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Ethicon Endo-Surgery Inc

SAR EXCLUSION REPORT

SCOPE OF WORK

SAR EXCLUSION CALCULATION
ON THE ECHELON

REPORT NUMBER

104871091LEX-001b

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SAR EXCLUSION TEST REPORT

Report Number: 104871091LEX-001b

Project Number: G104871091

Report Issue Date: 5/20/2022

Product Name: Echelon

Standards: FCC Part 1.1310 Limits for Maximum
Permissible Exposure (MPE)

RSS-102 Issue 5

Tested by:
Intertek Testing Services NA, Inc.
731 Enterprise Drive
Lexington, KY 40510
USA

Client:
Ethicon Endo-Surgery Inc
4545 Creek Rd.
Cincinnati, OH 45242
USA

Report prepared by



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1 Introduction and Conclusion

SAR exclusion calculations were performed on the product constructed as described in section 4. Information provided by the client including maximum output power, antenna gain(s), and minimum separation distance(s) was used to determine if the product under evaluation was exempt from SAR. Any change in these stated values may invalidate these results. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product under evaluation is **exempt** from SAR requirements for each of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) evaluated. Intertek does not make any claims of compliance for samples or variants which were not evaluated.

2 Test Summary

Section	Test Full Name	Result
5	FCC SAR Exclusion Calculation	Exempt from SAR
6	RSS-102 SAR Exclusion Calculation	Exempt from SAR



3 Client Information

This product was tested at the request of the following:

Client Information	
Client Name:	Ethicon Endo-Surgery Inc
Address:	4545 Creek Rd. Cincinnati, OH 45242 USA
Contact:	Matt Cowperthwait
Telephone:	(513) 337-1120
Email:	Mcowper1@its.jnj.com
Manufacturer Information	
Manufacturer Name:	Ethicon Endo-Surgery Inc
Manufacturer Address:	4545 Creek Rd. Cincinnati, OH 45242 USA



4 Description of Equipment under Test and Variant Models

Equipment Under Test	
Product Name	Echelon™
Model Name	ECH300060L
Serial Number	U95V3Z
Receive Date	1/17/2022
Test Start Date	1/24/2022
Test End Date	2/24/2022
Device Received Condition	Good
Test Sample Type	Production
Rated Voltage	12VDC
Frequency Band(s)	2400-2483.5MHz
Modulation Type(s)	GFSK
Test Channel(s)	2402MHz, 2440MHz, 2480MHz
Maximum Antenna Gain (dBi)	0.5dBi (Antenna AMCA31-2R450G-S1F-T3)
Description of Equipment Under Test (provided by client)	
The Ethicon Echelon™ 3000 60mm Staplers - designed to deliver reliable performance across a wide range of tissue types and thicknesses on a one-handed, easy to use platform.	

4.1 Variant Models:

There were no variant models covered by this evaluation.



5 FCC SAR Exclusion Criteria

Per KDB 447498 D01 General RF Exposure Guidance v06 § 4.3.1(a), the 10-g extremity SAR exclusion threshold is:

$$\left[\frac{(\text{max. power of channel, including tune - up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] \cdot \left[\sqrt{f_{(\text{GHz})}} \right] \leq 7.5$$

The output power was measured and reported in Intertek report 104871091LEX-001.1. The antenna gain was provided by the client. Intertek did not measure the antenna gain, and any deviations from the values provided may affect compliance.

Description	Value	Unit	Comments
Max Power of Channel	0.724	mW	
Minimum Separation Distance	5	mm	
Frequency	2.48	GHz	
Max Power of Channel (Rounded)	1	mW	Rounded to nearest mW
Minimum Separation Distance (Rounded)	5	mm	Rounded to nearest mm, limited to 5 mm
SAR Exclusion Threshold	0.315		Max power, mW / min. separation distance, mm x √(frequency, GHz)
Excluded from 1-g SAR?	Yes		Threshold ≤ 3.0
Excluded from 10-g extremity SAR?	Yes		Threshold ≤ 7.5

**6 RSS-102 SAR Exclusion Criteria****Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance^{4,5}**

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

SAR evaluation is not required when the maximum of the conducted output power or EIRP is less than the exemption limits given in RSS-102 Issue 5 Table 1, above.

The output power was measured and reported in Intertek report 104871091LEX-001.1. The antenna gain was provided by the client. Intertek did not measure the antenna gain, and any deviations from the values provided may affect compliance.

$$\text{EIRP} = -1.40 \text{ dBm} + 0.5 \text{ dBi} = -0.9 \text{ dBm} = 0.812 \text{ mW}$$

Since the EIRP is less than the exemption limits for ≤5 mm separation distance between 1900MHz and 3500MHz, the device was determine to be exempt from routine SAR evaluation.

**7 Revision History**

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	5/20/2022	104871091LEX-001b	BZ	JTS	Original Issue