APPLICATION NOTE – Frequency Band / Carrier Locking Instruction

The following set of instructions describes how to lock to a specific frequency band and how to lock to a specific carrier using a GSM iPackGPS. This may be necessary when there are multiple carriers available.

HOW TO LOCK TO A SPECIFIC FREQUENCY BAND:

- 1. Download the latest version of SDR here: <u>http://www.nrgapps.com/beta.php</u>
- 2. Open the copy of SDR that you just downloaded and type "nrgphone" and once you see the main screen of the program; this will open the Phone Diagnosis window, which will looks like this:

Phone Diagnose	×
General Iridium CDMA v2 CDMA v3 GSM-E GSM-G2 GSM Net	work
Phone ID Revision Info	
Reset	
TAC R AT R	*
AT AT	
ОК >АТ АТ	=
OK >AT AT	
ок	-
	Send

Gener	al Iridium CDMA v2	CDMA v3 GSM-E G	SM-G2 GSM Network	
	Check band lock	Lock phone to:	All Bands (Autoselect)	•
	Reset	Make Call	Check IMEI	
>AT AT				
OK >ATS ATSO	0? ?			
255				
0K >AT+ AT+W	WMBS? /MBS?			
+WM	BS: 4,0			
Ок				

- 3. Let the screen sit for a minute while the program runs through a couple AT (modem) commands. Once it says "OK" at the bottom, go to the "GSM-G2" tab and select "Check band lock" (see above, right) this should make the dropdown box to the right say "All Bands (Autoselect)" (it might also just stay blank).
- Change your selection on the dropdown menu to the frequency band commonly used in your region. A list of the different frequency bands can be found here: <u>http://allworldcellphones.com/gsm-frequencieslist.htm</u>
- 5. Choose the correct frequency band for your region and click "Lock phone to:" The program will run a couple more scripts and then say "OK" at the bottom of the screen. See example below:



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General Iridium CDMA v2 CDMA v3 GSM-E GSM-G2 GSM Network		General Iridium CDMA v2 CDMA v3 GSM-	E GSM-G2 GSM Network
Check band lock Lock phone to: 850 & 1900 MHz (America	as) 💌	Check band lock Lock phone to	850 & 1900 MHz (Americas)
Reset Make Call Check IMEI		Reset Make Call	Check IMEI
+\v/MBS: 4,0	<u> </u>	AT&W AT&W	
OK >ATSO=255 ATSO=255		OK >ATSO? ATSO?	
OK >AT+WMBS=4,1 AT+WMBS=4,1		255 OK	
OK >AT&W AT&W	=	AT+WMBS? AT+WMBS? +WMBS: 4,0	
ОК	•	ок	
	Send		Se

6. To double check that the change has been made, select "All Bands (Autoselect)" and then click "Check band lock". Once this has been clicked, the AT script will run and the drop down menu should change back to whichever frequency you have selected.

HOW TO LOCK TO A SPECIFIC CARRIER:

- 1. With the latest version of SDR, type "nrgphone" on the main screen of the program this will open the Phone Diagnosis window.
- 2. Click on the "GSM Network" tab, and go through the buttons from left to right.
- 3. Start with the "Check SIM" button. The number above the "OK" after the AT scripts runs is the SIM number inside the GSM iPack (see below, left side). Verify that you got a number and that it matches your records. If anything other than this is displayed, there is a problem with the SIM card.



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ΔΡΡΙ ΙΟΔΤΙΟΝΙ ΝΟΤΕ —

Phone Diagnose	×	Phone Diagnose	- Tanan		
General Iridium CDMA v2 CDMA v3 GSM-E GSM-G2 GSI	M Network	General Iridium CDMA v2	CDMA v3 GSM-E GSM	-G2 GSM Network	
Check SIM Check Network Lock N	Available etworks	Check SIM	Check Network Lock	List Available Networks	
Lock to Network Unlock (auto select) Sav	ve Settings	Lock to Network	Unlock (auto select)	Save Settings	
Check Registration Attach To GPRS Re	eck GPRS egistration	Check Registration	Attach To GPRS	Check GPRS Registration	
0K >ATD18029893655 ATD18029893655 ND CARRIER >ATZ ATZ ATZ OK >AT-CIMI AT+CIMI 884155065967323 0K		>ATZ ATZ OK >AT+CIMI AT+CIMI 2341509058667329 OK >AT+COPS? AT+COPS? HCOPS:1.2.310410 OK			
	Send				Sen

- 4. Click "Check Network Lock". You can see what network the modem is currently locked to. The network description shown will look similar to "+COPS: 0, 2, 123456" (above, right). If the first number is 0, the modem frequency is not locked (auto). If the first number is 1, the modem frequency is locked to the network specified by the third number.
- 5. Click "List Available Networks". This will take a bit of time (15 30 seconds). This button will return a list of GSM networks the phone can see, including carrier name and a 5-6 digit code.
 - To lock to an Available Network, click "Lock to Network". Enter the code from the desired • network. Verify you get an OK. If you want to undo this, click "Unlock (auto select)" instead.

Phone Diagnose		
General Iridium CDMA v2 CDMA v3 GSM-E GSM	G2 GSM Network	1
Check SIM Check Network Lock	List Available Networks	
Lock to Network Unlock (auto select)	Save Settings	
Check Registration Attach To GPRS	Check GPRS Registration	
0K >XT+CDPS? AT+CDPS? +COPS: 1.2,310410 0K		Enter Network ID
Prease wait - response may take up to 15 seconds >AT+CDPS=? AT+CDPS=? +CDPS: (2 "AT&T" "AT&T" "310410")		Network ID? (5-6 digits)
ак		
	Send	310410

6. Once you have locked to a network by entering the Network ID, click "Save Settings".



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- Click "Check Registration". This checks whether the phone is on the network or not. You will see a
 result like "+CREG: 0, X". X is the status you want a 1 or 5. All possible status results are shown
 below:
 - 0,0 Not registered, Mobile Equipment is not currently searching for a new operator.
 - 0,1 Registered, home network.
 - 0,2 Not registered, Mobile Equipment currently searching for a new operator to register to.
 - 0,3 Registration denied.
 - 0,4 Unknown.
 - 0,5 Registered, roaming.

It should look something like this:

NEG Pho	one Diagnose	-		X
Gene	eral Iridium CDMA v2	CDMA v3 GSM-E GSN	1-G2 GSM Network	1
	Check SIM	Check Network Lock	List Available Networks	
	Lock to Network	Unlock (auto select)	Save Settings	
	Check Registration	Attach To GPRS	Check GPRS Registration	
OK >AT AT+ OK >AT AT& OK AT+	+COPS=1.2,"310410" COPS=1.2,"310410" &W W +CREG? CREG?			*
<mark>+СВ</mark> ОК	EG: 0,5			-
				Send

Contact NRG Technical Support if you need further assistance.



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