

Antenna Specification – Aurora BTE Super Power

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	Project name: <i>Obelix</i>	Project No.: <i>PF1068</i>	Document location: <i>Documentum</i>	

Title:

Antenna Specification – Aurora BTE Super Power

Written by:

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Change log:

Revision	Date	Author	Change
1.0	2017-05-10	RSOE	Initial version
1.1	2018-08-14	FDAN	Changed title and inserted project number
1.2	2018-10-02	RSOE	Data inserted and sent for review.
1.3	2018-10-08	OLMY	Reviewed. No comments.
2.0	2018-10-10	GEAL	Document Approved

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1. Purpose

The purpose of this document is to describe all the antennas for a product not falling below the Extremely Weak Power Equipment (EWPE) requirements – for instance products containing Bluetooth functionality (BT, BLE, or OBLE) or stronger FM transmitters.

2. Scope

This document contains location of the antenna and basic information about the antenna such as:

- Antenna type
- Directivity
- Gain
- Frequencies

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3. Documentation

3.1 Basic Information

Antenna 1			
Antenna type	Internal Inverted F -		
Band of operation	2402-2480 MHz		
Antenna gain based on 3 samples			
Frequency	Low (MHz) 2402	Mid (MHz) 2440	High (MHz) 2480
Typical Directivity (dBi)	1.9	1.9	2.1
Typical Gain (dBi)	-0.2	-0.4	0.3
Maximum Gain (dBi)	-0.1	-0.1	0.8

Typical directivity is the dB average of the directivity across all samples for each channel.

Typical gain is the dB average of the gain across all samples for each channel.

Maximum gain is the maximum gain across all samples for each channel.

Gain has been calculated as $G = \text{EIRP} - P_{\text{out}}$.

G : gain

EIRP : Effective Isotropic Radiated Power

P_{out} : Measured conducted power at RF connector (50 Ohm)

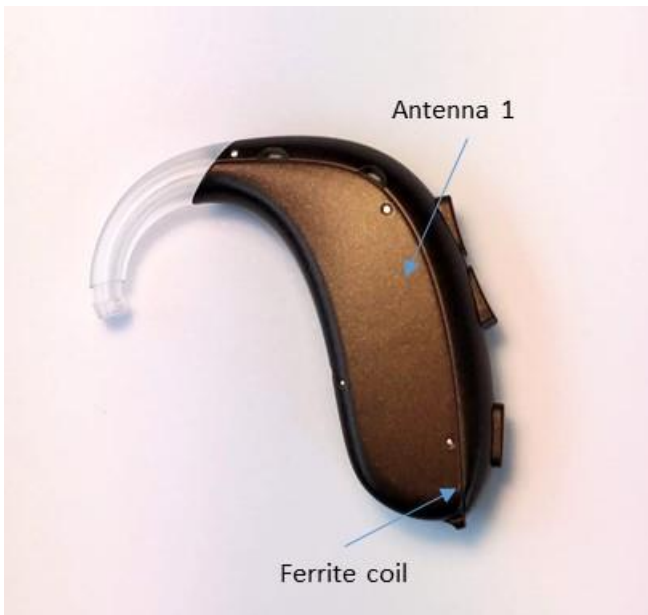
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3.2 Antenna Location

The 2.4 GHz transceiver in the hearing instrument implemented with the Obelix radio model inside is consisting of an integrated BLE radio transmitter and receiver and an antenna structure. The BLE chip feeds its RF signal through a matching/feed structure to the internal inverted F antenna.

The Hearing instrument also includes a transceiver connected to a ferrite coil antenna running at 3.84 MHz, but due the extremely low power of its transmitter, it shall not be approved in Japan (or South Korea). The transmitter emits an E-field of less than $500\mu\text{V}/\text{m}$ @3m, (Japan EWPE requirement), so no further information about this radio is needed here.

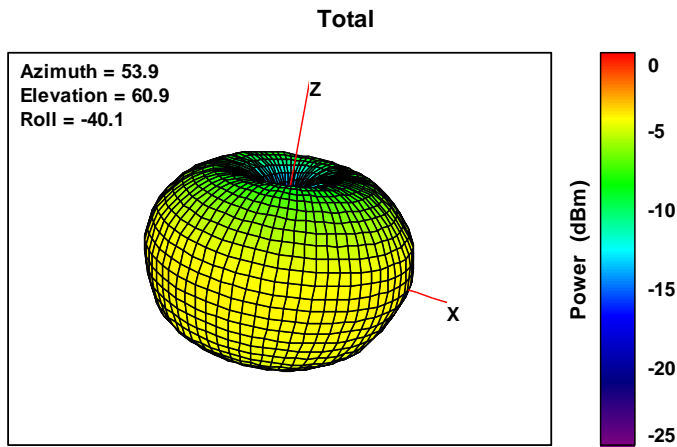


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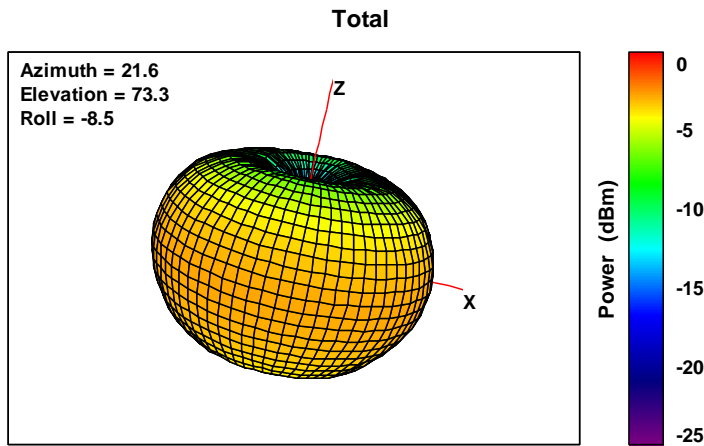
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3.3 Antenna radiation pattern

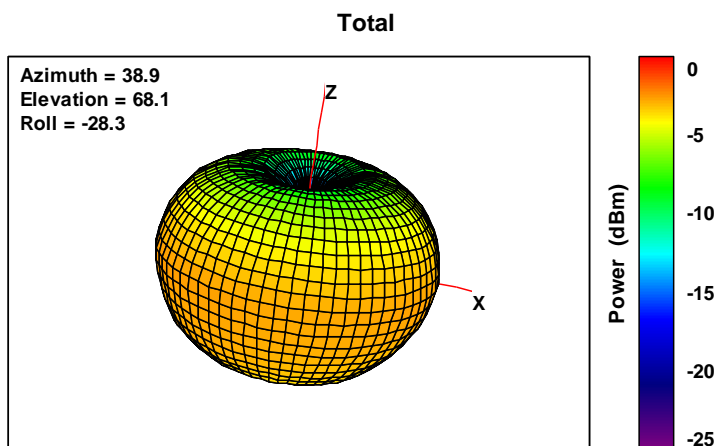
fc=2402 MHz



fc=2440 MHz



fc=2480 MHz



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