**USER GUIDE – QUUPPA** 



# QUUPPA RANGE USER GUIDE

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# **USER GUIDE – QUUPPA**



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# 1. CONCERNED PRODUCTS

DESIGNATION	PRODUCT REFERENCE
Blue LITE ID QUUPPA	IDF28540X
Blue SLIM ID QUUPPA	IDF03540X
BLUE COIN ID QUUPPA	IDF10540X
AERO ID QUUPPA	IDF10550X
BLUE PUCK ID QUUPPA	IDF25540X
BLUE PUCK BUZZ QUUPPA	IDF31545X

# 2. GENERAL INFORMATION ABOUT QUUPPA TECHNOLOGY

## 2.1 ANGLE OF ARRIVAL LOCALIZATION

Quuppa is a tag localization system with an approach based on the wireless signal's "angle of arrival" combined with advanced proprietary algorithms.





The Quuppa system leverages Bluetooth Low Energy (BLE) technology. This offers several advantages, including very long battery life, compatibility with mobile devices, and the possibility of transmitting sensor data at the same time as positioning information.



The concept underlying the Quuppa system is a combination of Bluetooth technology and the angle of arrival signal detection method, providing greater positioning accuracy than other technologies based on signal strength (RSSI).

## 2.2 DOWNLINK COMMANDS

Unlike equipment that relies on BLE advertising frames, which include identifiers and/or data only in the uplink direction (i.e. tags towards receiver), the Quuppa system enables commands to be *sent* to tags.



## 2.3 OPERATION OF TAGS WITH QUUPPA TECHNOLOGY

Tags with Quuppa technology are designed to react to movement while conserving energy during idle periods. The Quuppa system updates a tag's position while the tag is in motion and remembers the tag's last position when the tag is inactive.

The different tag reaction levels are described by three states:

- "Triggered" state: the tag is awake and emitting regularly
- "Default" state: tag emissions are slowed down
- "Storage" state: the tag switches to standby mode and no longer emitting at all, until movement is detected

The change from one state to another takes place after a defined period. When movement is detected, the tag necessarily changes to the "Triggered" state.

This operation is defined by the Quuppa state machine:



The density of wireless activity is shown on the following graph:



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## 2.4 QUUPPA NETWORK

The Quuppa system requires installed infrastructure to operate. This includes:

- A physical server, running an instance of the Quuppa Positioning Engine software
- Localization antennas called "Quuppa Locators"
- A dedicated cabled network



oustoiner Applications

Antennas are positioned in a mesh layout, which can be more or less spread out depending on the desired localization accuracy (i.e. only presence detection, zoning, precise location).

Infrastructure must first be installed, and then defined and configured in the Quuppa Site Planner software. More information about infrastructure and installation is provided on the Quuppa website: https://quuppa.com/





## 3. TAG CONFIGURATION

Tag configuration involves two steps:

- Quuppa information configuration
- ELA Innovation information configuration

## **3.1 QUUPPA CONFIGURATION**

Quuppa configuration enables you to configure the settings for each tag's machine state.

Quuppa configuration enables you to configure the settings for each tag's machine state.

#### Hardware

- Computer with an Ethernet network plug
- Quuppa Focusing Locator Antenna (not the same as localization antennas)
- Ethernet crossover cable, or network cables & Ethernet switch

#### Software

• Quuppa Site Planner

## Method

In order to use a tag with Quuppa technology, the tag must be integrated in the infrastructure as defined in § 2D.

Launch the Quuppa Site Planner (QSP) software and open a previously created project. If the project was created on a different computer, you must download it via the Quuppa Customer Portal after it was submitted by the first computer.

More information about site configuration is provided on the Quuppa website: <u>https://quuppa.com/</u>

	Welcome to Quuppa Site Planner
	Start new project wizard
1	Open existing project
	Download project from Quuppa Customer Portal
	✓ Show this dialog at startup
1	1



C



Enter the required identifiers, then click on "Retrieve project information". Choose the project and click on "Download selected project."

O Download a project from Quuppa cloud server							<b></b> ×	
Please provide your Quuppa customer portal user credentials								
Username Minhim Democrating Hald Howeld Loom	Password •	•••••		2-factor auth cod	e	Retrie	eve project infos	
Projects in the cloud server							— <i>T</i> —	
Filter by:								
License ID	Project name	License notes	Version	Updated	Created	Simulator	QPE version	
721a0130-0706-4834-8806-882/46801420	ELA Showroom	QUUPPA-PE-LIC	51	24.05.2019 (2 days)	17.10.2018 (221 days)	false	Any	
1								
Download selected project								

The main screen of the QSP application shows a map that you will use to show tag locations. The map also shows Quuppa Locator antennas.



In the "Deployment / Tag Configurator Tool":

The list of known tags is shown in the window, along with those currently visible by the Quuppa Focusing Locator antenna. The "Distance" column shows the proximity of each tag with respect to the antenna, which enables you to identify the tag you want to configure.



② Tags (1 selected/23 shown/23 total)								23				
<u>S</u> election Taggroup <u>Sy</u> stem <u>H</u> elp												
Tag ID	Tag name	Notes	Group	Color	Combined to	Device type	Config status	Tag state (age)	Last packet	Battery [V] (age)	Distance	DF
e792a30bcfaf	*noname*	-	[DEFAULT]	[DEFAU	*none*	General		*Triggered (25 min)	25 min	2.96 (25 min)		2402
a4da22e000b3	ELA333	-	Named Tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
dd71ec2c431f	ELA_QUUPPA_2	-	Named Tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
ebfd40bddb83	ELA_QUUPPA_1	-	Named Tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
cc3642337db0	ELA_QUUPPA_3	-	Named Tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
f1445450c30c	IDBUZZ	-	Named Tags	#ff0000	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
c4be8449ecbd	Quuppa1	-	Named Tags	#cccccc	*none*	General	NotStarted	Triggered (35 s)	873 ms	2.67 (1 min)		2402
a4da22e0006a	ELA111	-	Named Tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
d58645016429	QPL1	-	Named Tags	#ff0000	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
a4da22e00052	ELA444	-	Named Tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
a4da22e00097	ELA222	-	Named Tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
111111111111	ELA tags_0001	-	ELA tags	#cccccc	*none*	GeneralDevice	NotStarted	Unknown	Unknown	Unknown		Unk
c4be844a0185	tag2	-	quuppa tags	#cccccc	*none*	General	NotStarted	Unknown	Unknown	Unknown		Unk
4												•
Select by id/name Distance filter Far Near Clear detected tags Autoconfigure tags Go k, channels 2478/,2481/,2402/37												

Quuppa state machines may be configured via the menu: "System / Tag configuration editor".



This window enables you to create Quuppa state machine configurations that will be used to set up tags.

Each state is defined by the following parameters:

- > Triggered state:
  - Transmit rate: emission recurrence, adjustable from 9Hz to 1Hz
  - *Response mode*: response speed for downlink commands, adjustable from "fast" to "PowerSave"
  - Transmit power: emission power, adjustable from -24dBm to +6dBm



- State timeout: time after which the tag switches to the Default state, adjustable from 1 sec. to 24 hrs
- Accelerometer settings: not used (set to Off)
- > **Default** state:
  - Transmit rate: emission recurrence, adjustable from 1Hz to 0.1Hz
  - *Response mode*: response speed for downlink commands, adjustable from "fast" to "PowerSave"
  - Transmit power: emission power, adjustable from -24dBm to +6dBm
  - State timeout: time after which the tag switches to the Storage state, adjustable from 20 seconds to infinity
  - Accelerometer settings: not used (set to Off)

## **Storage** state:

- No wireless emission in this state
- Accelerometer settings: not used (set to Off)

In the "Tag Configurator Tool" window, the process configuring a tag with a predefined state machine is as follows:

- Place the tag on the Quuppa Focusing Locator antenna
- Select the tag to configure (the distance bar enables you to identify it in the list)
- Open the menu "Selection / Configure selected tags"
- In the window that opens, select the state machine to assign as well as the channel (BLE or proprietary)

## 3.2 ELA INNOVATION CONFIGURATION

ELA configuration enables you to define settings other than those for the Quuppa state machine.

#### Hardware

- PC with available USB port and Windows 10 (recommended)
- NFC USB reader (for example: ACR122U ELA ref.: ACIOM177)

#### Software

 Device Manager Software - ELA Innovation (download via Software section on our website: <u>https://elainnovation.com/downloads.html?cat=95</u>). Use version 2.1.0 or higher.



## Method

- Connect the NFC reader to the PC
- Launch the Device Manager application
- Open the Programmer section
- Launch the NFC widget by clicking on the icon



• Click on the name of your NFC reader



• Place the tag towards the bottom of the reader, with the tag's label facing the reader



• Click on the 🚳 icon to configure the tag

5	
	ACR122U PIC
Options	
	<b>\$</b>
Informatio	ns
	Nom Appareil : ACS A(

• The following window opens, with available parameters:



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i	ELA		$\diamond$
help		value	valid
?	Nom du Tag :	LITE_BDS	~
	Activation Tag :	True ~	~
?	Adresse MAC du Tag :	C1E7B276D38E	•

i	) Quuppa			$\diamond$
?	Activation Accéléromètre :	True	v	
?	Seuil détection de mouvement :	100		
?	Activation Long Sleep :	True	v	
?	Sensibilité Capteur MOV :	0	~	

## Parameter list

This section describes the details of the parameters used to configure Quuppa tags.

Parameter	Since version	Restrictions	Restrictions Default values	
Firmware version	1.0.0	-	ELA firmware version	Non-modifiable field
Name	1.0.0	0 to 12 characters	ELA_TAG	Tag name
Activation	1.0.0	True/False	True	Tag activation / deactivation (storage mode)
MAC address	1.0.0	12 hexadecimal characters of type: [0-9] [A-F]	Hardware address of the nRF chip	Non-modifiable field
Acc. Activation	1.0.0	True/False	True	Activation / deactivation of tag wakeup via accelerometer
Acc. Latency	1.1.0	0 or 1	0	0=low consumption 1=high reactivity
Acc. threshold	1.1.0	32 to 8000	100	Accelerometer trigger level, in milli-g
Long Sleep	1.0.0	True/False	True	Activation / deactivation of long sleep during Storage state



## Parameter details

- Firmware version:
  - Read-only value: provides the tag's current firmware version
- Name:
  - Tag name for internal use; unrelated to the tag name as seen by the QPE server.
- Activation:
  - True: tag is activated and operating normally.
  - False: tag is inactive and may be stored.
- MAC address:
  - Read-only value: provides the tag's unique address; this value is used to identify the tag in the Quuppa network.
- Acc. Activation:
  - The accelerometer is used to wake up the tag when movement is detected.
  - True: accelerometer activated (default behavior).
  - False: tag no longer wakes upon movement. Attention: this setting will lead to an infinite duration of the Quuppa "Default" state.
- > Acc. Latency:
  - 0: low consumption. Slow sampling frequency.
  - 1: high reactivity. High sampling frequency.
- Acc. threshold:
  - Acceleration threshold for triggering the tag; value in milli-g; hexadecimal value (minimum 32mg, maximum 8000mg)
- Long sleep:
  - Switching the tag to long sleep during the Storage state preserves battery life during that phase, but the tag must reboot upon movement. This setting is thus beneficial if the tag is not used frequently (less than about 30 times per day).
  - True: activates long sleep during Storage state.
  - False: deactivates long sleep during Storage state.

## 4. VIEWING TOOL

Installed to manage Quuppa system infrastructure, the Quuppa Positioning Engine server provides a Web service that shows a graphical view of tags positions, accessible via your regular web browser application.

Enter the following address to connect to the service: http://<ip-du-serveur>:8080/qpe

QUUPPO Positioning Engine Web Console					
Map View					
QPE Status as of Thu Jun 20 13:1	6:39 CEST 2019				
Software					
License Key: 1	[License Key is set] Set License Key				
License Expiration date: (i)	Fri Feb 14 17:48:00 CET 2020 (239 days) View License Details				
QPE Mode: i	Tracking, started: Fri Jun 14 09:49:11 CEST 2019 (6 days) Stop				
QPE Version: (i)	v.5.4.ALPHA-r9441				
Working Directory:	/opt/quuppa/PE				
Project and License Sync Status: (i)	OK Do File Sync				
Last Synchronized at: 1	Thu Jun 20 12:51:26 CEST 2019 (25 min)				
Next Scheduled Sync Time: ()	Thu Jun 20 13:51:26 CEST 2019 (34 min)				
Local Synced Files Valid Until: i	Sat Jun 22 12:51:26 CEST 2019 (1 days)				
Project Name: (i)	ELA Showroom				
Project Version: ()	61				
Location Based Commands: ()	Not Configured.				
Hardware					
Locators Online: (i)	1/3   Locator Details				
Tags Online: 1)	1   <u>Tag Details</u>				
Locator Operation Mode: ()	BLE (1 Locator)				
Platform Status: i	Memory configured:1018MB / allocated:649MB / free:367MB / used:283MB(28%), Disk free 112GB, CPU 0.8%				
Platform Data Rates: (i)	0.0 DF packets/s, 0.0 Data packets/s, UDP RX: 0.0 kB/s, UDP TX: 0.0 kB/s				

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Click on the "Map view" link at the top of the page to open a visual layout indicating tag positions.



## 5. DOWNLINK COMMANDS

The Quuppa system enables you to send commands to tags via the Quuppa Positioning Engine's "back channel". These commands are used to trigger actions on one or more tags, or to request information from tags.

Tags must be in either the Triggered or Default state in order to receive commands. Tags in the Storage state do not listen for incoming commands. A tag switches to Triggered state upon receiving a command.

## 5.1 HTTP COMMAND REQUEST

To send a command to a tag, an HTTP request must be sent to the QPE Web API, in the format:

This command targets the desired tag and sends a command to it.



## Parameter list for HTTP request:

Parameter	Restrictions	Description
tag	Required parameter. Tag ID(s), separated by a comma (,) without spaces if several. Example: tag=f1a45f56c30c,fd5c29a1d531	List of tags to address.
requestData	Required parameter. Fixed part "0xFF3700", followed by 13 bytes (26 hexadecimal characters of type: [0-9] [A-F]) for the command. Example: requestData=0xFF3700C003000000000000000000000000000000	Command to be sent to tag(s). See details below.
time	Optional. Time in milliseconds (ms). Example: time=120000	Time during which the system attempts to contact the tag(s). Default: 60000ms
humanReadable	Optional. No value. Example: humanReadable	Format the response in a form that is easy to read.

## 5.2 COMMAND DETAILS

The "requestData" field in the above request is constructed as follows:

- 0xFF3700: fixed part (required)
- 13 bytes (that is, 26 hexadecimal characters [0-9] [A-F]): command code + parameters (as needed) + padding with zeros (as needed)

## Example:





Details for the available command codes and their parameters are provided in the table below.

	Command	Since version	1 <sup>st</sup> byte code	Parameters (subsequent bytes)	Parameter details	Description
Actions	LED on	1.0.0	CO	<b>n</b> : 1 byte	<b>n</b> = 00 to FF (00 = infinite)	Blink LED n times. Attention: turning on the LED consumes a lot of battery power. May significantly reduce battery life.
	LED off	1.0.0	C1	-	-	Stop LED
	BUZZER on	1.0.0	C2	<b>n</b> : 1 byte	<b>n</b> = 00 to FF (00 = infinite)	Active the buzzer <b>n</b> times. Attention: using the buzzer consumes a lot of battery power. May significantly reduce battery life.
	BUZZER off	1.0.0	C3	-	-	Stops buzzer
Write	Set tag name	1.0.0	51	name: 12 bytes	name: 12 characters (ASCII hex. codes)	Sets the tag name
	Set accelerometer threshold	1.1.0	53	<b>thr</b> : 2 bytes (MSB first)	<b>thr</b> = 32 to 8000 (32mg to 8g)	Sets the accelerometer threshold Decimal value in mg must be converted in hexadecimal : (excel)=DECHEX(256/1000*DESIRED_T HRESHOLD;4) 0x07FF=8G (max) 0x0100=1G 0x0030=185mG 0x0008=32mG (min)
	Set mov latency	1.1.0	59	hi_reactivity = 1 octet	hi_reactivity = 1/0	Select the accelerometer sampling mode
	Get tag name	1.0.0	91	-	-	Request to retrieve tag name
q	Get accelerometer threshold	1.1.0	93	-	-	Request to retrieve current accelerometer threshold
Rea	Get firmware version	1.0.0	94	-	-	Request to retrieve firmware version
	Get mov latency	1.1.0	99	-	-	Request to retrieve current accelerometer sampling mode
Supply	Reboot to DFU	1.0.1	EO	-	-	Tag reboots in "device firmware upgrade" mode (DFU)



For each command received, the QPE server returns similar information (indicating that the server received the request, without specifying that the tag received it):

**5.3 DETAILS ON RETURNED INFORMATION** 

Most commands return information or acknowledgment of reception. Returned information may be read via another HTTP request sent to the QPE Web API, of the type:

http://192.168.0.146:8080/qpe/getTagPayloadData?tag=f1445450c30c&humanReadabe

This command addresses the desired tag(s) and reads the information that it (or they) returned. Returned information is in JSON format.

There may be a time delay between the first request and the tag's response. This is due to the intermittent aspect of wireless transmission and the tag's current state (Triggered or Default). Responsiveness is also impacted by the value provided for the "response mode" parameter in the Quuppa state machine.

All responses are returned in the same format. The system keeps the 16 latest responses sent by the tag. Here is an example of returned information:

```
"code": 0,
"command": "http://192.168.0.146:8080/qpe/getTagPayloadData?tag=d7488f98981e&humanReadable&version=2",
"message": "TagPayloadData",
"responseTS": 1561048075598,
 'status": "Ok",
"tags": [{
  "name": null,
"id": "d7488f98981e",
  "payloadData": [
    null.
     {
       "data": "<mark>0xf</mark>
       "dataTS": 1561047996128
    },
    null,
    null,
    ....
  ]
}],
"version": "1.0"
```

The data returned by the tag is in the field tags[x].payloadData[n].data. If several tags are addressed, the response includes the 16 latest payloads for each tag.



The response payload is constructed as follows:

- 0xFF 0x37 0x00: fixed part (required)
- 13 bytes (that is, 26 hexadecimal characters [0-9] [A-F]): reminder of command tag is responding to + returned value + padding with zeros (as needed)

## Example:

"data" : "	Oxff	0x37	0x00	0xc0	0x4f	0x4b	0x00	0x00"									
_																	Padding with zeros Returned value Command code Fixed part (required)

	Command	Since version	1 <sup>st</sup> byte code	Returned values (subsequent bytes)	Details Returned values	Description
	LED on	1.0.0	CO	status: 2 bytes	4F4B = "OK"	Receipt acknowledgment
suo	LED off	1.0.0	C1	status: 2 bytes	4F4B = "OK"	Receipt acknowledgment
Acti	BUZZER on	1.0.0	C2	status: 2 bytes	4F4B = "OK"	Receipt acknowledgment
	BUZZER off	1.0.0	C3	status: 2 bytes	4F4B = "OK"	Receipt acknowledgment
	Set tag name	1.0.0	51	status: 2 bytes	4F4B = "OK"	Receipt acknowledgment
Write	Set accelerometer threshold	1.1.0	53	<b>status</b> : 3 bytes	<ul> <li>4F4B = "OK"</li> <li>4E4F4B = "NOK"</li> </ul>	If accelerometer activated Otherwise
	Set mov latency	1.1.0	59	status: 3 bytes	<ul> <li>4F4B = "OK"</li> <li>4E4F4B = "NOK"</li> </ul>	If accelerometer activated Otherwise
	Get tag name	1.0.0	91	name: 12 bytes	Tag name (ASCII character string)	Tag name, hex. ASCII characters
ad	Get accelerometer threshold	1.1.0	93	<b>thr</b> : 2 bytes (MSB first)	<ul> <li>32 to 8000 (32mg to 8g)</li> <li>4E4F4B = "NOK"</li> </ul>	If accelerometer activated: current threshold Otherwise
Re	Get firmware version	1.0.0	94	version: 12 bytes	"1.1.0" (ASCII character string)	Firmware version, hex. ASCII characters
	Get mov latency	1.1.0	99	status: 1-3 bytes	<ul><li>0 or 1</li><li>4E4F4B = "NOK"</li></ul>	If accelerometer activated: current sampling mode Otherwise

List of commands as associated responses:



Supply	Reboot to DFU	1.0.1	EO	No return	Tag reboots in "device firmware upgrade" mode (DFU)
0)					

## 6. FIRMWARE VERSIONS

## 6.1 AVAILABLE VERSIONS

ELA firmware version	Quuppa stack version	Device Manager minimal version
1.0.0	1.0 / 10.024	1.3.0
1.0.1	1.1 / 10.028	1.3.0
1.1.0	1.1 / 10.028	2.1.0

## 6.2 UPDATE VIA OTAP (OVER THE AIR PROGRAMMING)

Starting with ELA firmware version 1.0.1, tags support remote updates to higher firmware versions, without any physical connection or having to open the casing. Device firmware updates (DFU) are programmed using a computer running Windows, Mac OS, or Linux.

## Required hardware:

Nordic Seminconductor NRF52840 dongle connected to programming computer's USB port.



## Software required on programming computer

nRF Connect software (free) must be installed. The software is available for download at this address:

https://www.nordicsemi.com/Software-and-tools/Development-Tools/nRF-Connect-fordesktop/Download#infotabs



When you open the software, the "Bluetooth Low Energy" application must be installed and then opened:

nRF Connect v	3.2.0		
APPS			
8	Bluetooth Low Energy General tool for development and testing with Bluetooth Low Energy official	Install	•
	Getting Started Assistant Guide to set up the nRF Connect SDK official	Install	
<u>«/)</u>	LTE Link Monitor Link monitor and AT command terminal official	Install	
Ø	Power Profiler Tool to measure current for nRF5x applications official	Install	•

The software proposes to update the NRF52840 dongle in order to communicate with tags. This update is required.

The dongle is then detected and can be used as a communication port (COMxx).

## Switch tag to DFU mode

To switch the tag to Device Firmware Update mode, the tag must be rebooted in DFU using the command "Reboot to DFU" (described in § 5B). The tag is then detectable with a standard Bluetooth scanner, with the name "Quuppa\_DFU".

## Programming process:

Open the nRF Connect software and launch the "Bluetooth Low Energy" application.

Click on "Select device" and select the nRF dongle. Open the "Options" menu and type "DFU" in the "Filter" field. Then launch the scan by clicking on the "Start scan" button.

0	RF Connect v3.2.0 - Bluetooth Low Energy		nRF Connect v3.2.0 - Sluetopth Low Energy	
	Select device • • 🛦 Connection Map 3 Server Setup		C947D985FCD5 - A Connection Map	
	ONT/DRBFCD5 • Study ex CRX8 • USE Nords: SensionActor (#912 Coversity)	Discovered devices  Start scar  Cetors  Cetors	CALCONSULCES	Discovered devices  Start scan  C Clear  Control  Contro  Control  Control  Control  Control
	.og 🔲 🖬 🖬		Log	



The tag named "Quuppa\_DFU" should appear in the list of detected objects. Click on "Connect", then on the secure update symbol (padlock in a circle with arrows):

InRF Connect v3.2.0	- Skietooth Low Energy			nRF Connect v3.2.0 - Blueto	oth Low Energy		
	D9B5FCD5 - 🍨 📥 C	onnection Map 📴 Server Setup	N	= C947D9B5FC	05	Connection Man 72 Census Setun	
Generic Acces	essrcos	Guoppa, DFU Teseret (0) C	Discovered devices    Start scan   Color    Options  Soft y signal strength  Filter:  Courpes_PFU  Courpes_PFU  Connect of  Connect of	Operative Attractions	Device Firm	ware Upgrade (DFU) for device E3:09:BC:BA:5B:91	Choose 1 ácan & Clour capas strength 70 20 20 20 20 20 20 20 20 20 20 20 20 20
Log 11:52:55:157 11:53:06:334	Scan started Connecting to device	Beneric Access	• Details	Log 11 52 55 157 Scar 11 53 30 334 Con	n started necting to device	Generic Access	- Detais
11:53:06:358 11:53:06:516 11:53:06:659	Connected to device E3:0 Connection parameters u Attribute value read, hand	9 IBCBA 58:91 pdated for device E3:09:BCBA:58:91: interval 15ms, timeout 400 (e: 0x03, value (0x): 51-75-75-70-70-61-5F-44-46-55		11:53:06:358 Con 11:53:06:516 Con 11:53:06:659 Attri	nected to device E3.0 nection parameters o bute value read, hand	07.805.86.91 updated for device £3.99.80; BA:58:91; interval 15ms, timeout 40 de: 0x03, value (0x); 51-75-75-70-70-61-5F-44-46-55	0 

Then choose the update file provided by ELA (file in the format xxxx.dfu.zip).

Click on "Start DFU" to begin the update. A progress bar shows data flow to the tag.



When update is complete, the tag reboots in Quuppa mode with the new firmware. Attention: Quuppa state settings are reinitialized (i.e. emission frequency, power, timeout). A new configuration may be sent using QSP (as described in § 3A).



# 7. QUICK START

In order to function, a Quuppa technology tag must be added to an existing Quuppa network (as described in § 2D).

The following steps are required when adding a tag to a Quuppa network:

- Tag activation and configuration as necessary (as described in § 3B):
  - Software: Device Manager
  - Set "Activation" field to "True"

i	ELA		$\diamond$
help		value	valid
?	Nom du Tag :	LITE_BDS	~
?	Activation Tag :	True v	~
?	Adresse MAC du Tag :	C1E7B276D38E	•

- Quuppa state settings (i.e. emission frequency, power, timeout):
  - Software: Quuppa Site Planner
  - Default settings:
    - Triggered state: 5Hz, -6dBm, 30s
    - Default state: 1Hz, -6dBm, 30s
    - Storage state
  - Modification of this setting is described in § 3A





## 8. MECHANICAL SPECIFICATIONS

**PUCK Format** 







**AERO Format** 

**COIN Format** 





**SLIM Format** 



# 9. NORMS & STANDARDS

## FCC Statement

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.

## Industry Canada Statement

This device complies with ISED's licence-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

3. Le dispositif ne doit pas produire de brouillage préjudiciable, et

4. Ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

**Quuppa Technology** 

Qυυρρα

**CE Mark** 



FCC Mark



ISED Mark



Innovation, Science and Economic Development Canada

RoHS (2002/95/CE)



## WEEE (2002/96/CE)



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