



RF EXPOSURE EVALUATION REPORT FROM UL

For: Chiaro Technology Ltd

Product: Elvie Stride

RF Exposure Evaluation Report Serial No.:
UL/REGA2/MPE14250574

This RF Exposure Evaluation Report Is Issued Under The Authority
Of Andrew Hoare, Head of Certification:



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Written By: J. Bellairs



Checked By: D Doyle



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Page: 2 of 9

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Table of Contents

1. Client Information.....	4
2. Description Of The Apparatus And Its Operational Environment.....	5
3. Equipment Specifications.....	6
4 Reference / Specification.....	7
5. Assessment Method – EN 62479:2010.....	8
6. Justification for low power exclusion from Specific Absorption Rate (SAR) evaluation	9
7. Conclusion.....	9

For: Chiaro Technology Ltd
Product: Elvie Stride

1. Client Information

Company Name:	Chiaro Technology Ltd
Address:	63 – 66 Hatton Garden London EC1N 8LE UK
Contact Name:	Mr A. Traquair

For: Chiaro Technology Ltd
Product: Elvie Stride

2. Description Of The Apparatus And Its Operational Environment

Brand Name:	Elvie
Model Number(s):	EB01
Basic Direct Function:	Breast pump for use by lactating women
Intended Operating Environment:	Residential

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Product: Elvie Stride

3. Equipment Specifications

Equipment Category:	Bluetooth LE
Type of Unit:	Portable device worn on a woman's breast
Operating Frequency Range:	2402 MHz to 2480 MHz
Antenna Gain:	-2.23dBi
RF Output Power:	+6.0dBm max

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4 Reference / Specification

Specification:	EN 62479:2010
Title:	Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
Specification:	1999/519/EC
Title:	Council Recommendation of 12 July 1999 on the limitations of exposure of the general public to electromagnetic fields (0Hz to 300GHz)
Specification:	ICNIRP
Title:	International Commission on Non-Ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure in time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz). Health Physics, 1998, vol. 74, pp. 494-522

For: Chiaro Technology Ltd
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5. Assessment Method – EN 62479:2010

	Low-power exclusion level $P_{\max}$ based on considerations of SAR	Reference
Derivation of low-power exclusion level from ICNIRP and IEEE exposure limits	When SAR is the basic restriction, a conservative minimum value for $P_{\max}$ can be derived, equal to the localized SAR limit ($SAR_{\max}$) multiplied by the averaging mass (m): $P_{\max} = SAR_{\max} m$	See Annex A

Example values of $P_{\max}$ according to Equation (A.1) are provided in Table A.1 for cases described by the ICNIRP guidelines [1], IEEE Std C95.1-1999 [2] and IEEE Std C95.1-2005 [3] where SAR limits are defined. Other exposure guidelines or standards may be applicable depending on national regulations

Table A.1 – Example values of SAR-based $P_{\max}$ for some cases described by ICNIRP, IEEE Std C95.1-1999 and IEEE Std C95.1-2005

Guideline / Standard	SAR limit, $SAR_{\max}$ W/kg	Averaging mass, m g	$P_{\max}$ mW	Exposure tier ^a	Region of body ^a
ICNIRP [1]	2	10	20	General public	Head and trunk
	4	10	40	General public	Limbs
	10	10	100	Occupational	Head and trunk
	20	10	200	Occupational	Limbs
IEEE Std C95.1-1999 [2]	1.6	1	1.6	Uncontrolled environment	Head, trunk, arms, legs
	4	10	40	Uncontrolled environment	Hands, wrists, feet and ankles
	8	1	8	Controlled environment	Head, trunk, arms, legs
	20	10	200	Controlled environment	Hands, wrists, feet and ankles
IEEE Std C95.1-2005 [3]	2	10	20	Action level	Body except extremities and pinnae
	4	10	40	Action level	Extremities and pinnae
	10	10	100	Controlled environment	Body except extremities and pinnae
	20	10	200	Controlled environment	Extremities and pinnae

^a Consult the appropriate standard for more information and definitions of terms.

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6. Justification for low power exclusion from Specific Absorption Rate (SAR) evaluation

Where a transmitting device is intended to be used close to the human body device a SAR evaluation is required except in those cases where the device maximum output power is less than a maximum level specified in Annex A of EN 62479:2010 ($P_{\max}$)

EN 62479:2010 §4.2 ***Low-power exclusion level ($P_{\max}$)** states: *'Low-power electronic and electrical equipment is deemed to comply with the provisions of this standard if it can be demonstrated that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level $P_{\max}$.*

Annex A contains example values for $P_{\max}$ derived from existing exposure limits listed in the bibliography, such as the ICNIRP guidelines [1], IEEE Std C95.1-1999 [2], and IEEE Std C95.1-2005 [3].'

Council Recommendation 1999/519/EC Table 1 specifies the localised SAR limit for head and trunk as defined by ICNIRP for the General Public, therefore the ICNIRP specified $P_{\max}$ limit for head and trunk in Table A.1 of EN 62479:2010 is applicable i.e. 20 mW.

Council Recommendation 1999/519/EC Table 1 specifies the localised SAR limit for limbs as defined by ICNIRP for the General Public, therefore the ICNIRP specified $P_{\max}$ limit for limbs in Table A.1 of EN 62479:2010 is applicable i.e. 40 mW.

The maximum EIRP of the Elvie Stride is +3.77dBm (6.0dBm power -2.23dBm antenna gain) = 2.4mW which is below the specified $P_{\max}$ thresholds of 20mW for head and trunk and 40mW for limbs.

***low-power exclusion level $P_{\max}$** is defined in EN 62479:2010 §3.8 as: *'specified condition on device output power, which may also depend on other variables such as frequency and distance of radiating source from persons, such that the exposure level produced by the source will not exceed a specific basic restriction. If the device output power is less than $P_{\max}$, then the device is deemed to comply with the basic restrictions'*

7. Conclusion

The Elvie Stride complies with the requirements of EN 62479 Annex A for RF Exposure exemption for general public exposure for use against the head and body.
