Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	1/13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

Dongle PL Test Manual

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Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	2/13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

Document Revision History

No	Description	Author	Page	REV. NO	Revised
					Date
1	initial	BJ KIM		1.0	2016.11.20



Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	3 / 13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

INDEX

•	DOCUMENT REVISION HISTORY	. 2
1.	DONGLE-PL TEST USING THE POWER SUPPLY	4
2.	IQ NXN SETTING	. 5
3.	TX TEST	. 6
4.	RX TEST	10



Company Confidential

KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	4/13
L15LT028Z	Revised Date	2016.11.21	Written by	
Dongle PL			Checked by	
Dongle PL Manual			Approved by	
	KMWI-A61-E199 KMWI-A61-E202 L15LT028Z Dongle PL Dongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.L15LT028ZRevised DateDongle PLDongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.P1.0L15LT028ZRevised Date2016.11.21Dongle PLDongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.P1.0PageL15LT028ZRevised Date2016.11.21Written byDongle PLChecked byDongle PL ManualApproved by

1. Dongle-PL Test using the Power Supply

- 1-1. Dongle-PL Test using the Power Supply
 - Dongle PL Board is powered by a Power Supply. current consumption check using the Power Supply
 - Power Supply settings DC15V, 1A
 - Dongle-PLs average power consumption is under 0.3W. Current consumption 15~25mA @ 15V
- 1-2. Change into ISP mode.
- 1-3. Connect Debug Cable to Z_Deg port(J2). (Use Pogo Pin)
- 1-4. Execute Device-Programmer MD 2.60 Program.

Elsenii O	Hex Code File	-			X	+ Hardware Informat	lon.•
100.0	in Nane			Shirt Time		P Auto	Increment IT Barcode Scanner
Last	notified time			4002061		Address Type	(PlantoPulse IEEE *)
Atte	No Sizo con range			Finan Tane	Frich Tine		
						Massimum	
Multip	le Device Proj	presenting				CON Hardward	Information
Como	Eluri		Modern Configuratio	in Typie		Ohip Identifier	MG2470
(F h)	grant Hex Code	C Read Hex Code	(F) Overwrite web	hardware incometion.	-	Transmit Power	0
	code protection		C Rebeit hardwar	e information in fliaiti memory.		Data Rate	250 Kbpr
C D	ea 75064	C Read HD	17 Not including her	elitware information		Stack Identifier	None
-		115452512451	1			RF Channel	Channel 11 (2405 MHz)
121	Tiere.	Address		3144		F#4 Identifier	12 34
	COM 15					Network Address	00.01
						Security Level	NO.
						Preconfig-Made	00
						Network Key	00 00 00 00 00 00 00 00 00 00 00 00 00
						Reserved-0	00 00 00 00 00 00 00 00 00 00
						Extended PanID	00 00 00 00 00 00 00 00
-						Reserved-1	00 00 00 00 00 00 00 00 00
						General Word-O	00.00
-						General Word-1	00.00
						10.15	

< Device-Programmer MD 2.60 Execution screen >

1-5. Select the MG2450/2455.

ODevice-Programmer MD - Ra	dioPulse Inc.		
$File(\underline{F}) View(\underline{V}) Help(\underline{H})$			
Direct-DownLoad 💌 MG2470	USB to Serial Po	ort (CP210X) 💌 🥏 📋 Hex	Editor 🛛 🔍 🛛 🕢
Open Hex Code MG2400-F48		~ >	+ Hardware Information +
Hex File Name :		Start Time :	Auto Increm
Last modified time : Hex File Size :		Finish Time:	Address Type
Address range :			IEEE Address

< Device-Programmer's Device Setting>



Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	5/13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

- 1-6. Open the RF Test Program to download to Dongle PL.
 MG245X-KMW_IQVIEWER_V22_PA_Rev02.H00
 MG245X-KMW_IQVIEWER_V22_PA_Rev02.H01
 - Download only choose H00 file extension.
- 1-7. Download to LCS Node.

Bani On + Bani	DrukkPROJECTILC	501_pigbee Partronics to	erisp_PWI.tex	₩ X	+ Hardwa	ee Informat	05.+	
Bank () Name	SP_FW1.hex		Start Time			P Auto	Increment IT Barco	de Scanner
Last modified tim	13/07/2012 15:10:08		17/07/2012	11:35:33:382	Address Type		RedoPulse EEE	
Lost nodificialities			17/07/2012	17/07/2012 11:35:45:082		drees		
Last notified tin	notified time :		[success]		Maximum		00 10 51 101 FF FF FF FF	
Multiple Device	Programming				III Other	Hardware	Information	
Operation		- Nodern Configuration	Type	-	Chip 3	dentifier	MG2450 / 2455	
C Propriet Pilo	Con Dimension Cole	Converse with the	indverent/ormations	-	Power	Identifier	1,5V Powered Device	
III code prete	cher	C Retain functions	Princhellin II. Seith Areton	-	Minda	n Iclentifier	ZigBee 250K bps Capa	ble
C Base ROM	@ Read HE	fill Yet Including It	evice-Programmer	MD	×	Stack Ver	ZigBee 2007 / ZigBee	Pro
-		1	feucrees)	Device-Program	mmer MD	rnel	Channel 11 (2405 MH	2)
S Name	Address		<u>.</u>	hip type : MG3	NES	lentiñer	12 34	
	0,001561010000	0028		et et al angle were		rk Address	00 01	
				121		ty Level	00	
					THE NEW	fig Mode	00	
					Netwo	aric Kery	00 00 00 00 00 00 00 00	00 00 00 00 00 00

< Download complete message >

1-8. Change into Operating Mode

2. IQ NxN Test Setting

2-1. Connect Ethernet cable to Ethernet socket at IQ NXN device rear. Then Check communication to PC to IQ NXN.



< IQ NXN rear>

2-2. Setting PC's IP as under figure.



Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	6 / 13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

5	
트립크가 IP 자동 설명 기능을 지원하 수 있습니다. 지원하지 않으면, 네이 문의해야 합니다.	1번 IP 설정이 자동으로 발달되도록 목표 편리자에게 적발한 IP 설정값
) 자동으로 IP 주소 받기(<u>0</u>) IPI를 IP 전소 '대휴/RV	
P 주소()	192 , 168 , 10 , 253
서보셋 마스크(및):	255 , 255 , 255 , 0
기본 게이도웨미(①):	192 , 168 , 10 , 1
이 자동으로 DNS 서비 주소 받거(묘) ● CHE DNS 서비 주소 사용(匠): 기본 설정 DNS 서비(면):	
보조 DNS 서비(A):	
副월월 때 성정 유효성 경사(1)	고르(y).
	10 M

< PC's IP >

2-3. Execute IQsignal for Zigbee. And Setting Parameter as under figure.

Germai Jun	**		
Tester IP Address	COLUMN DE COLUMN		
Sangie Interval	2 ms		
EVM (Power Averaging	1		
Trigger Timetol (secs)	0.5		
Intrinument RX IF	0 MPHz		
	C10 Sere		

< IQsignal for Zigbee Program Parameter Setting >

2-4. Connect USB to Serial Cable to Z_Deg port(J2).

3. TX Test

3-1. Connect IQ NXN's RF1 channel to RF output(MCX) using the RF Cable.



<Connect RF1 to Node's MCX Connecter >

- Execute Tera Term
- Setting serial port as under figure.
- : The Top bar 'Setup' -> 'Serial Port ...' selection



Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	7/13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

Port:	COM15	•	OK
Baud rate:	115200	×	
Data:	8 bit	•	Cance
Parity:	none	•	1
Stop:	1 bit	•	Help
Flow control:	none	•	
Transmit dela	ay		
0 mse	c/char 0	ms	ec/line

- < Tera Term's Serial Port setting >
- Press 'H' key on the keyboard to display the test menu as below..



< KMW TEST MENU >

- Press 'C' key on the keyboard and select channel.



< For example selected 11 channel.>

- if press 'M' on the keyboard, Tx will be sent Modulation with IFS.



Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	8/13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

COM15:115200baud - Tera Term VT	
<u>File E</u> dit <u>S</u> etup C <u>o</u> ntrol <u>W</u> indow <u>H</u> elp	
TEST_TXOUT : Modulation with IFS ==> OK	*
	-

<Modulation Tx Out>

- 3-2. Implement Tx test using the IQsignal for Zigbee Program.
- Measure Antenna: HW-2450D-MSMA2 HANWOOL TECH (SEGA Antenna)
- -Trigger type : signal trigger
- -.Triger level : -25dBm
- External Atten : 10dBm



< Dongle-PL Position (Use SEGA Antenna) >



KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	9/13
L15LT028Z	Revised Date	2016.11.21	Written by	
Dongle PL			Checked by	
Dongle PL Manual			Approved by	
	KMWI-A61-E199 KMWI-A61-E202 L15LT028Z Dongle PL Dongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.L15LT028ZRevised DateDongle PLDongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.P1.0L15LT028ZRevised Date2016.11.21Dongle PLDongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.P1.0PageL15LT028ZRevised Date2016.11.21Written byDongle PLChecked byDongle PL ManualApproved by



< Tx test measure >

- Compare with the following items to check for defects

	Req'd Spec	Remark
Transmit Power	≥3dBm	[6.9.5]IEEE802.15.4-2006
Spectrum PSD mask	확인	[6.5.3.1]IEEE802.15.4-2006
Transmit Center Frequency Tolerance	± 40 ppm	[6.9.4]IEEE802.15.4-2006
Error Vector Magnitude	≤ 35%	[6.9.3]IEEE802.15.4-2006

< Zigbee Rx Test ChecK List>



KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	10/13
L15LT028Z	Revised Date	2016.11.21	Written by	
Dongle PL			Checked by	
Dongle PL Manual			Approved by	
	KMWI-A61-E199 KMWI-A61-E202 L15LT028Z Dongle PL Dongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.L15LT028ZRevised DateDongle PLJongle PL Manual	KMWI-A61-E199 KMWI-A61-E202Revision NO.P1.0L15LT028ZRevised Date2016.11.21Dongle PLUnited StateDongle PLDongle PL ManualUnited StateUnited State	KMWI-A61-E199 KMWI-A61-E202Revision NO.P1.0PageL15LT028ZRevised Date2016.11.21Written byDongle PLChecked byDongle PL ManualApproved by

- RX Test

4-1. Execute 'vector signal analyzer' as under figure.



4-2. Connect IQnxn's RF2 Channel to device's output.



<Connect RF 2 port >

4-3. Open the 'zigbee_psdu20.mod' file.

Open Gene	erator File				
Exit	Ctrl+X	8	RF Channel	Signal	
	- e 1800	Start	11 / 2405 MHz 🔹	Zigbee (802.15.4)	III NO SV
			1		
5	Ľ	1	r 1 3	1 1	1
0					
-		1			
	contribution and	Table Colors and the			

- 4-4. Execute 'Tera Term' And then Setting port. (3-2. Reference setting Teraterm)
- 4-5. Select RF ON/OFF button as under figure, select 'Start' button. then number 1000's Tx data is transmitted to the Dongle PL Board.



Document NO.	KMWI-A61-E199 KMWI-A61-E202	WI-A61-E199 IWI-A61-E202		Page	11/13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	



<RF ON/OFF, Start Button >

4-6. If press '2' on the keyboard, can be check transmitted result.

Luc	Ean	<u> </u>	etup	C	ontr	01	Wir	ndow	H	elp								
(Cha Curr Inpu	nnel ent (t Cha	Cha Chan anne	nge] nel (1	: 11 1 ~	l (2 26)	405 1	MHz 11 (:) 2405	MHz)	==>	• OK							0
											1110	111			 	11		 ÷
					1.12				12.12		11.12		1.1.1	112	 	11		 5
															 			 ÷.
1.1.1.1	122.10			1.1.2.1		12.2			12.22	11.12	11.12	12.20	1.1.1	112	 		1.1.2	 ۰.
															 			 έ.
															 			 τ.
															 			 γ.
															 			 γ.
															 			 Ξ.
DuiCo	unt í	PRC .	0K =	100	10													-

< Tera Term Rx count Output Screen >

- Compare with the following items to check for defects

	Req'd Spec	Remark
Receiver Sensitivity	> 7EdDm	[6.5.3.3]IEEE802.15.4-2006 (≥-
		85dBm)
Packet Error Rate(1000)	≤ 1%	[6.5.3.3]IEEE802.15.4-2006
Receiver maximum input level	-20dBm	[6.9.6]IEEE802.15.4-2006

<IEEE802.15.4 standardize Zigbee Rx Test ChecK List>

 Specified as ≥-85dBm on IEEE802.15.4-2006, Changed to ≥-75dBm considering that the test environment is wireless.



Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	12/13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

FCC compliance Information

FCC Information to User

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.

Caution

Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Compliance Information : 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 Including interference that may cause undesired operation. Modifications not expressly approved by the manufacturer could void the user's authority To operated the equipment under FCC rules. To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product.

Contains Transmitter Module FCC ID : ORI-DONGLE-PL

CAUTION : This device and its antenna(s) must not be co-located or operated in conjunction with any other antenna or transmitter. End users cannot modify this transmitter device. Any unauthorized modification could void the user's authority to operate this device.

This module is limited to installation in fixed applications, and only installed Lighting Fixture. This module can not be attached to other device without Lighting device.

IMPORTANT NOTE:

FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Document NO.	KMWI-A61-E199 KMWI-A61-E202	Revision NO.	P1.0	Page	13 / 13
Project Code	L15LT028Z	Revised Date	2016.11.21	Written by	
Project Name	Dongle PL			Checked by	
Subject	Dongle PL Manual			Approved by	

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

The transmitter module may not be co-located with any other transmitter or antenna,
 OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.
 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 (for example, digital device emissions, PC peripheral requirements, etc.).

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 FCC authorization is no longer considered valid and the FCC 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 FCC authorization.

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.

