FCC TEST REPORT

Product	:	BeagleY-AI
Trade mark	:	beagleboard.org®
Model/Type reference	:	BeagleY-AI
Serial Number	:	N/A
Ratings	:	DC 5V/3A
Report Number	:	EED32Q807348
Date of Issue	:	Jun. 14, 2024
Regulations	:	See below

Test Standards	Results
☒ 47 CFR FCC Part 15 Subpart B	PASS

Prepared for:

Seeed Technology Co., Ltd
9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P.R.C

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Compiled by: Steven.pang Reviewed by: Alan - Chen

Approved by: Aaron Ma Date of Issue: Jun. 14, 2024

Aaron Ma Check No.: 9553300524

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(Note: N/A means not applicable)

1. GENERAL INFORMATION

Applicant: Seeed Technology Co., Ltd
9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P.R.C

Manufacturer: Seeed Technology Co., Ltd
9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P.R.C

Product: BeagleY-AI

Trade mark: beagleboard.org®

Model/Type reference: BeagleY-AI

Serial Number: N/A

Report Number: EED32Q807348

State of Sample(s): Normal

Sample Received Date: Jun. 03, 2024

Sample tested Date: Jun. 03, 2024 to Jun. 06, 2024

Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

2. TEST SUMMARY

The Product has been tested according to the following specifications:

Standard	Test Item	Test Method	Test
FCC 15.107	Conducted Emission	ANSI C63.4:2014	Yes
FCC 15.109	Radiated Emission	ANSI C63.4:2014	Yes

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted disturbance	3.1
Radiated disturbance (30MHz to 1GHz)	4.9
Radiated disturbance (1GHz to 6GHz)	4.7

4. PRODUCT INFORMATION AND TEST SETUP

4.1. PRODUCT INFORMATION

Ratings: DC 5V/3A

Highest frequency generated or used in the device or on which the device operates or tunes of the EUT is 2.4GHz:

☐ less than 1.705 MHz, the measurement shall only be made up to 30MHz.
☐ between 1.705 MHz and 108 MHz, the measurement shall only be made up to 1 GHz.
☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.
☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.
☒ above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is lower.

4.2. TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

4.3. TEST MODE DESCRIPTION

Test Mode	Test Status
Normal	EUT powered and connected AE then it works normally.

4.4. SUPPORT EQUIPMENT

No.	Device Type	Brand	Series No.	Model	Provider	Power Cord
1	Mobile phone	HUAWEI	H4D9XB13C2615181	HUAWEI Y325-T00	CTI	---
2	Monitor	Philips	328P6VU	AU5221900059398B	CTI	---
3	Adaptor	Salcomp	---	A2244	Applicant	---

Notes:
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5. FACILITIES AND ACCREDITATIONS

5.1. TEST FACILITY

All test facilities used to collect the test data are located at Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent

standards.

5.2. TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.
The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

Shielding Room No. 3_Hongwei-Conducted emissions				
Equipment	**Manufacturer**	**Model**	**Series No.**	**Due Date**
Receiver	R&S	ESCI	100435	04/17/2025
LISN	R&S	ENV216	100098	09/21/2024

3M Semi-anechoic Chamber (2)_Hongwei-Radiated emissions				
Equipment	**Manufacturer**	**Model**	**Series No.**	**Due Date**
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	09/22/2024
3M Chamber & Accessory Equipment	TDK	SAC-3	/	01/12/2027
Microwave Preamplifier	Tonscend	EMC051845SE	980380	12/13/2024
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	04/15/2025
Receiver	R&S	ESR7	101697	09/21/2024

Measuring software				
No.	**Test site**	**Software name**	**Manufacturer**	**Software version**
1	2#RE	EZ	Farad Technology	EMEC-3A1-Pre
2	CE	EZ	Farad Technology	EMC-CON 3A1.1

5.3. LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. CONDUCTED EMISSION TEST

6.1. LIMITS

Limits for Class B digital devices

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

6.2. BLOCK DIAGRAM OF TEST SETUP

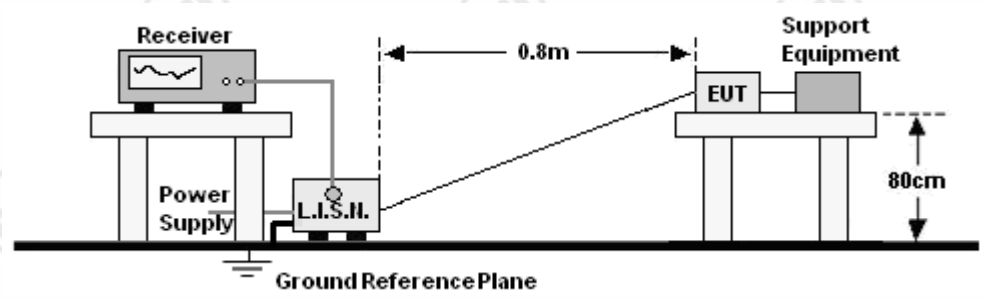


Table Top

6.3. PROCEDURE OF CONDUCTED EMISSION TEST

Table Top**:**

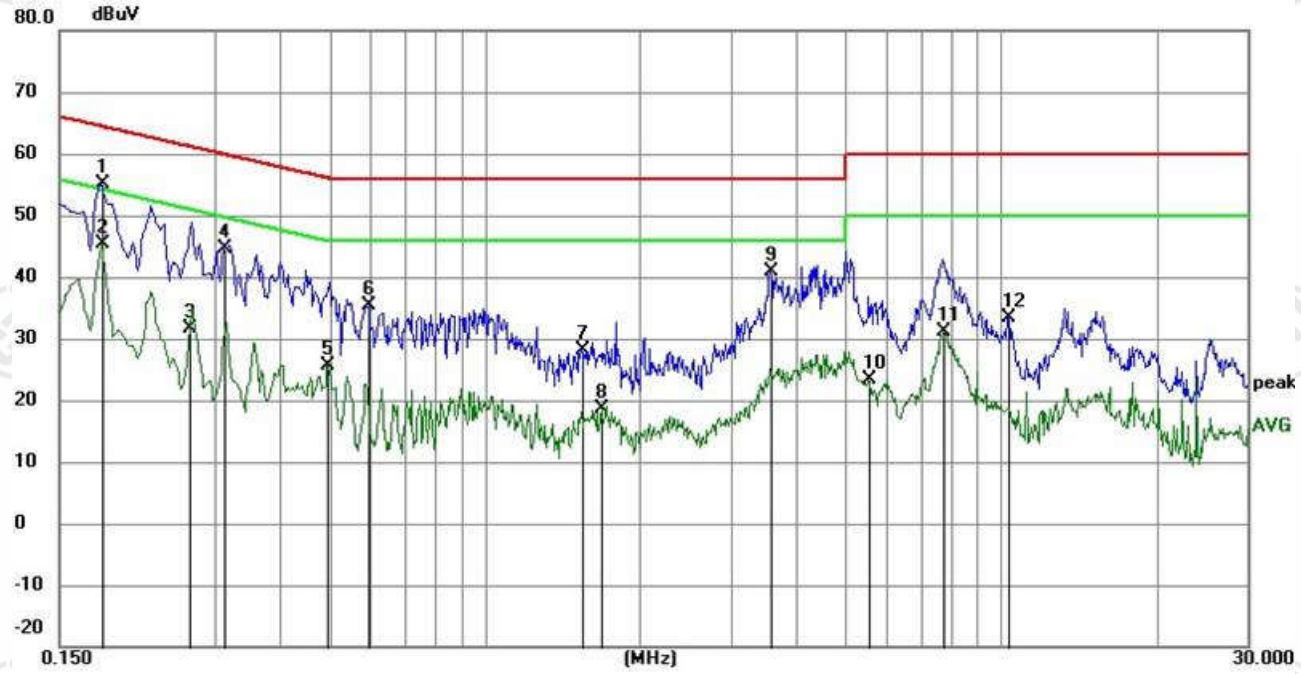
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

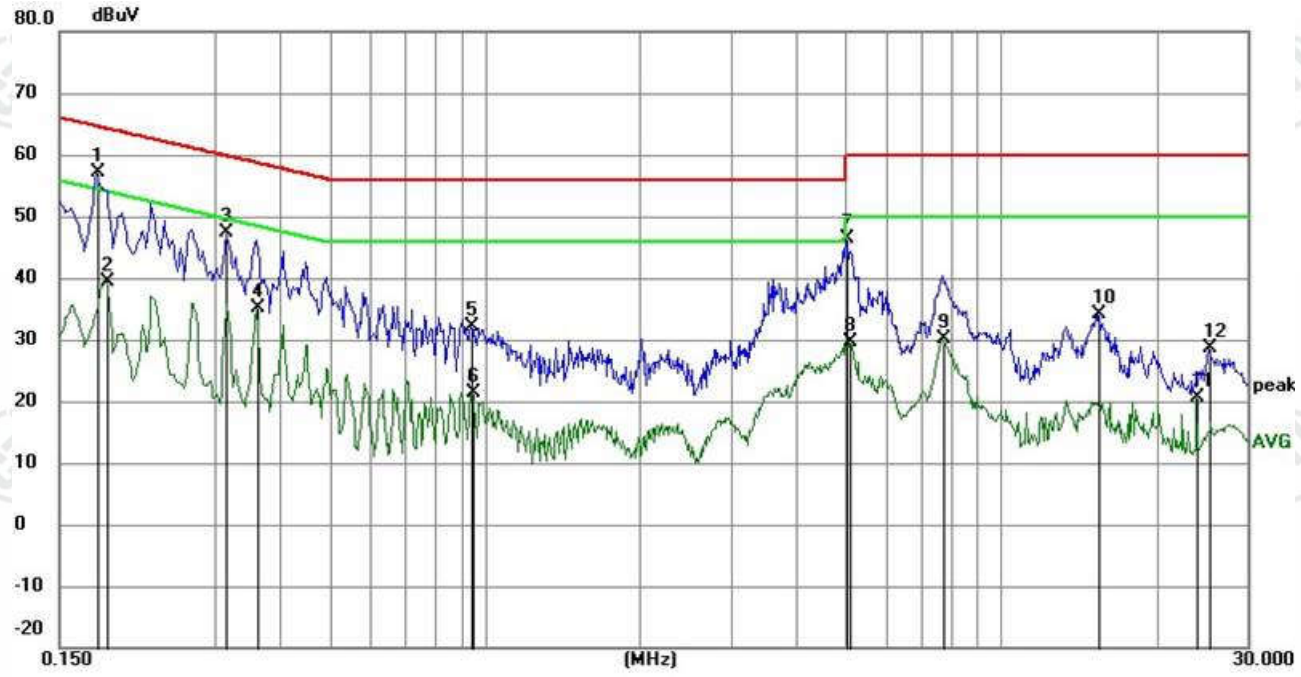
6.4. GRAPHS AND DATA

Product	:	BeagleY-AI			
Model/Type reference	:	BeagleY-AI			
Power	:	DC 5V	**Temperature**	:	23℃
Mode	:	Normal	**Humidity**	:	53%R.H.
Phase	:	L1	**Press**	:	101KPa



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1815	45.26	9.90	55.16	64.42	-9.26	QP
2	*	0.1815	35.44	9.90	45.34	54.42	-9.08	AVG
3		0.2686	21.89	9.66	31.55	51.16	-19.61	AVG
4		0.3120	35.16	9.57	44.73	59.92	-15.19	QP
5		0.4965	15.88	9.78	25.66	46.06	-20.40	AVG
6		0.5955	25.69	9.60	35.29	56.00	-20.71	QP
7		1.5405	18.50	9.75	28.25	56.00	-27.75	QP
8		1.6890	8.82	9.75	18.57	46.00	-27.43	AVG
9		3.5835	31.20	9.80	41.00	56.00	-15.00	QP
10		5.5635	13.49	9.84	23.33	50.00	-26.67	AVG
11		7.7640	21.37	9.84	31.21	50.00	-18.79	AVG
12		10.3065	23.67	9.83	33.50	60.00	-26.50	QP

Product	:	BeagleY-AI			
Model/Type reference	:	BeagleY-AI			
Power	:	DC 5V	**Temperature**	:	23℃
Mode	:	Normal	**Humidity**	:	53%R.H.
Phase	:	N	**Press**	:	101KPa



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1770	47.25	9.90	57.15	64.63	-7.48	QP
2		0.1860	29.48	9.91	39.39	54.21	-14.82	AVG
3		0.3165	37.83	9.58	47.41	59.80	-12.39	QP
4		0.3615	25.48	9.69	35.17	48.69	-13.52	AVG
5		0.9420	22.34	9.78	32.12	56.00	-23.88	QP
6		0.9465	11.66	9.78	21.44	46.00	-24.56	AVG
7		5.0280	36.51	9.84	46.35	60.00	-13.65	QP
8		5.1045	19.81	9.84	29.65	50.00	-20.35	AVG
9		7.6875	20.34	9.85	30.19	50.00	-19.81	AVG
10		15.4320	24.16	9.87	34.03	60.00	-25.97	QP
11		24.0045	10.69	9.94	20.63	50.00	-29.37	AVG
12		25.2870	18.82	9.91	28.73	60.00	-31.27	QP

Note:
1. Margin=Measurement-Limit.
2. Measurement=Reading Level+Correct Factor.

7. RADIATED EMISSION TEST

7.1. LIMITS

For unintentional device , according to §15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values.

And according to §15.109 (2)measurements below 1000 MHz provided the limits in paragraphs (a) and (b) of this section are extrapolated to the new measurement distance using an inverse linear distance extrapolation factor (20 dB/decade).

According to FCC 15.31 section(1), at frequencies at or above 30 MHz measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

According to FCC 15.31 section(2), frequencies below 30 MHz, performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

According to 15.35 Measurement detector functions and bandwidths section (b). Unless otherwise specified, e.g., see §§15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519 of this part, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

Limits for Class B digital devices

Frequency (MHz)	limits at 3m dB(μV/m)
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

NOTE: 1. The lower limit shall apply at the transition frequency.
2. The limits shown above are based on measuring equipment employing a CISPR quasi-peak detector function for frequencies below or equal to 1000MHz.
3. The limits shown above are based on measuring equipment employing an average detector function for frequencies above 1000MHz.

7.2. BLOCK DIAGRAM OF TEST SETUP

30MHz ~ 1GHz(3m):

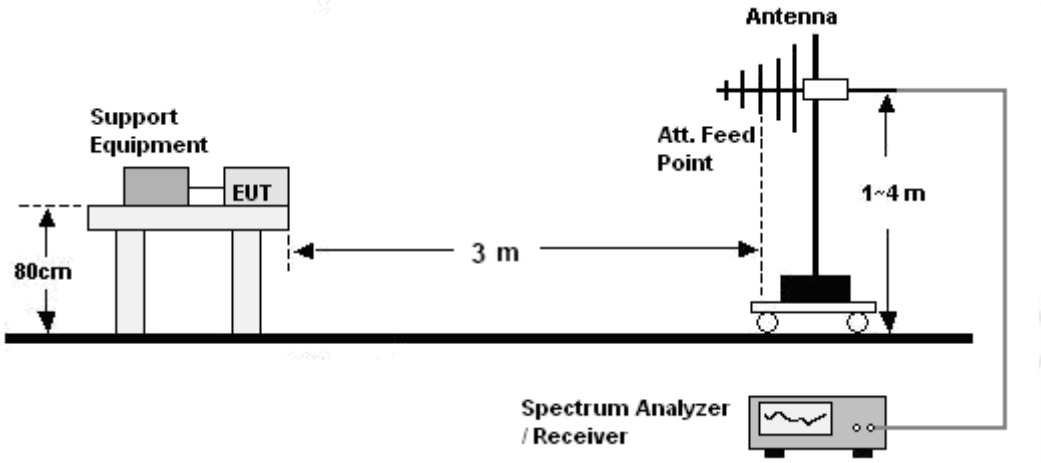


Table Top

Above 1GHz:

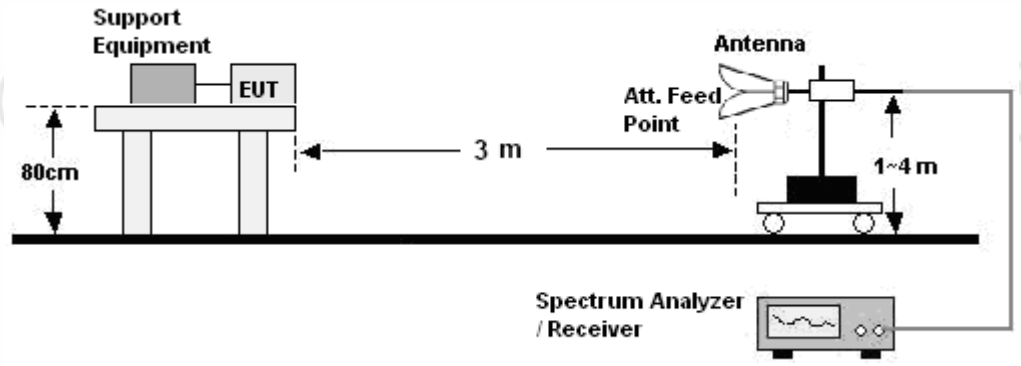


Table Top

7.3. PROCEDURE OF RADIATED EMISSION TEST

30MHz ~ 1GHz(Table Top**):**
a. The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

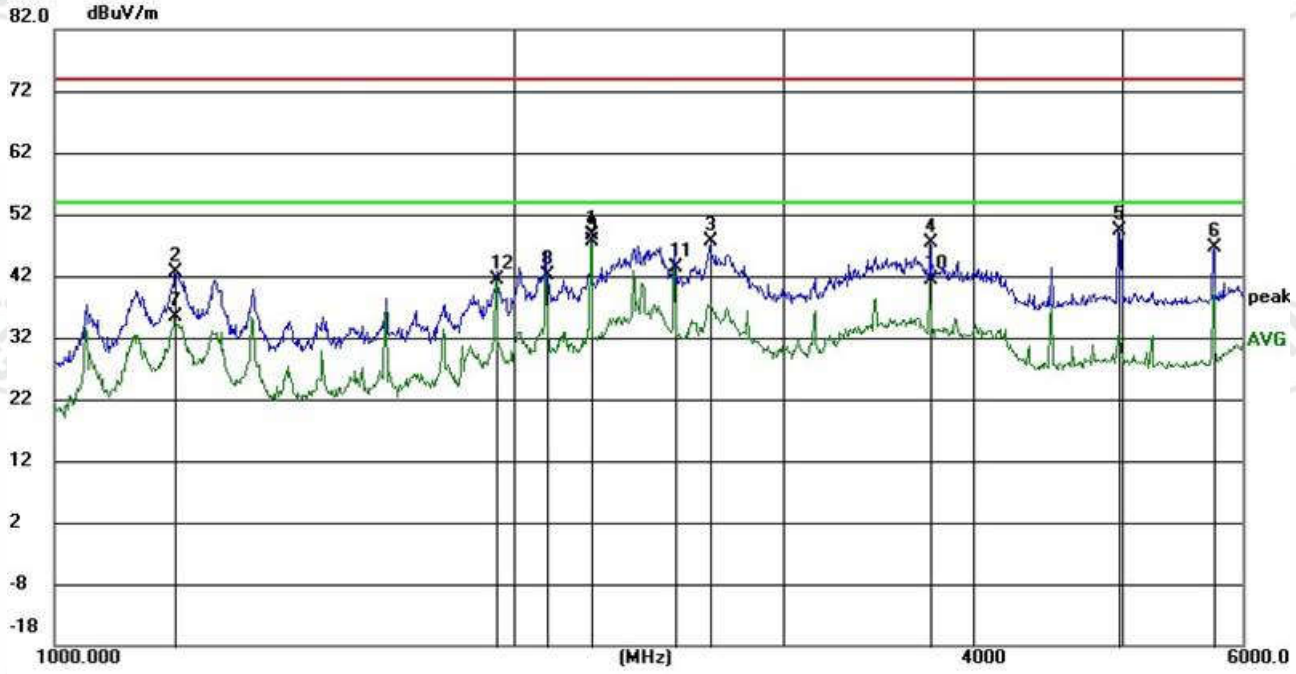
Above 1GHz(Table Top**):**
a. The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

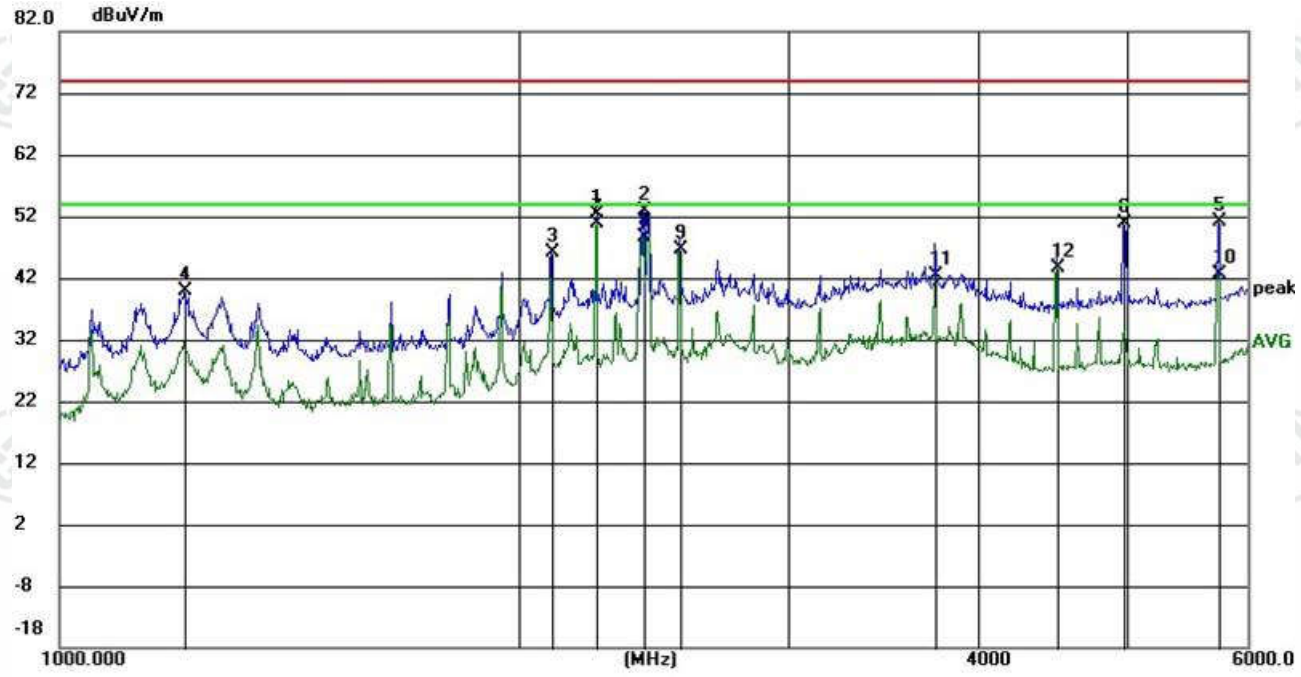
7.4. GRAPHS AND DATA

Product	:	BeagleY-AI			
Model/Type reference	:	BeagleY-AI			
Power	:	DC 5V	**Temperature**	:	25℃
Mode	:	Normal	**Humidity**	:	53%R.H.
Polarization	:	Horizontal	**Press**	:	101KPa



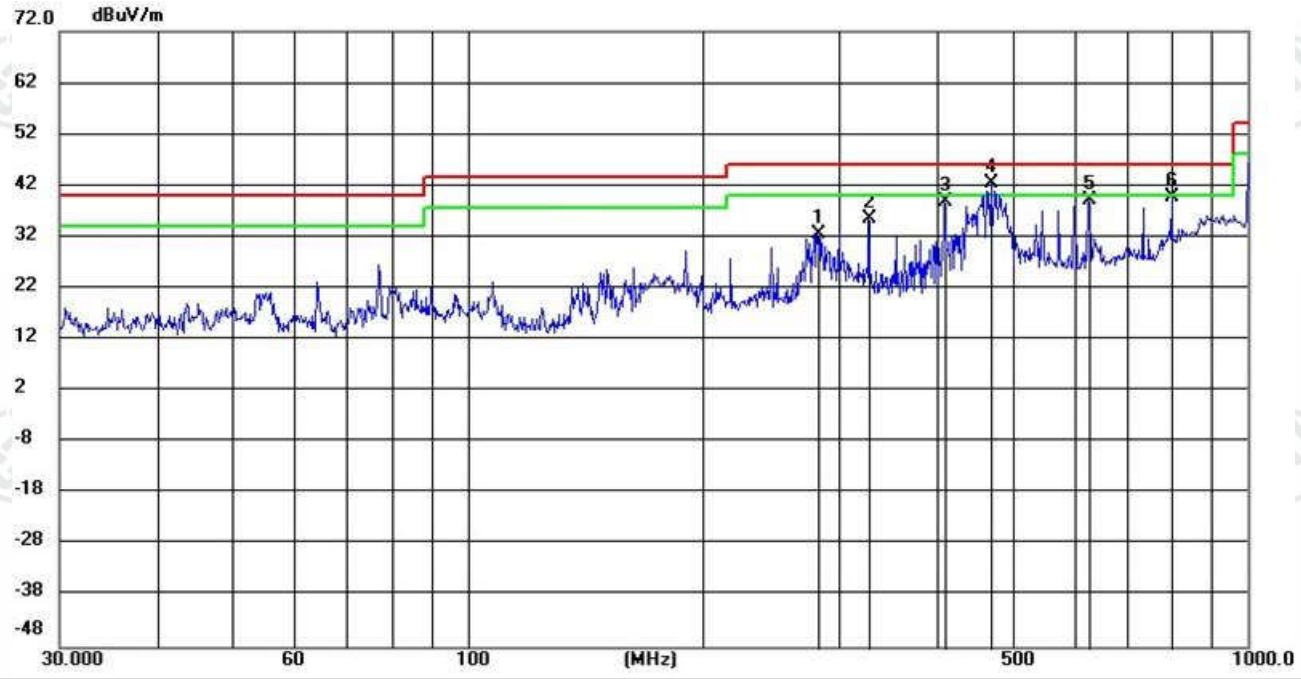
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		2250.045	58.35	-9.74	48.61	74.00	-25.39	peak	199	32
2		1199.988	59.97	-17.28	42.69	74.00	-31.31	peak	100	126
3		2692.298	55.19	-7.51	47.68	74.00	-26.32	peak	199	82
4		3750.094	50.82	-3.52	47.30	74.00	-26.70	peak	100	41
5		4978.149	49.63	-0.34	49.29	74.00	-24.71	peak	100	24
6		5747.970	45.21	1.44	46.65	74.00	-27.35	peak	199	0
7		1199.988	52.58	-17.28	35.30	54.00	-18.70	AVG	100	126
8		2099.875	52.71	-10.65	42.06	54.00	-11.94	AVG	100	345
9	*	2249.844	57.35	-9.75	47.60	54.00	-6.40	AVG	199	49
10		3750.094	44.97	-3.52	41.45	54.00	-12.55	AVG	100	41
11		2550.029	51.32	-8.04	43.28	54.00	-10.72	AVG	100	41
12		1949.921	53.06	-11.64	41.42	54.00	-12.58	AVG	100	143

Product	:	BeagleY-AI			
Model/Type reference	:	BeagleY-AI			
Power	:	DC 5V	**Temperature**	:	25℃
Mode	:	Normal	**Humidity**	:	53%R.H.
Polarization	:	Vertical	**Press**	:	101KPa



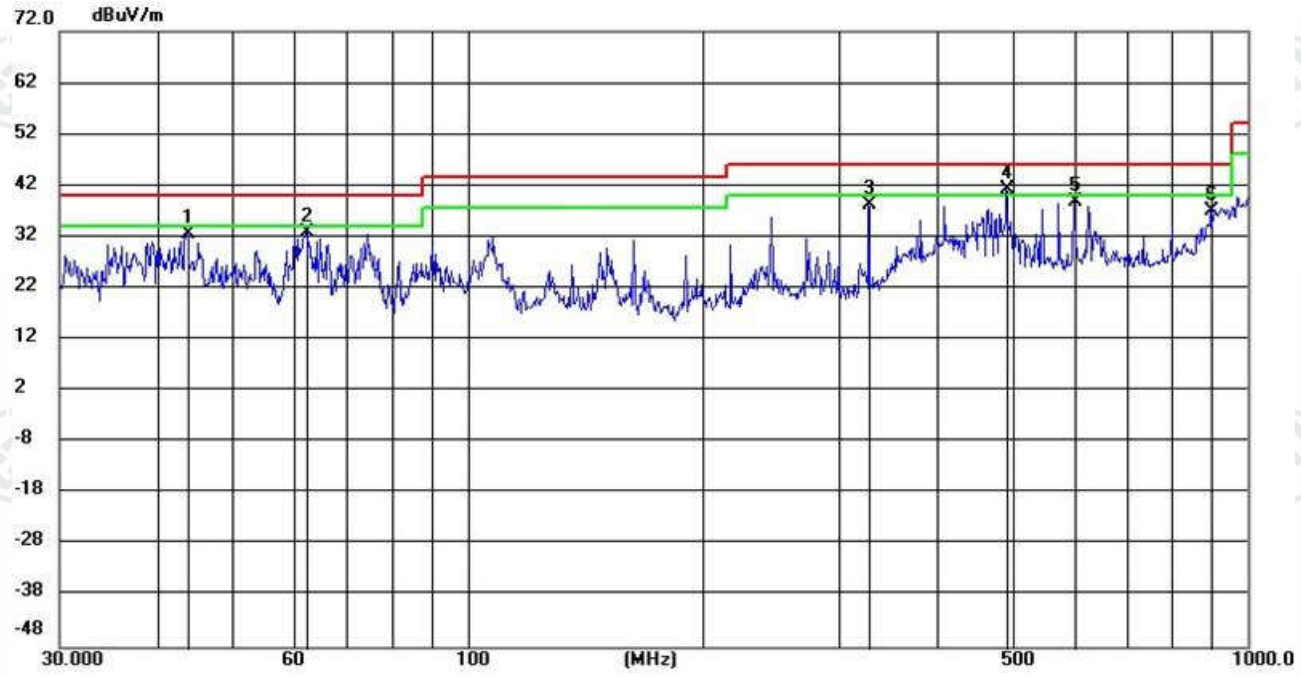
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		2250.045	62.18	-9.74	52.44	74.00	-21.56	peak	100	112
2		2410.954	61.54	-8.77	52.77	74.00	-21.23	peak	100	352
3		2100.064	56.77	-10.65	46.12	74.00	-27.88	peak	200	125
4		1208.836	57.15	-17.21	39.94	74.00	-34.06	peak	100	335
5		5744.882	49.60	1.43	51.03	74.00	-22.97	peak	100	352
6		4981.718	51.16	-0.33	50.83	74.00	-23.17	peak	100	36
7	*	2250.045	60.54	-9.74	50.80	54.00	-3.20	AVG	100	112
8		2410.954	57.50	-8.77	48.73	54.00	-5.27	AVG	100	352
9		2550.029	54.69	-8.04	46.65	54.00	-7.35	AVG	200	24
10		5744.882	41.08	1.43	42.51	54.00	-11.49	AVG	100	352
11		3750.094	45.78	-3.52	42.26	54.00	-11.74	AVG	100	335
12		4500.068	45.36	-1.66	43.70	54.00	-10.30	AVG	100	318

Product	:	BeagleY-AI			
Model/Type reference	:	BeagleY-AI			
Power	:	DC 5V	**Temperature**	:	25℃
Mode	:	Normal	**Humidity**	:	53%R.H.
Polarization	:	Horizontal	**Press**	:	101KPa



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		281.7968	16.51	15.95	32.46	46.00	-13.54	QP	100	131
2		327.3128	18.44	17.21	35.65	46.00	-10.35	QP	100	40
3		409.0893	20.09	18.87	38.96	46.00	-7.04	QP	199	231
4	*	469.4520	22.10	20.22	42.32	46.00	-3.68	QP	199	60
5		627.2737	15.31	23.71	39.02	46.00	-6.98	QP	199	7
6		800.1011	13.90	25.82	39.72	46.00	-6.28	QP	100	185

Product	:	BeagleY-AI			
Model/Type reference	:	BeagleY-AI			
Power	:	DC 5V	**Temperature**	:	25℃
Mode	:	Normal	**Humidity**	:	53%R.H.
Polarization	:	Vertical	**Press**	:	101KPa

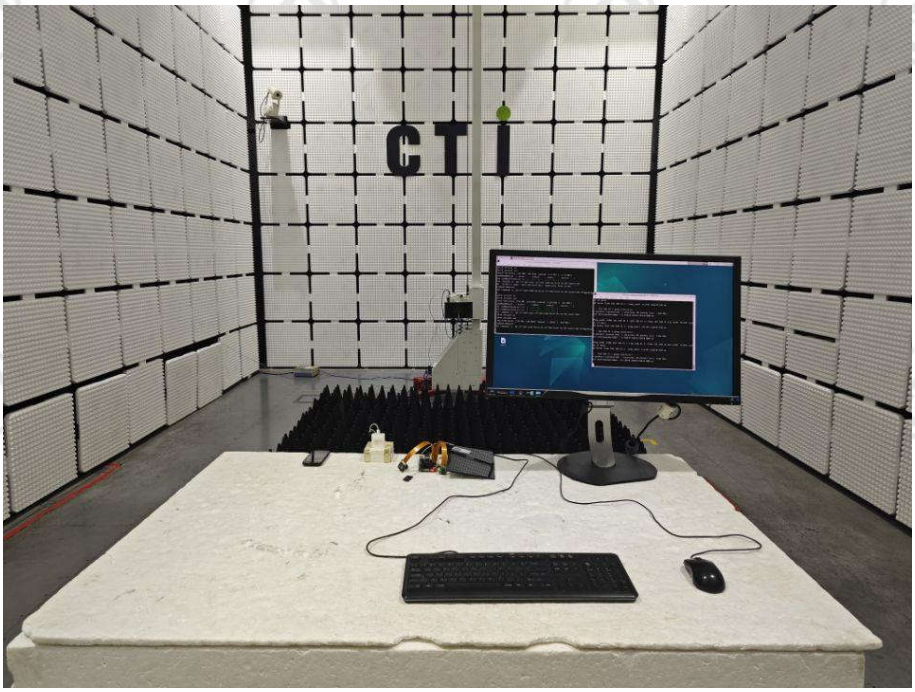


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		Antenna Height	Table Degree
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		43.8042	18.48	14.05	32.53	40.00	-7.47	QP	100	82
2		62.2456	20.28	12.72	33.00	40.00	-7.00	QP	100	250
3		327.2555	21.01	17.21	38.22	46.00	-7.78	QP	200	309
4	*	490.9168	20.42	20.70	41.12	46.00	-4.88	QP	100	7
5		600.0573	15.29	23.52	38.81	46.00	-7.19	QP	100	134
6		899.9895	9.73	27.41	37.14	46.00	-8.86	QP	100	241

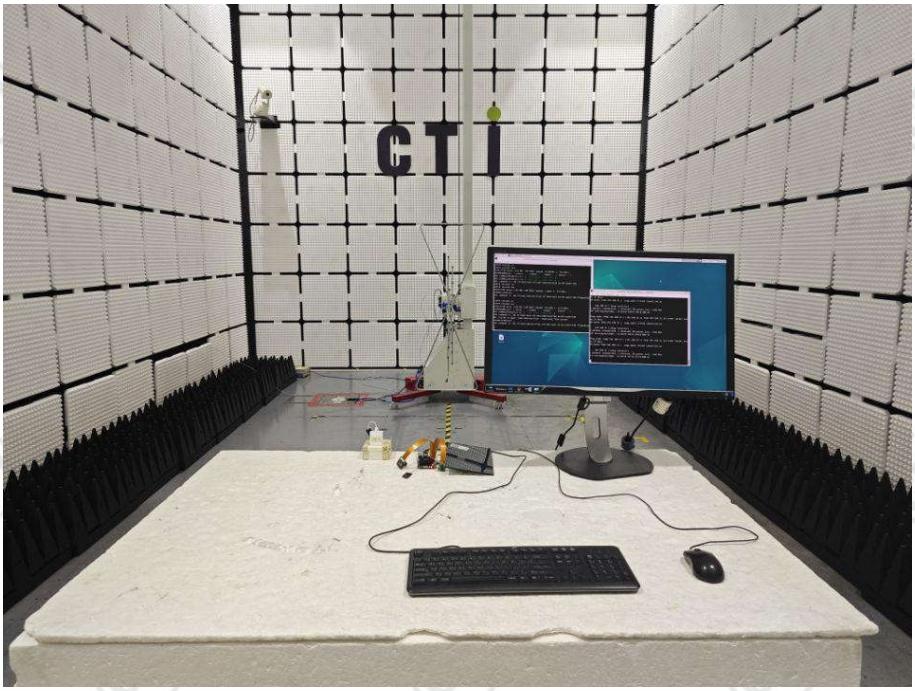
Note:
1. Margin=Measurement-Limit.
2. Measurement=Reading Level+Correct Factor.

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

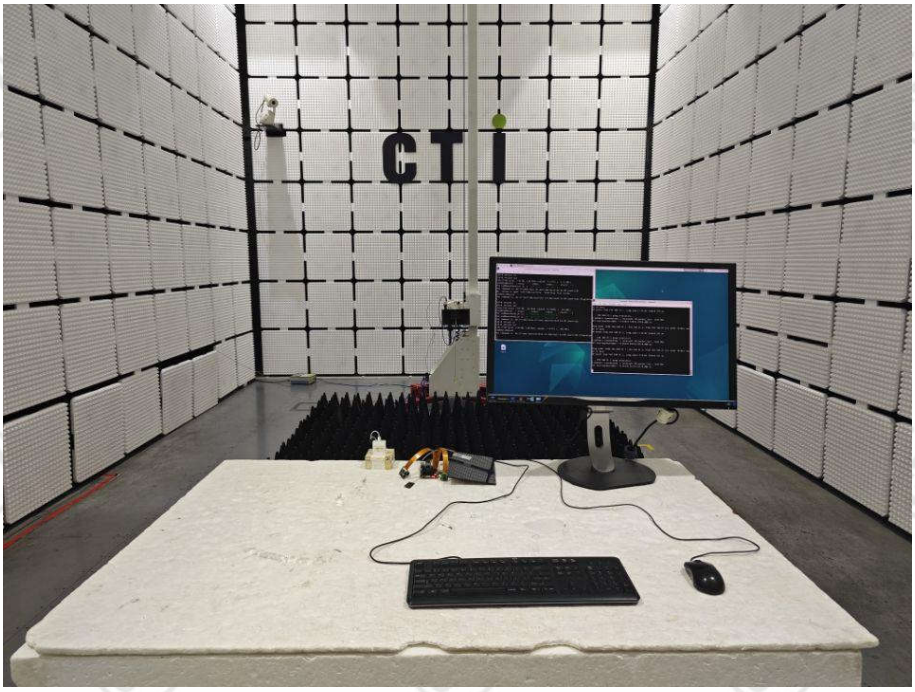
Conducted emissions Test Setup-1



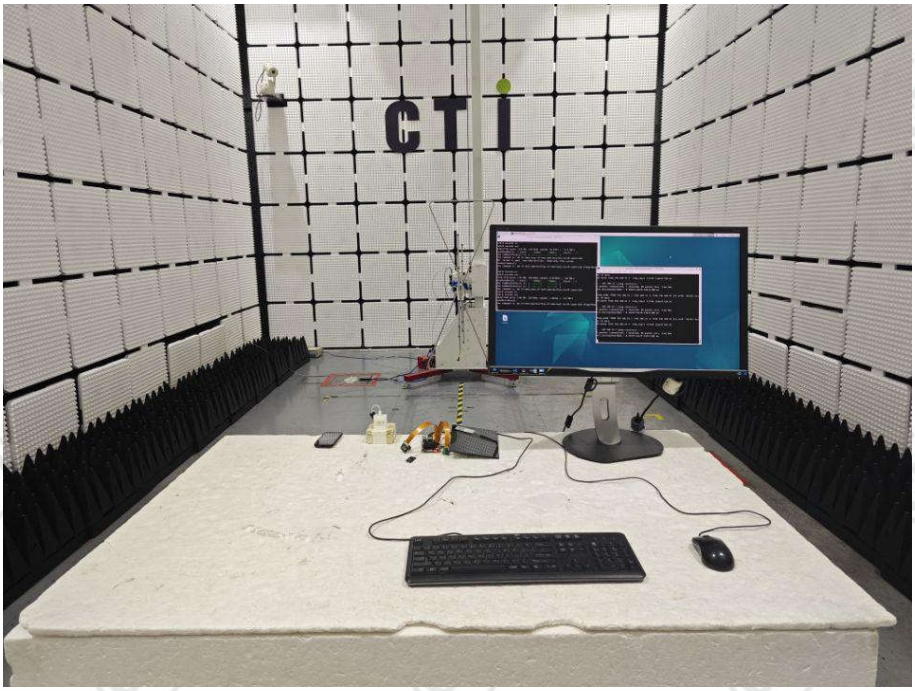
Radiated emissions Test Setup-1



Radiated emissions Test Setup-2

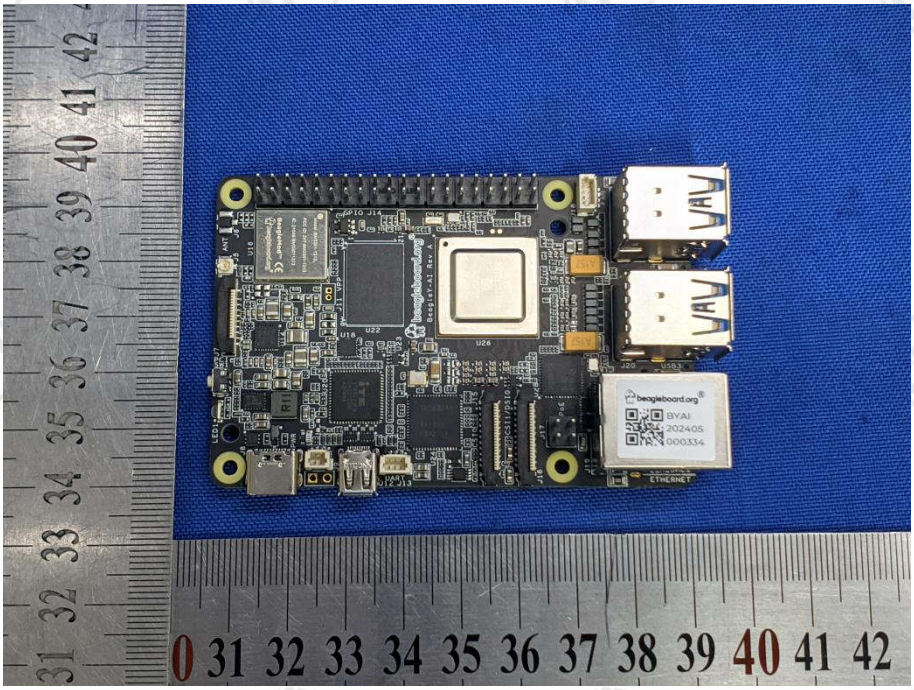


Radiated emissions Test Setup-3

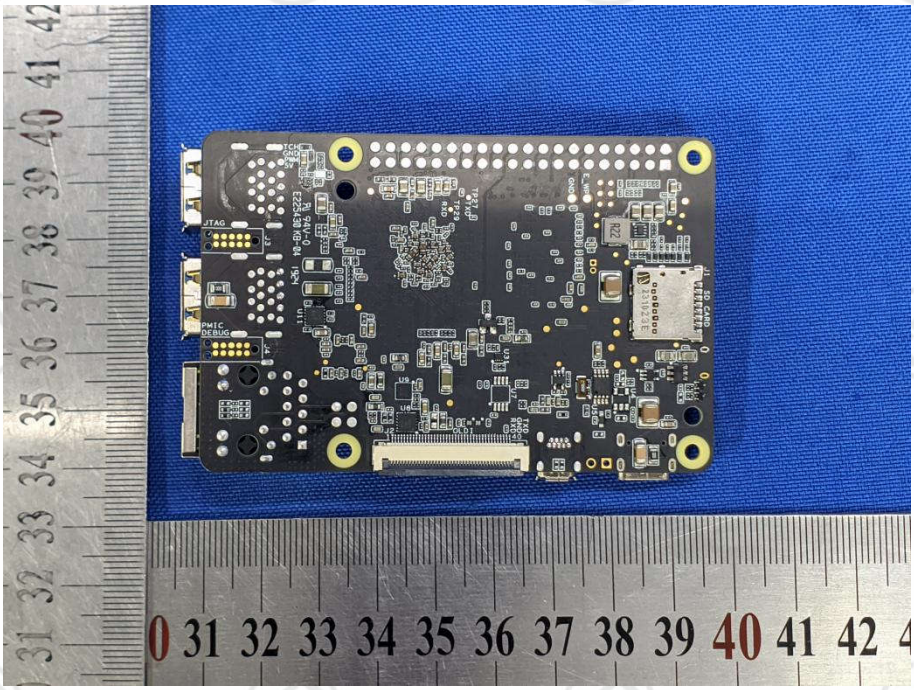


Radiated emissions Test Setup-4

APPENDIX 2 PHOTOGRAPHS OF PRODUCT



View Of Product-01



View Of Product-02

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*** End of Report ***