Antenna Test Report

REPORT NO.		**OQ221117003**
APPLICANT	:	**Tesla**
MANUFACTURER	:	**Tesla**
EQUIPMENT	:	**Antenna**
DATE OF RECEIPT	:	**November 18, 2022**
DATE OF TEST	:	**November 18, 2022**
ISSUE DATE	:	**December 1, 2022**

Reviewed by:

Neil Kao / Manager

We, SPORTON INTERNATIONAL (USA) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (USA) INC., the test report shall not be reproduced except in full.

The declared product specification for EUT presented in this report is provided by the manufacturer / applicant, and the manufacturer / applicant takes all the responsibilities for the accuracy of product specification.

SPORTON INTERNATIONAL (USA) INC.

Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
OQ221117003	1.0	Initial issue of report	December 1, 2022

1. Test Laboratory

Test Site	Sporton International Inc. ☐ EMC & Wireless Communications Laboratory ☐ Wensan Laboratory ■ Sporton International (USA) inc.
Telephone Number	EMC & Wireless Communications Laboratory: TEL: +886-3-327-3456; FAX: +886-3-328-4978 Wensan Laboratory: TEL: +886-3-327-0838; FAX: +886-3-327-0855 Sporton International (USA) inc. TEL: +1-408-904-3300
Address	EMC & Wireless Communications Laboratory: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan Wensan Laboratory: No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd., Guishan Dist., Taoyuan City 333, Taiwan Sporton International (USA) inc.: 1175 Montague Expressway, Milpitas, CA 95035 USA
Chamber	EMC & Wireless Communications Laboratory: ☐ OTA01-HY ☐ OTA03-HY ☐ OTA04-HY ☐ OTA05-HY Wensan Laboratory: ☐ OTA07-HY ☐ OTA08-HY ☐ OTA10-HY Sporton International (USA) inc.: ☐ OTA01-CA ■ OTA02-CA

■ : The chamber(s) which used to perform the test in this test report.

2. Client Information

2.1 Applicant

Company Name	Tesla
Address	Address : 3500 Deer Creek Road, Palo Alto CA 94304, U.S.A.
Contact Person	Cindy Li / Lqing@tesla.com
Telephone Number	408-718-7809

2.2 Manufacturer

Company Name	Tesla
Address	Address : 3500 Deer Creek Road, Palo Alto CA 94304, U.S.A.
Contact Person	Cindy Li / Lqing@tesla.com
Telephone Number	408-718-7809

3. Equipment Under test(EUT) Information

3.1 Description of EUT

Product Feature & Specification	
EUT Type	Antenna
Brand Name	Tesla
Model Name	Glovebox BT
Antenna Type	IFA

4. Measurement Environment

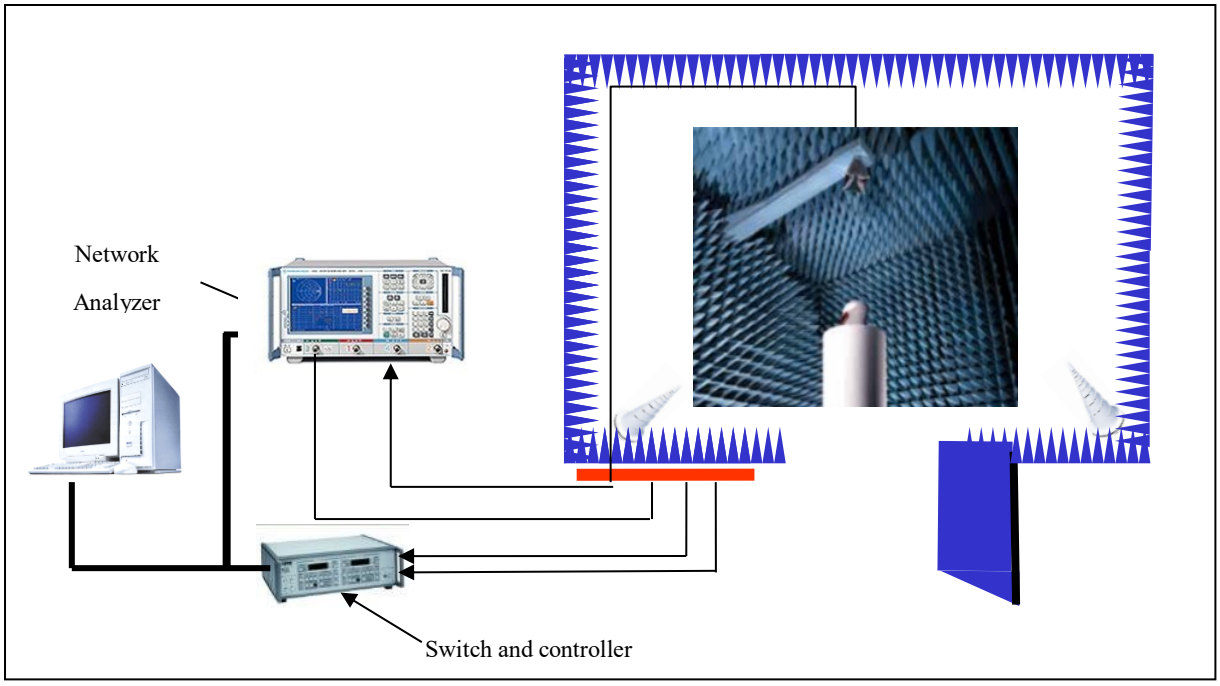
Ambient Condition

Temperature (°C):	25℃ +/- 5℃	Humidity (%):	<60%

Test Equipment List

Name	Manufacturer	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
ENA Series Network Analyzer	R&S	ZVB8	100110	2022/09/02	2023/09/01
RF Switch	ETS-Lindgren	EMCenter	N/A	NCR	NCR
Multi-Axis Positioner Controller	ETS-Lindgren	2090	N/A	NCR	NCR
Medium-Duty Positioner	ETS-Lindgren	2015	N/A	NCR	NCR
Measurement Horn Antenna	EMCO	3164-08	N/A	NCR	NCR

Passive measurement setup



5. Summary of Test Results

5.1 Declaration

Declaration of Conformity:
The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.
Comments and Explanations:
None

5.2 Abbreviations and Definitions

Please note the following abbreviations in this section:

FS = Free Space

5.3 Summary Table

IFA Antenna						
Frequency (MHz)	Ant. Port Input Pwr. (dBm)	Total Radiated Power (dBm)	Gain (dBi)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)
2400.00	0.00	-1.21	3.63	4.84	-1.21	75.69
2405.00	0.00	-1.18	3.71	4.89	-1.18	76.21
2410.00	0.00	-1.12	3.87	4.99	-1.12	77.24
2415.00	0.00	-1.17	3.76	4.93	-1.17	76.40
2420.00	0.00	-1.22	3.75	4.97	-1.22	75.45
2425.00	0.00	-1.19	3.83	5.03	-1.19	75.98
2430.00	0.00	-1.18	3.82	5.01	-1.18	76.14
2435.00	0.00	-1.20	3.74	4.94	-1.20	75.79
2440.00	0.00	-1.17	3.72	4.89	-1.17	76.41
2445.00	0.00	-1.18	3.77	4.94	-1.18	76.25
2450.00	0.00	-1.24	3.74	4.99	-1.24	75.11
2455.00	0.00	-1.21	3.77	4.98	-1.21	75.63
2460.00	0.00	-1.23	3.80	5.04	-1.23	75.29
2465.00	0.00	-1.21	3.82	5.04	-1.21	75.61
2470.00	0.00	-1.24	3.73	4.97	-1.24	75.22
2475.00	0.00	-1.23	3.80	5.02	-1.23	75.39
2480.00	0.00	-1.15	3.73	4.88	-1.15	76.70
2485.00	0.00	-1.15	3.63	4.78	-1.15	76.71
2490.00	0.00	-1.08	3.78	4.86	-1.08	78.07
2495.00	0.00	-1.09	3.80	4.90	-1.09	77.78
2500.00	0.00	-1.14	3.77	4.91	-1.14	76.99

6. Description for EUT Testing Position

Place and fix it with tape shown as below.

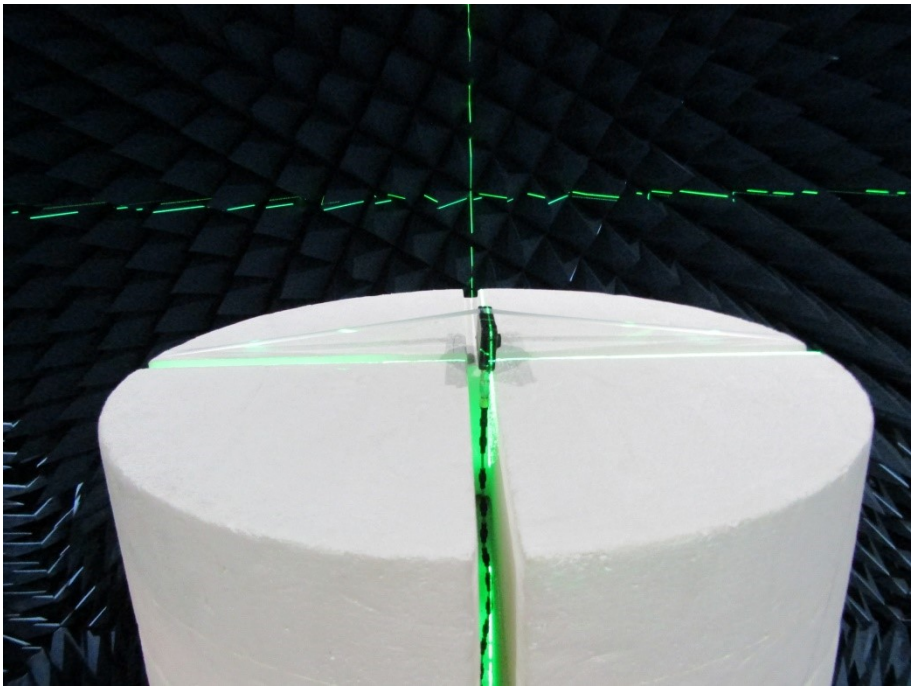
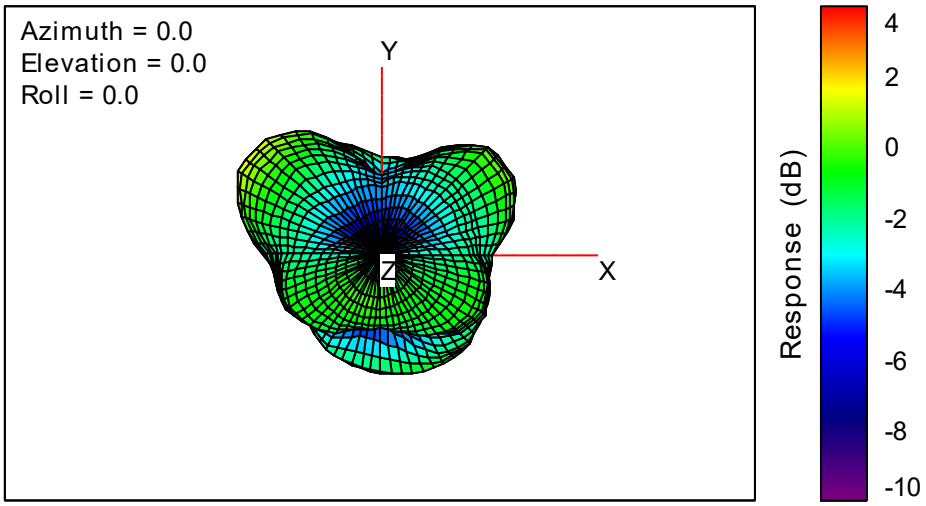


Figure 6-1 Test Position Free Space

Appendix A 3D pattern

2405 MHz

Total



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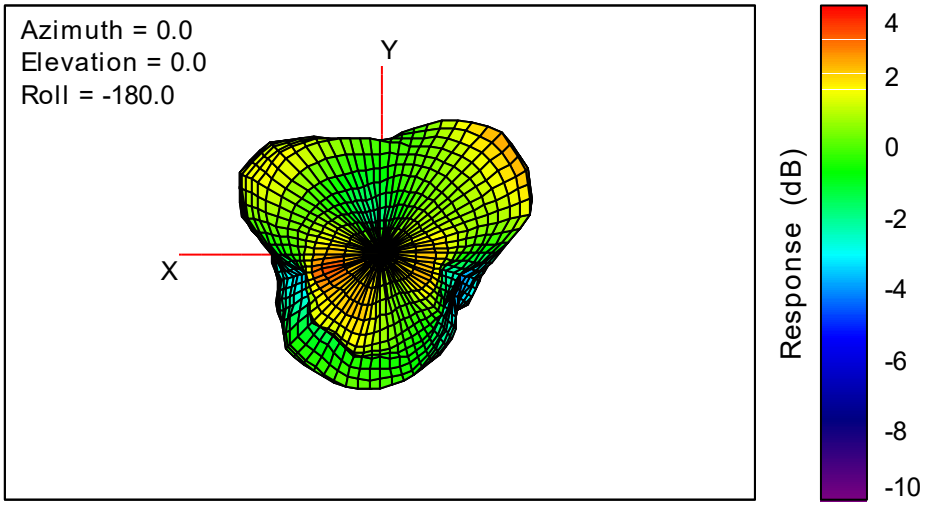
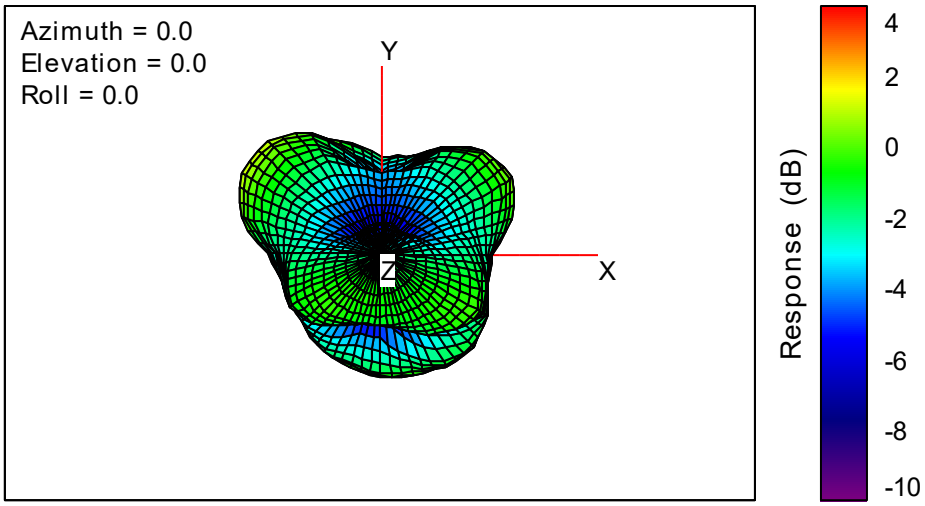


2440MHz

Total



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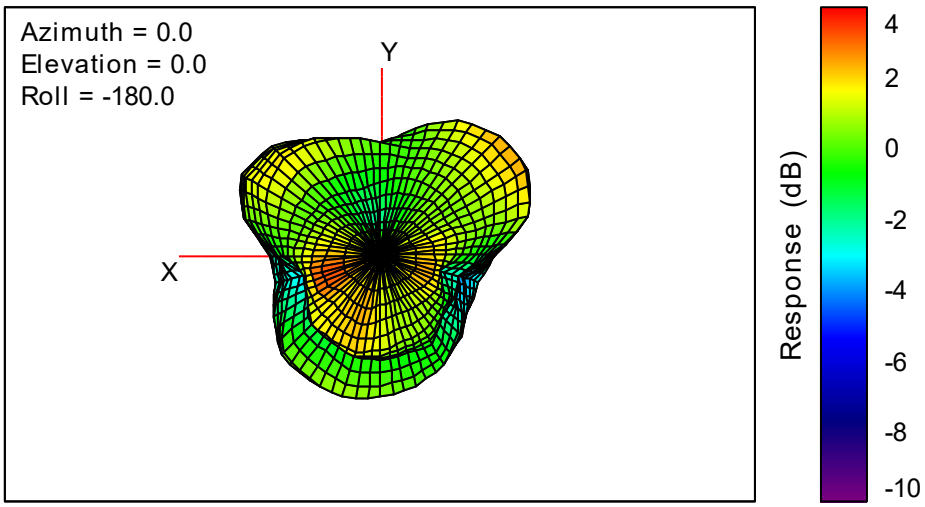
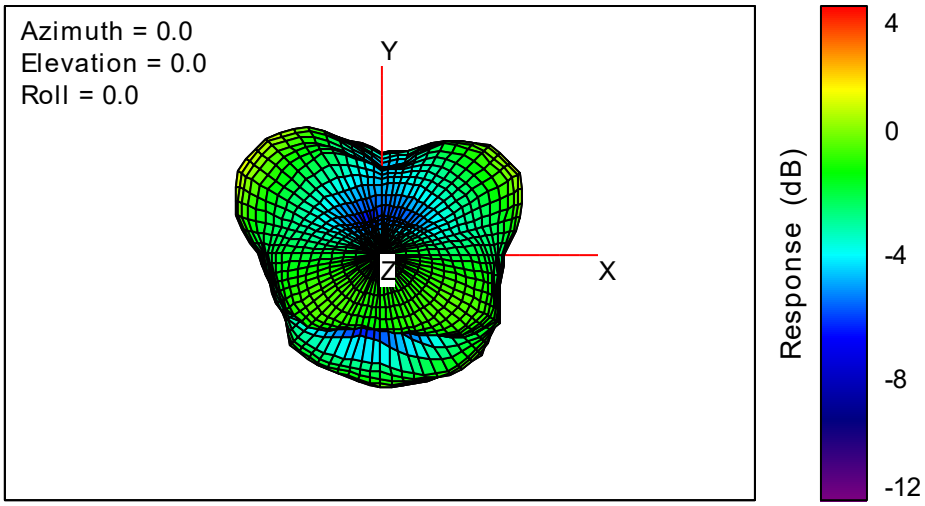


2480MHz

Total



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