Spectralink

# Ni-MH Battery Test

## Test of battery time on Spectralink Butterfly handsets

DECT Engineering Team

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# Test of battery time on Spectralink Butterfly handsets

**Requirements: Start with a minimum of 3 Butterfly phones.**

## Pre conditioning of batteries.

Make 4 cycles of charge and discharge on each phone as follows

Each one cycle is composed of the following steps:

- Charge the phone with the batteries for 16 hours (no matter what the initial battery level. Stop charging if the Ni-MH battery becomes warm)
- Discharge phones until it turns off by itself.

*Please **repeat these steps 3 more times for a total of 4 cycles**. If this is not done – then the battery will NOT hold the full charge and would operate at a lower capacity.*

## Test of talk time:

Each one cycle is composed of the following steps:

- Charge phone for 16 hours.
- Establish a call in good coverage, with back light off and ECO mode enabled.
- Let the call run until the phone turns off by itself due to empty battery. (Ignore the battery low warning)
- Look into the DECT Server 2500 (or 8000) and get the connection time. Note: This data is NOT available on the 400 / 6500 server. If you are testing on 400 / 6500 server, make sure to measure and calculate this time.

*Repeat these steps 2 more times for a total of 3 cycles. Calculate the call time as the average of all the cycles.*

## Test of idle time:

Each one cycle is composed of the following steps:

- Charge phone for 16 hours.
- Just leave the phone subscribed to the system, and with back light off.
- Monitor and check the phone for when the phone turns off. (ignore battery low warning)
- Look into the DECT Server 2500 (or 8000) and get the connection time. Note: This data is NOT available on the 400 / 6500 server. If you are testing on 400 / 6500 server make sure to measure and calculate this time.

*Repeat these steps 2 more times for a total of 3 cycles. Calculate the idle time as the average of all the cycles.*

## Battery Specification and Capacity

The butterfly phone uses Ni-MH batteries. These battery specifications when used in the butterfly handsets are as per table below.

| Operation | Duration |
|---|---|
| **Active talking time** | 15 hours |
| **Active talking time (economy mode)** | 20 hours |
| **Standby mode** | 150 hours (when display backlight is turned off) |

Note: The capacity of the batteries depends on the use of backlight and talk time.

- Use only approved Ni-MH rechargeable batteries rated 1.2V 900mAh, type AAA in the Spectralink Butterfly Handset.
- For correct charging, be sure the room temperature is between 0°C/32°F and 40°C/104°F. Do not place the handset in direct sunlight.
- Operating time may be shorter than listed above depending on usage conditions and ambient temperature.
- The batteries drain slowly even while the handset is turned off.
- Battery consumption increases when the handset is out of range.
- Clean the handset and the charger contacts with a soft, dry cloth once a month. **Clean more often if the unit is subject to grease, dust or high humidity. Otherwise the batteries may not charge properly.**

## Ni-MH Batteries

| | |
|---|---|
| Battery lifetime under proper charge and discharge conditions | 2 years or 500 charging cycles |
| Warranty on the battery delivered in the handset | 15 months from the handset production date |
| Warranty on spare batteries | 15 months from the battery production date |
| Maximum storage time in the Spectralink stock | 6 months from the battery production date |

**Recommended Charging Methods:**

- First time usage: Ni-MH batteries will achieve maximum performance when fully charged and discharged 4 times.
- For maximum battery performance it is recommended to fully discharge Ni-MH batteries, and immediately recharge the batteries
- Stop charging if the Ni-MH battery becomes warm
- Ni-MH batteries with poor performance can be optimized by fully charging and discharging cycle.
- Optimum charging temperature: 50° F – 86° F / 10° C – 30° C

## Battery Information & Care

After batteries are full charged (at room temperature):

- Do not leave a battery where it could be subjected to extremely high temperatures.
- Do not charge battery when the ambient room temperature is above 40°C/104°F or below 0°C/32°F.
- Do not replace batteries in potentially explosive environments, such as rooms where flammable liquids or gases are present.
- Do not charge batteries unless you use the approved power adaptor and the proper batteries.
- Use only NEW Ni-MH rechargeable batteries rated 1.2V 900mAh, type AAA in the Spectralink Butterfly Handset.
- Do not disassemble, short circuit or dispose of in fire.
- A common mistake is to mix different battery types. **Do not mix with different battery types**. When replacing batteries – **make sure to replace both batteries in the handset at the same time**. Mixing old and new batteries could degrade performance.
- Do not let battery or power adaptor come into contact with conductive metal objects.
- Power handset off before removing the battery.
- There is a danger of explosion if the batteries are incorrectly replaced.

## Important information Concerning the Correct Use and Charging of Ni-MH Batteries

Batteries, due to their construction, undergo some wear and tear. The lifetime of batteries also depends on correct maintenance. Charging and discharging are the most important factors. You should take notice of the following to maintain the life of the batteries as long as possible.

It should be noted that Ni-MH batteries have a kind of memory, often called the "memory effect". If fully charged batteries are used several times only for 15 minutes in the handset and then recharged, the capacity of the batteries WILL BE REDUCED to 15 minutes due to this memory effect. Therefore, you should discharge the batteries completely and then recharge them as described.

After the memory effect has occurred, it is still possible to achieve nearly complete capacity of the Ni-MH batteries by charging and discharging several times (several cycles) one after another.

Ni-MH batteries can also self-discharge. This self-discharge depends on the ambient temperature. At temperatures under O °C (32 °F), the self-discharge will be the lowest. High humidity and high temperatures increase the self-discharge. Additionally - long-term storage also leads to self-discharge.