

FCC TEST REPORT

Client Name : ZeroLemon(HongKong)Limited

Address : 817 New Tech Plaza, 34 Tai Yau St, KLN, HongKong
China

Product Name : ToughJuice Pro 30000mAh Power Bank

Date : Mar. 16, 2022

Shenzhen Anbotech Compliance Laboratory Limited



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TEST REPORT

Applicant : ZeroLemon(HongKong)Limited

Manufacturer : ZeroLemon

Product Name : ToughJuice Pro 30000mAh Power Bank

Model No. : Y1348

Trade Mark : ZEROLEMON

Rating(s) : Input: Typc-C 1 & Typc-C 2: DC 5V-9V/2A(MAX)
QC 3.0 Output(the blue port): DC 5V-9V/2A(MAX)
Typc-C Output: DC 5V/3A, 9V/2.5A(MAX)
Wireless output: 5W/7.5W/10W
Battery capacity: DC 3.8V, 30000mAh

Test Standard(s) : FCC Part 1.1310, 1.1307(b)

Test Method(s) : KDB680106 D01 RF Exposure Wireless Charging Apps v03r01
TCB Workshop, October 27, 2021.

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 1.1307 & KDB680106 D01 & TCB Workshop, October 27, 2021 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt

Feb. 21, 2022

Date of Test

Feb. 21~ Mar. 11, 2022

Prepared By

Nian xiu Chen

(Nianxiu Chen)

Approved & Authorized Signer

Kingkong Jin

(Kingkong Jin)

1. General Information

1.1. Client Information

Applicant	:	ZeroLemon(HongKong)Limited
Address	:	817 New Tech Plaza, 34 Tai Yau St, KLN, HongKong China
Manufacturer	:	ZeroLemon
Address	:	817 New Tech Plaza, 34 Tai Yau St, KLN, HongKong China
Factory	:	ZeroLemon
Address	:	817 New Tech Plaza, 34 Tai Yau St, KLN, HongKong China

1.2. Description of Device (EUT)

Product Name	:	ToughJuice Pro 30000mAh Power Bank
Model No.	:	Y1348
Trade Mark	:	ZEROLEMON
Test Power Supply	:	DC 3.8V battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Product Description	Operation Frequency:	110.1-205KHz
	Modulation Type:	ASK
	Antenna Type:	Inductive loop coil Antenna
	Antenna Gain(Peak):	0 dBi(Provided by customer)
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

1.3. Auxiliary Equipment Used During Test

Mobile phone	:	Manufacturer: HUAWEI TECHNOLOGIES CO., LTD. M/N: YOK-AN10
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1.4. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Electric and Magnetic field Analyzer	NARDA	EHP-200A	180ZX10202	Feb. 24, 2021	1 Year

1.5. Measurement Uncertainty

Magnetic Field Reading(A/m)	:	+/-0.04282(A/m)
Electric Field Reading(V/m)	:	+/-0.03679(V/m)

1.6. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 184111

Shenzhen Anbotech Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotech Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotech Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China. 518102



2. Measurement and Result

2.1. Requirements

According to the item 5.b) of KDB 680106 D01v03:

Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF exposure evaluation.

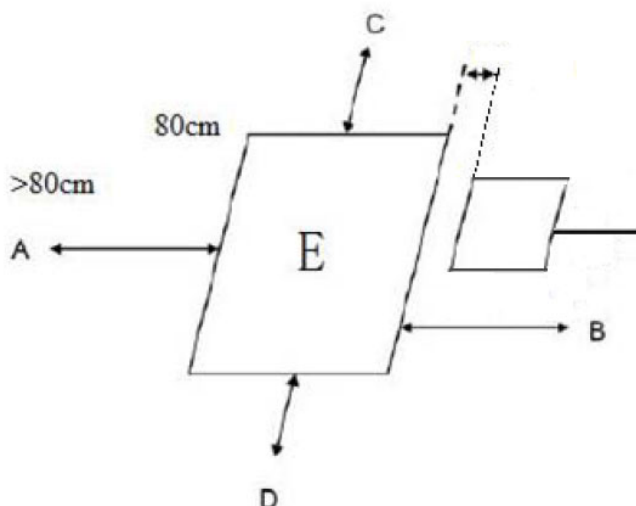
- 1) Power transfer frequency is less than 1 MHz
- 2) Output power from each primary coil is less than or equal to 15 watts.
- 3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils
- 4) Client device is inserted in or placed directly in contact with the transmitter
- 5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion)
- 6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

Limits For Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

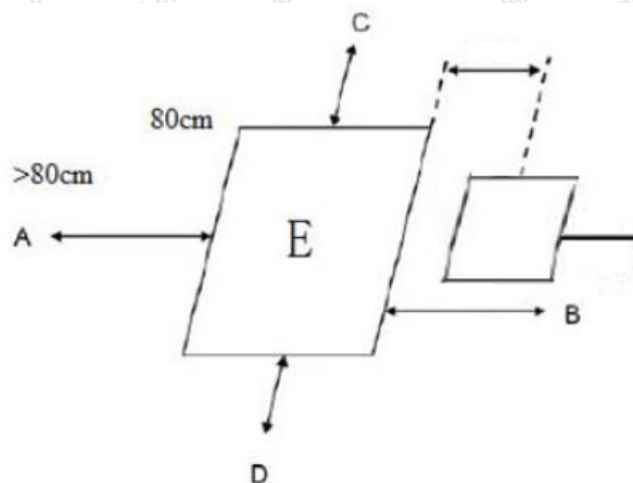
F=frequency in MHz
 *=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

2.2. Test Setup



Note:

H-field data are taken along all three axes the device, from 0 cm to 20 cm, in 2 cm minimum increment measured from the edge of the device, with one axis coincident with the axis of the main coil.



Note: Measurements should be made at 15 cm surrounding the EUT and 20cm above the top surface of the EUT. (probe radius is 4.5cm)

2.3. Test Procedure

- 1) The RF exposure test was performed in anechoic chamber.
- 2) The measurement probe was placed at required test distance (from 0 cm to 20 cm, in 2 cm minimum increment) which is between the edge/top surface of the charger and the edge of probe.
and the measurement probe was placed at required test distance 15cm and 20cm which is between the edge of the charger and the geometric center of probe.

3) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed. (A is the right, B is the back, C is the left, D is the front, and E is the top side.)

4) The EUT was measured according to the guidance of TCB Workshop, October 27, 2021 and KDB 680106 D01 v03r01.

Remark;

The EUT's test position A, B, C, D and E is valid for the E and H field measurements.

2.4. Test Result

2.4.1. Equipment Approval Considerations item 5.b of KDB 680106 D01 v03.

1) Power transfer frequency is less than 1 MHz

- The device operate in the frequency range 110.1-205KHz.

2) Output power from each primary coil is less than 15 watts

- The maximum output power of the primary coil is 10W.

3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils

- The transfer system including a charging system with only single primary coils is to detect and allow only between individual pairs of coils.

4) Client device is inserted in or placed directly in contact with the transmitter

- Client device is placed directly in contact with the transmitter.

5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion)

- The EUT is a mobile exposure conditions

6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

- Conducted the measurement with the required distance and the test results please refer to the section 2.4.



2.4.2. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

Temperature:	23.8°C	Relative Humidity:	52 %
Pressure:	1012 hPa	Test Voltage:	DC 3.8V battery inside

Between the edge/top surface of the charger and the edge of probe

E-Field Strength at 0 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.517	0.673	0.548	0.572	0.653	307	614
50%	110.1-205	1.524	1.942	1.522	1.642	1.517	307	614
99%	110.1-205	2.541	2.916	2.539	2.544	2.493	307	614
Stand-by	110.1-205	0.573	0.640	0.478	0.477	0.539	307	614

E-Field Strength at 2 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.503	0.643	0.534	0.543	0.627	307	614
50%	110.1-205	1.515	1.929	1.501	1.628	1.500	307	614
99%	110.1-205	2.526	2.847	2.514	2.517	2.472	307	614
Stand-by	110.1-205	0.566	0.621	0.463	0.453	0.520	307	614

E-Field Strength at 4 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.493	0.655	0.506	0.527	0.602	307	614
50%	110.1-205	1.506	1.907	1.422	1.596	1.486	307	614
99%	110.1-205	2.510	2.829	2.439	2.483	2.437	307	614
Stand-by	110.1-205	0.534	0.610	0.452	0.431	0.503	307	614



E-Field Strength at 6 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.463	0.637	0.439	0.518	0.573	307	614
50%	110.1-205	1.485	1.893	1.402	1.573	1.455	307	614
99%	110.1-205	2.496	2.820	2.417	2.462	2.420	307	614
Stand-by	110.1-205	0.511	0.576	0.433	0.421	0.486	307	614

E-Field Strength at 8 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.452	0.603	0.417	0.506	0.551	307	614
50%	110.1-205	1.437	1.854	1.396	1.543	1.437	307	614
99%	110.1-205	2.462	2.763	2.403	2.451	2.402	307	614
Stand-by	110.1-205	0.496	0.539	0.427	0.400	0.443	307	614

E-Field Strength at 10 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.437	0.594	0.402	0.492	0.537	307	614
50%	110.1-205	1.420	1.842	1.383	1.521	1.425	307	614
99%	110.1-205	2.455	2.755	2.394	2.437	2.384	307	614
Stand-by	110.1-205	0.473	0.523	0.411	0.398	0.422	307	614



E-Field Strength at 12 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.422	0.573	0.398	0.478	0.526	307	614
50%	110.1-205	1.413	1.825	1.371	1.505	1.417	307	614
99%	110.1-205	2.442	2.739	2.384	2.424	2.368	307	614
Stand-by	110.1-205	0.459	0.517	0.402	0.382	0.408	307	614

E-Field Strength at 14 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.407	0.562	0.376	0.463	0.514	307	614
50%	110.1-205	1.399	1.814	1.355	1.496	1.402	307	614
99%	110.1-205	2.427	2.722	2.371	2.407	2.353	307	614
Stand-by	110.1-205	0.442	0.502	0.396	0.372	0.386	307	614

E-Field Strength at 16 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.396	0.547	0.353	0.453	0.503	307	614
50%	110.1-205	1.384	1.805	1.342	1.484	1.389	307	614
99%	110.1-205	2.408	2.711	2.363	2.395	2.342	307	614
Stand-by	110.1-205	0.431	0.487	0.375	0.364	0.363	307	614



E-Field Strength at 18 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.385	0.535	0.335	0.434	0.485	307	614
50%	110.1-205	1.371	1.784	1.326	1.471	1.374	307	614
99%	110.1-205	2.386	2.702	2.357	2.381	2.326	307	614
Stand-by	110.1-205	0.418	0.471	0.336	0.353	0.352	307	614

E-Field Strength at 20 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.375	0.524	0.315	0.427	0.474	307	614
50%	110.1-205	1.368	1.774	1.312	1.459	1.355	307	614
99%	110.1-205	2.367	2.658	2.337	2.364	2.306	307	614
Stand-by	110.1-205	0.405	0.452	0.322	0.338	0.338	307	614

H-Field Strength at 0 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.055	0.074	0.063	0.061	0.073	0.815	1.63
50%	110.1-205	0.527	0.561	0.543	0.603	0.627	0.815	1.63
99%	110.1-205	0.561	0.596	0.571	0.646	0.638	0.815	1.63
Stand-by	110.1-205	0.122	0.137	0.116	0.139	0.153	0.815	1.63

H-Field Strength at 2 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.051	0.073	0.061	0.057	0.070	0.815	1.63
50%	110.1-205	0.513	0.553	0.534	0.593	0.611	0.815	1.63
99%	110.1-205	0.554	0.584	0.565	0.629	0.624	0.815	1.63
Stand-by	110.1-205	0.116	0.126	0.107	0.131	0.140	0.815	1.63



H-Field Strength at 4 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.048	0.071	0.057	0.053	0.064	0.815	1.63
50%	110.1-205	0.503	0.537	0.522	0.584	0.605	0.815	1.63
99%	110.1-205	0.547	0.576	0.549	0.624	0.617	0.815	1.63
Stand-by	110.1-205	0.105	0.120	0.102	0.129	0.128	0.815	1.63

H-Field Strength at 6 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.045	0.067	0.053	0.051	0.062	0.815	1.63
50%	110.1-205	0.493	0.525	0.515	0.567	0.596	0.815	1.63
99%	110.1-205	0.537	0.564	0.537	0.617	0.610	0.815	1.63
Stand-by	110.1-205	0.102	0.114	0.098	0.123	0.121	0.815	1.63

H-Field Strength at 8 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.042	0.064	0.051	0.048	0.059	0.815	1.63
50%	110.1-205	0.487	0.518	0.506	0.552	0.594	0.815	1.63
99%	110.1-205	0.531	0.557	0.523	0.614	0.602	0.815	1.63
Stand-by	110.1-205	0.100	0.110	0.094	0.120	0.117	0.815	1.63

H-Field Strength at 10 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.039	0.061	0.048	0.044	0.057	0.815	1.63
50%	110.1-205	0.482	0.513	0.501	0.546	0.586	0.815	1.63
99%	110.1-205	0.524	0.547	0.521	0.608	0.597	0.815	1.63
Stand-by	110.1-205	0.097	0.106	0.092	0.116	0.115	0.815	1.63



H-Field Strength at 12 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.037	0.059	0.045	0.042	0.054	0.815	1.63
50%	110.1-205	0.473	0.508	0.496	0.544	0.583	0.815	1.63
99%	110.1-205	0.515	0.543	0.518	0.601	0.594	0.815	1.63
Stand-by	110.1-205	0.096	0.104	0.089	0.115	0.112	0.815	1.63

H-Field Strength at 14 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.035	0.057	0.044	0.039	0.051	0.815	1.63
50%	110.1-205	0.472	0.505	0.492	0.542	0.580	0.815	1.63
99%	110.1-205	0.511	0.540	0.514	0.597	0.592	0.815	1.63
Stand-by	110.1-205	0.093	0.102	0.086	0.113	0.109	0.815	1.63

H-Field Strength at 16 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.033	0.055	0.042	0.037	0.049	0.815	1.63
50%	110.1-205	0.467	0.503	0.487	0.538	0.578	0.815	1.63
99%	110.1-205	0.508	0.537	0.512	0.593	0.589	0.815	1.63
Stand-by	110.1-205	0.091	0.095	0.084	0.111	0.107	0.815	1.63

H-Field Strength at 18 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.031	0.054	0.041	0.034	0.047	0.815	1.63
50%	110.1-205	0.465	0.501	0.485	0.535	0.575	0.815	1.63
99%	110.1-205	0.503	0.535	0.507	0.590	0.583	0.815	1.63
Stand-by	110.1-205	0.089	0.093	0.081	0.109	0.104	0.815	1.63



H-Field Strength at 20 cm

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.027	0.051	0.039	0.033	0.042	0.815	1.63
50%	110.1-205	0.461	0.496	0.484	0.532	0.573	0.815	1.63
99%	110.1-205	0.493	0.534	0.502	0.585	0.580	0.815	1.63
Stand-by	110.1-205	0.083	0.090	0.0876	0.107	0.101	0.815	1.63

Between the edge of the charger and the geometric center of probe

E-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (V/m)	Limits Test (V/m)
1%	110.1-205	0.433	0.593	0.400	0.491	0.502	307	614
50%	110.1-205	1.419	1.840	1.381	1.519	1.387	307	614
99%	110.1-205	2.454	2.752	2.390	2.433	2.340	307	614
Stand-by	110.1-205	0.472	0.520	0.410	0.397	0.362	307	614

H-Field Strength at 15 cm surrounding the EUT and 20cm above the top surface of the EUT

Battery power	Frequency Range (KHz)	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Reference Limit (A/m)	Limits Test (A/m)
1%	110.1-205	0.037	0.060	0.046	0.043	0.047	0.815	1.63
50%	110.1-205	0.480	0.512	0.5499	0.542	0.575	0.815	1.63
99%	110.1-205	0.523	0.546	0.520	0.605	0.584	0.815	1.63
Stand-by	110.1-205	0.096	0.102	0.091	0.113	0.103	0.815	1.63

Note: (1) Position E is top side. (2) All the situation (full load, half load and empty load) has been tested, only the worst situation (full load 10W) was recorded in the report. (3) All three axes the device has been tested, only the worst results reported). (4) All positions have been tested, only display photos of Position E and A in the report.



APPENDIX I -- TEST SETUP PHOTOGRAPH

For position E

Photo of MPE Measurement at 0 cm



2 cm



4 cm



6 cm



8 cm



10 cm



12 cm



14 cm



16 cm



18 cm



20 cm



For position A

Photo of MPE Measurement at 0 cm



2 cm



4 cm



6 cm



8 cm



10 cm



12 cm



14 cm



16 cm



18 cm



20 cm



----- End of Report -----