	
2	NC	No Connect	Floating	
3	NC	No Connect	Floating	
4	3.3V	3.3V power pin	VCC	3.3V
5	3.3V	3.3V power pin	VCC	3.3V
6	GND	Ground.	GND	
7	NC	No Connect	Floating	
8	NC	No Connect	Floating	
9	NC	No Connect	Floating	
10	NC	No Connect	Floating	
11	GPIO1	GPIO pin	I/O	3.3V
12	GPIO2	GPIO pin	I/O	3.3V
13	NC	No Connect	Floating	
14	NC	No Connect	Floating	
15	NC	No Connect	Floating	
16	NC	No Connect	Floating	
17	GND	Ground.	GND	
18	NC	No Connect	Floating	
19	NC	No Connect	Floating	
20	GND	Ground.	GND	
21	NC	No Connect	Floating	
22	NC	No Connect	Floating	
23	GND	Ground	GND	
24	BT_HOST_WAKE_DEV	BT Device Wake	I	3.3V
25	NC	No Connect	Floating	
26	GND	Ground	GND	
27	SUSCLK(32kHz)	External sleep clock input (32.768 kHz).	I	3.3V
28	WL_DIS#	Used by PMU to power up or power down the internal regulators used by the WLAN section. Also, when deasserted, this pin holds the WLAN	I	3.3V

29	NC	No Connect	Floating	
		section in reset. This pin has an internal 200k ohm pull down resistor that is enabled by default. It can be disabled through programming.		
29	NC	No Connect	Floating	
30	NC	No Connect	Floating	
31	NC	No Connect	Floating	
32	GND	Ground	GND	
33	NC	No Connect	Floating	
34	NC	No Connect	Floating	
35	GND	Ground	GND	
36	NC	No Connect	Floating	
37	NC	No Connect	Floating	
38	GND	Ground	GND	
39	NC	No Connect	Floating	
40	NC	No Connect	Floating	
41	GND	Ground	GND	
42	NC	No Connect	Floating	
43	NC	No Connect	Floating	
44	NC	No Connect	Floating	
45	WL_DIS#	Used by PMU to power up or power down the internal regulators used by the WLAN section. Also, when deasserted, this pin holds the WLAN section in reset. This pin has an internal 200k ohm pull down resistor that is enabled by default. It can be disabled through programming.	I	3.3V
46	WL_DEV_WAKE_HOST	WL Host Wake	O	3.3V
47	SDIO_D3	SDIO Data Line 3	I/O	3.3V
48	SDIO_D2	SDIO Data Line 2	I/O	3.3V
49	SDIO_D1	SDIO Data Line 1	I/O	3.3V
50	SDIO_D20	SDIO Data Line 0	I/O	3.3V
51	SDIO_CMD	SDIO Command Input	I/O	3.3V
52	SDIO_CLK	SDIO Clock Input	I	3.3V
53	BT_DEV_WAKE_HOST	BT Host Wake	O	3.3V

54	UART_CTS	High-Speed UART CTS	I	3.3V
55	UART_OUT	High-Speed UART Data Out	O	3.3V
56	UART_IN	High-Speed UART Data In	I	3.3V
57	UART_RTS	High-Speed UART RTS	O	3.3V
58	PCM_SYNC	PCM Synchronization control	O	3.3V
59	PCM_IN	PCM data Input	I	3.3V
60	PCM_OUT	PCM data Out	O	3.3V
61	PCM_CLK	PCM Clock	I/O	3.3V
62	GND	Ground	GND	
63	BT_DIS#	Used by PMU to power up or power down the internal regulators used by the Bluetooth section. Also, when deasserted, this pin holds the Bluetooth section in reset. This pin has an internal 200k ohm pull down resistor that is enabled by default. It can be disabled through programming.	I	3.3V
64	NC	No Connect	Floating	
65	NC	No Connect	Floating	
66	NC	No Connect	Floating	
67	NC	No Connect	Floating	
68	GND	Ground	GND	
69	NC	No Connect	Floating	
70	NC	No Connect	Floating	
71	GND	Ground	GND	
72	3.3V	3.3V power pin	VCC	3.3V
73	3.3V	3.3V power pin	VCC	3.3V
74	GND	Ground	GND	
75	GND	Ground	GND	
76	GND	Ground	GND	
77	GND	Ground	GND	
78	GND	Ground	GND	
79	GND	Ground	GND	
80	GND	Ground	GND	
81	GND	Ground	GND	
82	GND	Ground	GND	

Inspired by wireless

83	GND	Ground	GND	
84	GND	Ground	GND	
85	GND	Ground	GND	
86	GND	Ground	GND	
87	GND	Ground	GND	
88	GND	Ground	GND	
89	GND	Ground	GND	
90	GND	Ground	GND	
91	GND	Ground	GND	
92	GND	Ground	GND	
93	GND	Ground	GND	
94	GND	Ground	GND	
95	GND	Ground	GND	
96	GND	Ground	GND	
G1	GND	Ground	GND	
G2	GND	Ground	GND	
G3	GND	Ground	GND	
G4	GND	Ground	GND	
G5	GND	Ground	GND	
G6	GND	Ground	GND	
G7	GND	Ground	GND	
G8	GND	Ground	GND	
G9	GND	Ground	GND	
G10	GND	Ground	GND	
G11	GND	Ground	GND	
G12	GND	Ground	GND	

AW-NM230NF-H Top View Pin Map