

TEST REPORT

Product Name : PowerThru™ Wireless Car Charger
Brand Mark : CASETiFY
Model No. : CTF-T-ATE-232313FRE
Extension Model : CTF-T-ATE-232313FREBLK,
CTF-T-ATE-232313FREWHT,
CTF-T-ATE-232313FREPNK,
CTF-T-ATE-232313FREBLU
FCC ID : 2ASRV-232313FRE
Report Number : BLA-EMC-202403-A1102
Date of Sample Receipt : 2024/3/5
Date of Test : 2024/3/9 to 2024/3/19
Date of Issue : 2024/3/19
Test Standard : FCC PART 15 Subpart C
Test Result : Pass



Prepared for:

Casetagram Limited

18/F, NEO, 123 Hoi Bun Road, Kwun Tong, Hong Kong

Prepared by:

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Date:

2024/3/19



REPORT REVISE RECORD

Version No.	Date	Description
00	2024/3/19	Original

BlueAsia

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1 TEST SUMMARY

Item	FCC Part No.	Description of Test	Result
1	FCC PART 15.207	Conducted emission	Pass
2	FCC PART 15.209	Radiated emission	Pass
3	FCC Part 15.215	20dB bandwidth	Pass

2 GENERAL INFORMATION

Applicant	Casetagram Limited
Address	18/F,NEO,123 Hoi Bun Road,Kwun Tong,Hong Kong
Manufacturer	Casetagram Limited
Address	18/F,NEO,123 Hoi Bun Road,Kwun Tong,Hong Kong
Factory	Huizhou CCA Industrial Co. Ltd.
Address	Section B,2nd Floor,Section B1,1st Floor,Section A,1st-4th Floor, Building A,No.122,Hongchuan Avenue North,Tongqiao, Zhongkai state, Huizhou city
Product Name	PowerThru™ Wireless Car Charger
Test Model No.	CTF-T-ATE-232313FRE
Extension Model	CTF-T-ATE-232313FREBLK,CTF-T-ATE-232313FREWHT, CTF-T-ATE-232313FREPNK,CTF-T-ATE-232313FREBLU
Remark	Colour Differences

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	QI-2388A Qi2MPP NU223_V0
Software Version	NU223_V0
Operation Frequency:	BPP/EPP:115-205KHz;MPP:360KHz
Modulation type:	Backscatter modulation
Antenna Type:	Inductive loop coil Antenna
Antenna Gain:	0dBi (Max)
Supply Power:	Input: 9V/2.22A Output: 15W Max

4 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
TM1	Keep the EUT in Wireless charging mode
Remark: Only the data of the worst mode would be recorded in this report.	

5 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission	$\pm 4.34\text{dB}$
Radiated Emission	$\pm 4.24\text{dB}$
Radiated Emission	$\pm 4.68\text{dB}$
AC Power Line Conducted Emission	$\pm 3.45\text{dB}$

6 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark
AC Adapter	QCY	PB23GN202GBA	N/A	From lab
Wireless charging mutagen	YBZ	N/A	N/A	N/A
Mobile	iPhone	iPhone 14 Pro	N/A	From lab

7 TEST FACILITY

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

- FCC — Designation No.: CN1252

BlueAsia of Technical Services(Shenzhen) Co., Ltd 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 files. Designation CN1252.

- ISED — CAB identifier No.: CN0028

BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered by Certification and Engineering Bureau of ISED for radio equipment testing with CAB identifier CN0028.

8 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.

9 TEST INSTRUMENTS LIST

Test Equipment Of Radiated Spurious Emissions					
Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Chamber 1	SKET	966	N/A	2023/11/16	2026/11/15
Chamber 2	SKET	966	N/A	2021/07/20	2024/07/19
Spectrum	R&S	FSP40	100817	2023/08/30	2024/08/29
Receiver	R&S	ESR7	101199	2023/08/30	2024/08/29
Receiver	R&S	ESPI7	101477	2023/07/07	2024/07/06
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	2022/10/12	2025/10/11
Horn Antenna	Schwarzbeck	BBHA9120D	01892 P:00331	2022/09/13	2025/09/12
Horn Antenna	Schwarzbeck	BBHA 9170	1106	2022/04/24	2024/04/23
Amplifier	SKET	LNPA_30M01G-30	SK2021060801	2023/07/07	2024/07/06
Amplifier	SKET	PA-000318G-45	N/A	2023/08/30	2024/08/29
Amplifier	SKET	LNPA_18G40G-50	SK2022071301	2023/07/14	2024/07/13
Filter group	SKET	2.4G/5G Filter group r	N/A	2023/07/07	2024/07/06
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2022/09/14	2025/09/13
1kHz calibration audio source	SKET	MCS-ABT-C35	N/A	2023/09/04	2024/09/03
Free Field Microphone	SKET	MGs MP 663	0414	2023/09/04	2024/09/03
Audio shielding box	SKET	SB-ABT-C35	N/A	2023/03/30	2024/03/29
Controller	SKET	N/A	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A
Signal Generator DTV	ECREDIX	DSG-1000	N/A	N/A	N/A

Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)

Equipment	Manufacturer	Model	S/N	Cal.Date	Cal.Due
Shield room	SKET	833	N/A	2023/11/16	2025/11/15
Receiver	R&S	ESPI3	101082	2023/08/30	2024/08/29
LISN	R&S	ENV216	3560.6550.15	2023/08/30	2024/08/29
LISN	AT	AT166-2	AKK1806000003	2023/08/30	2024/08/29
ISN	TESEQ	ISNT8-cat6	53580	2023/08/30	2024/08/29
Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01045	2023/07/07	2024/07/06
Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01075	2023/07/07	2024/07/06
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A

10 RADIATED SPURIOUS EMISSIONS

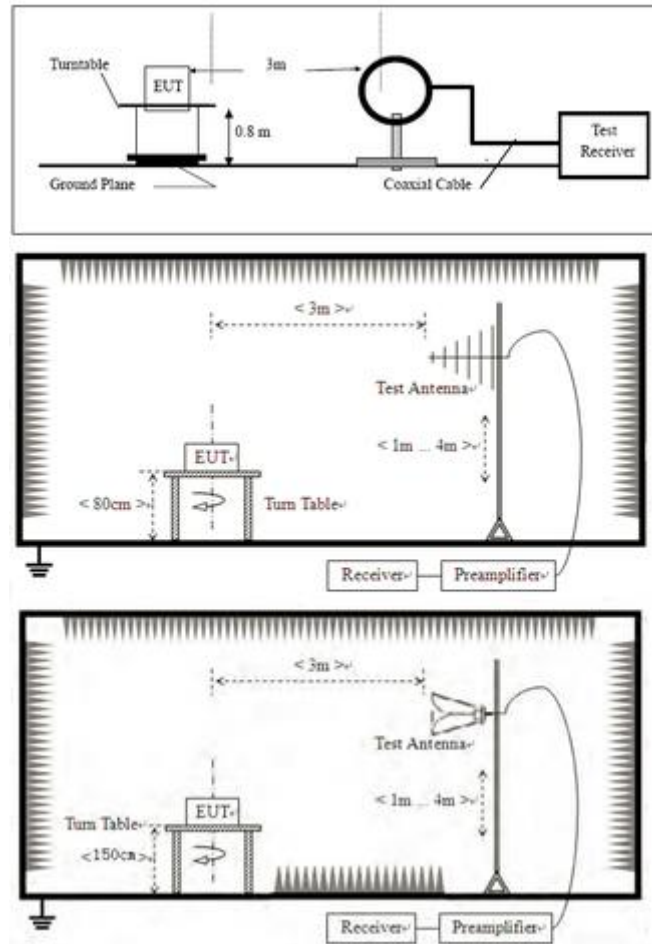
Test Standard	FCC PART 15.209
Test Method	ANSI C63.10 (2013) Section 6.4,6.5,6.6
Test Mode (Pre-Scan)	TM1
Test Mode (Final Test)	TM1
Tester	York
Temperature	21℃
Humidity	55%

10.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

10.2 BLOCK DIAGRAM OF TEST SETUP



10.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark:

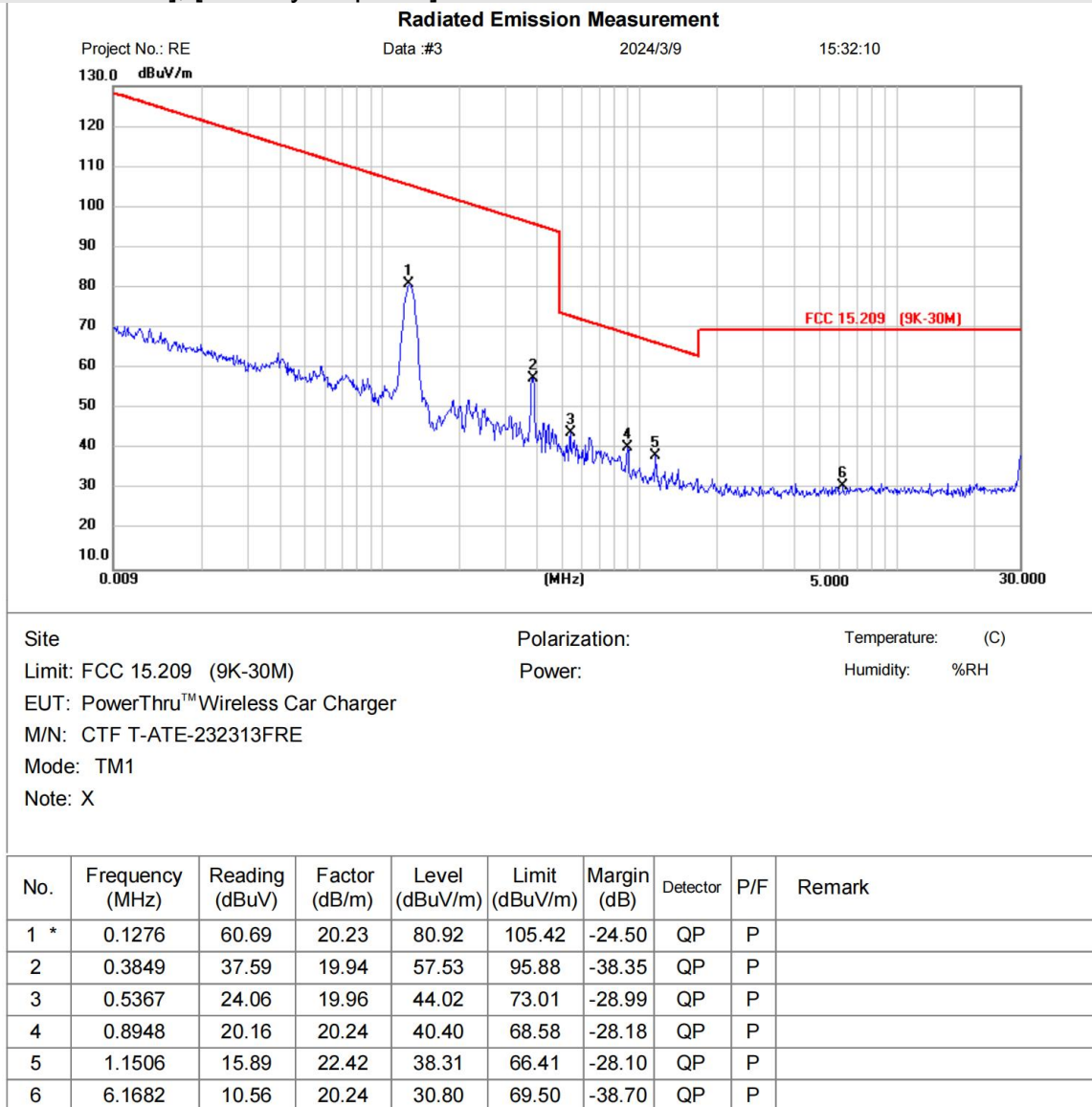
- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. fundamental frequency is blocked by filter, and only spurious emission is shown.
- 4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

10.4 TEST DATA

Below 1GHz:0.009-30MHz

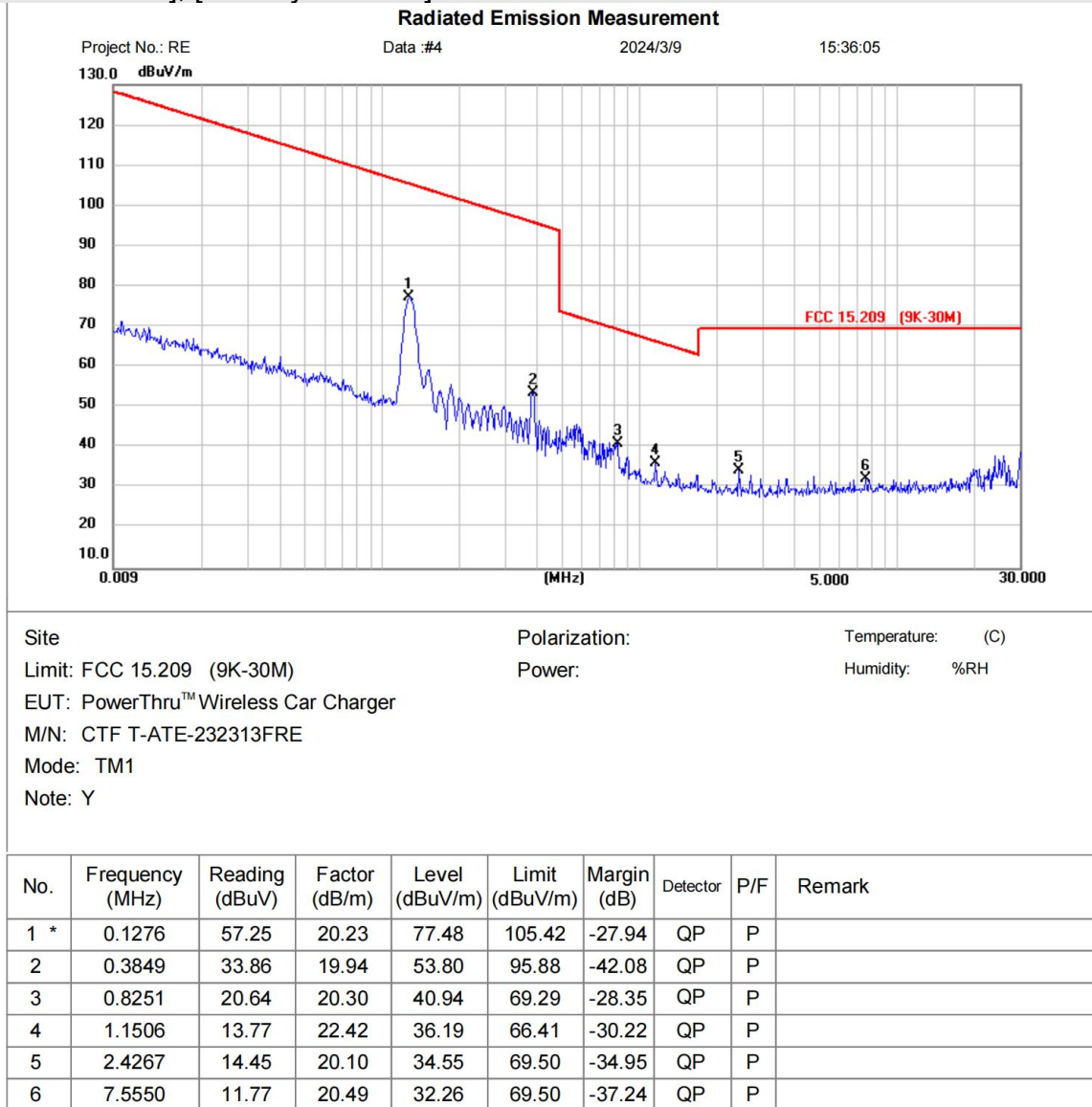
BPP/EPP

[TestMode: TM1]; [Polarity: coplane]



Test Result: Pass

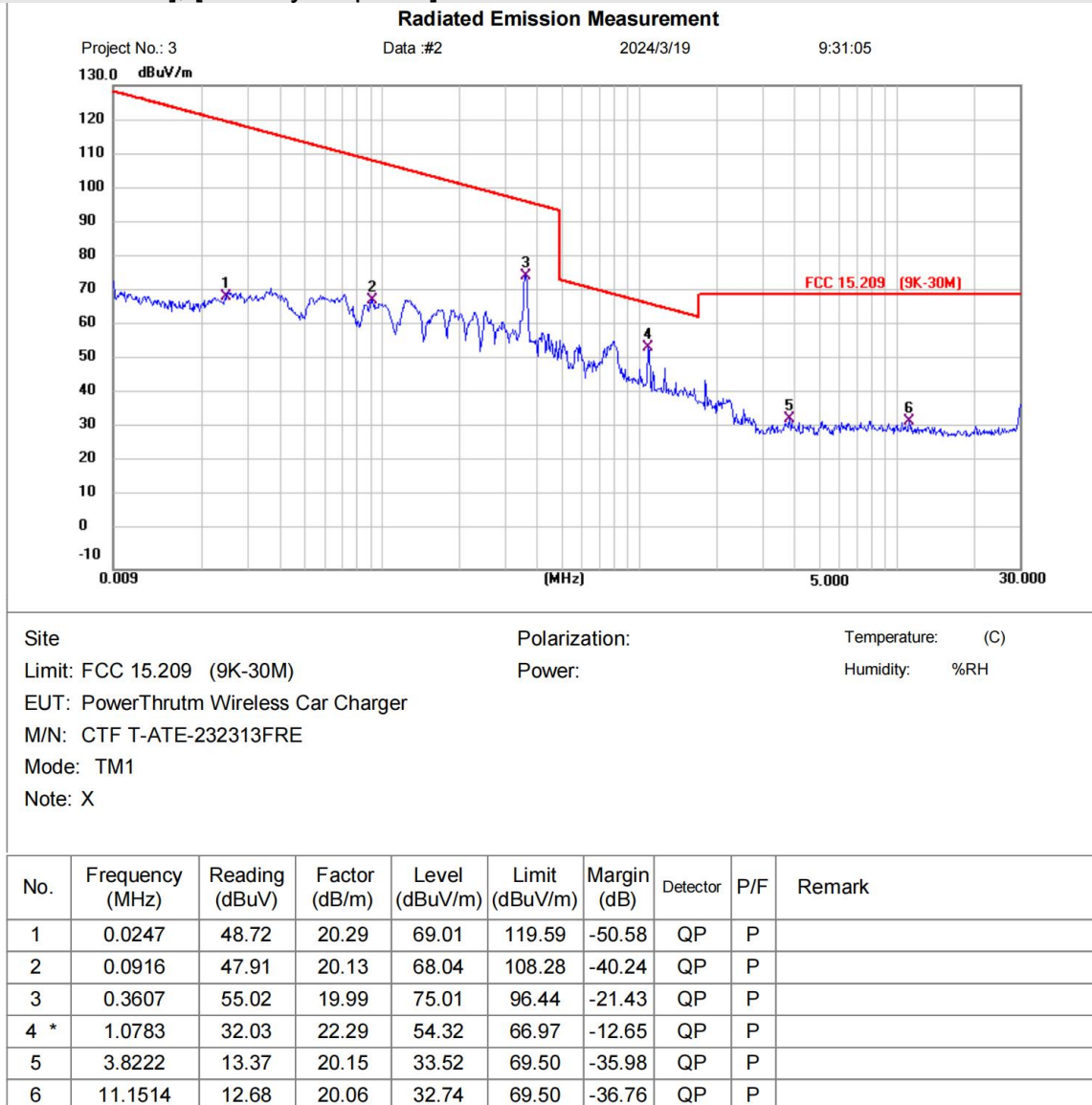
[TestMode: TM1]; [Polarity: Coaxial]



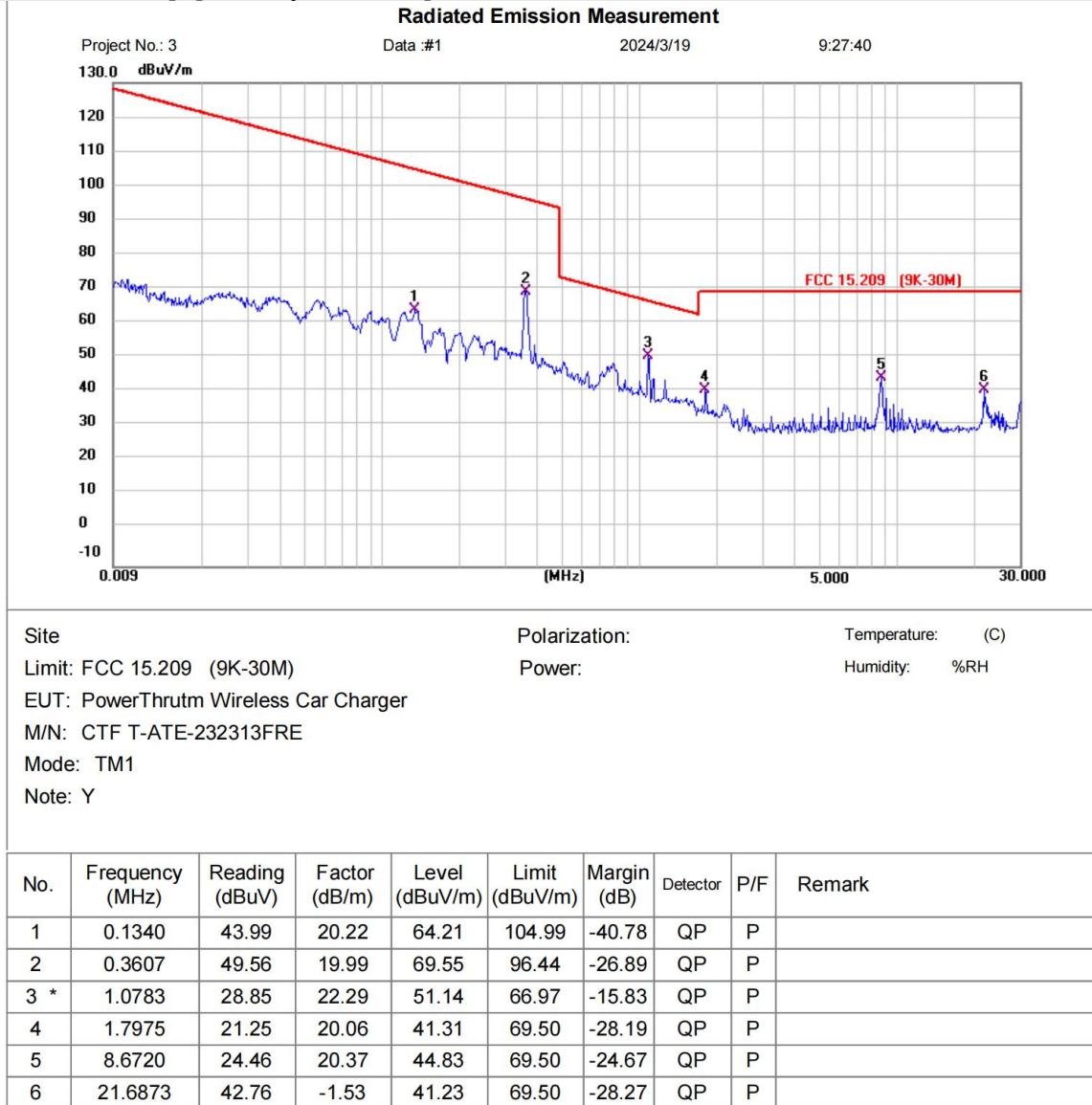
Test Result: Pass

MPP

[TestMode: TM1]; [Polarity: coplane]


Test Result: Pass

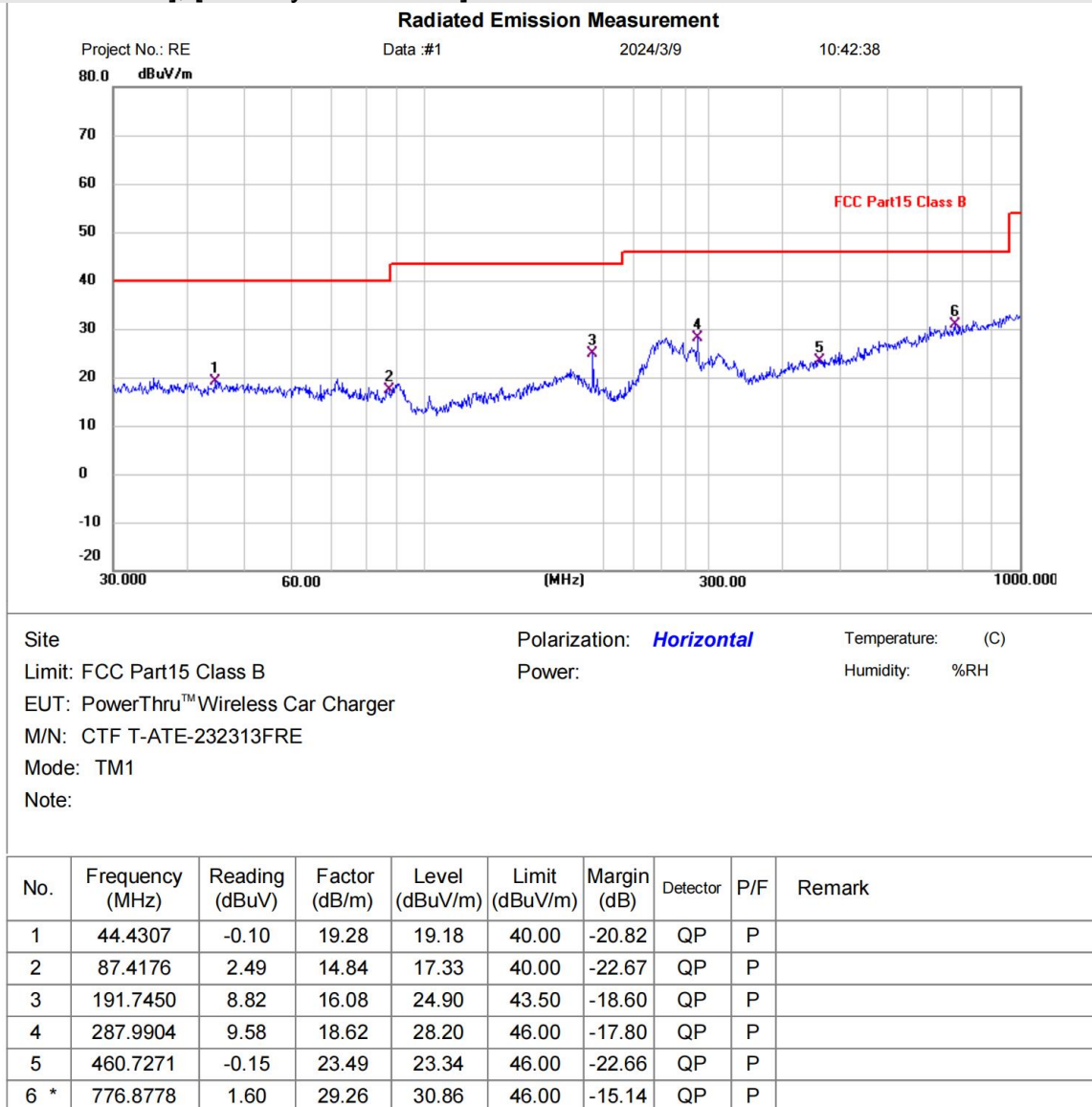
[TestMode: TM1]; [Polarity: Coaxial]



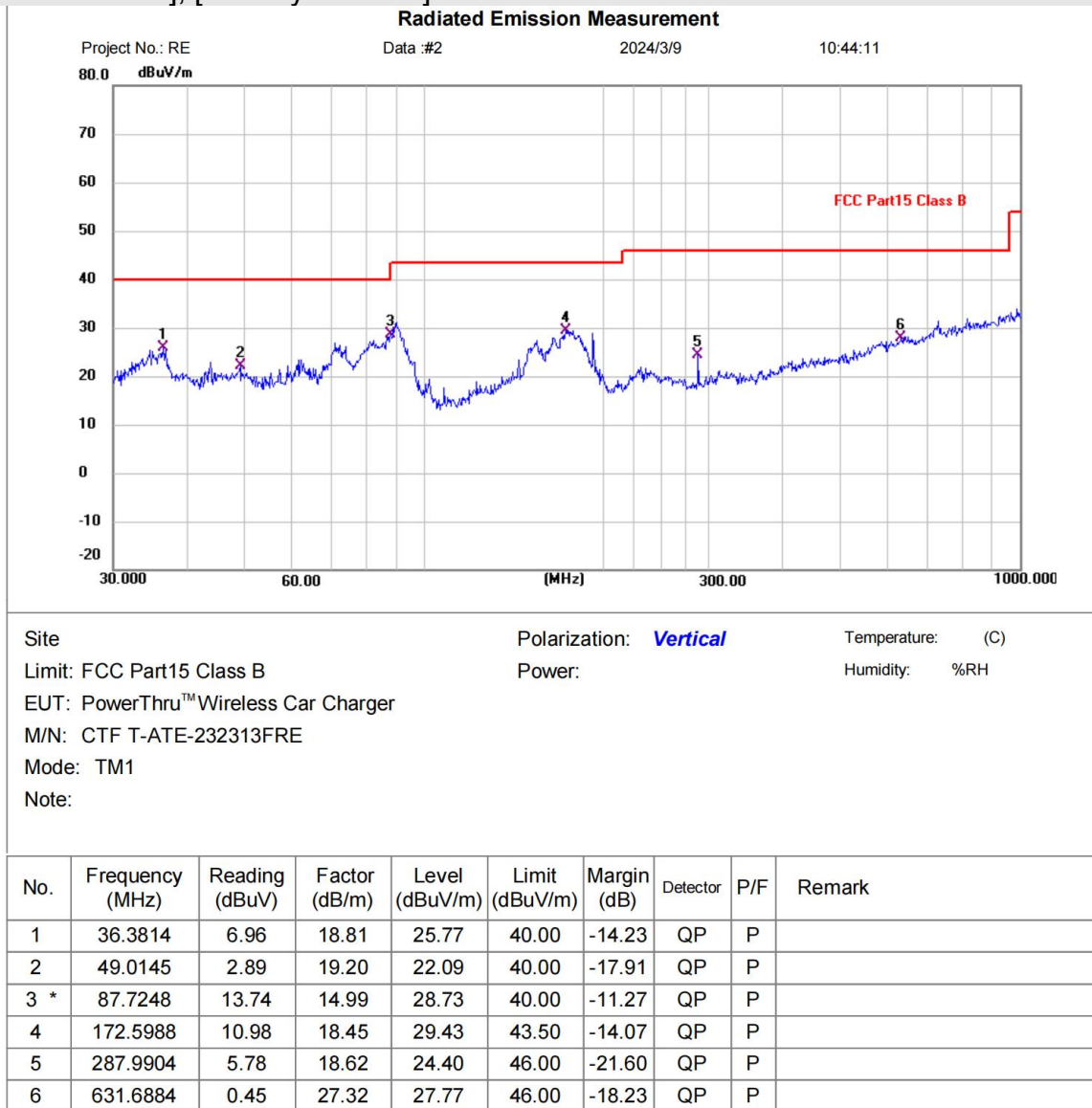
Test Result: Pass

30-1000MHz

[TestMode: TM1]; [Polarity: Horizontal]


Test Result: Pass

[TestMode: TM1]; [Polarity: Vertical]



Test Result: Pass

11 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

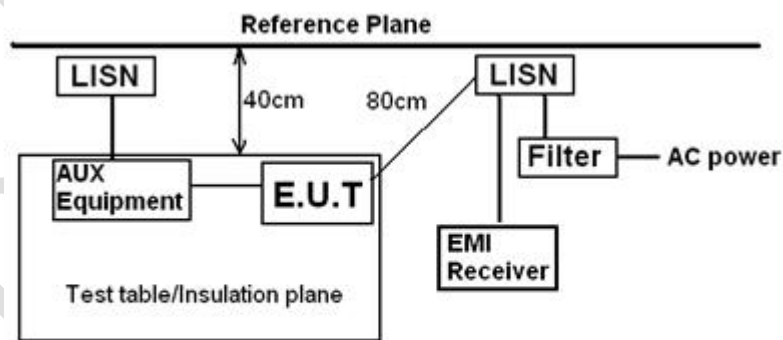
Test Standard	FCC PART 15.207
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TM1
Test Mode (Final Test)	TM1
Tester	York
Temperature	21°C
Humidity	55%

11.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

11.2 BLOCK DIAGRAM OF TEST SETUP



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedance Stabilization Network
Test table height=0.8m

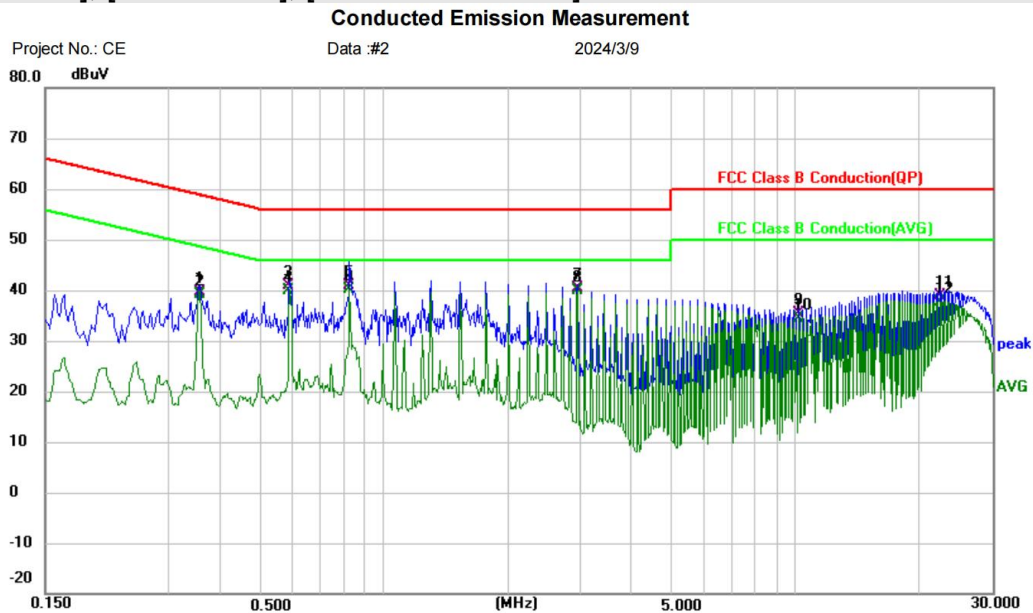
11.3 PROCEDURE

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
- Remark: $LISN = Read\ Level + Cable\ Loss + LISN\ Factor$

11.4 TEST DATA

[TestMode: TM1]; [Line: Nutral]; [Power:120V/60Hz]



Site	Phase: N	Temperature: (C)
Limit: FCC Class B Conduction(QP)	Power:	Humidity: %RH
EUT: PowerThru™ Wireless Car Charger	Distance:	RBW: 9 KHz
M/N: CTF T-ATE-23213FRE		VBW: 30 KHz
Mode: TM1		Sweep Time: 10 ms
Note:		

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	0.3540	29.94	9.81	39.75	58.87	-19.12	QP		
2	0.3540	29.43	9.81	39.24	48.87	-9.63	AVG		
3	0.5899	30.98	9.85	40.83	56.00	-15.17	QP		
4	0.5899	29.96	9.85	39.81	46.00	-6.19	AVG		
5	0.8260	31.02	9.90	40.92	56.00	-15.08	QP		
6 *	0.8260	30.22	9.90	40.12	46.00	-5.88	AVG		
7	2.9500	30.32	10.05	40.37	56.00	-15.63	QP		
8	2.9500	29.88	10.05	39.93	46.00	-6.07	AVG		
9	10.1420	33.92	1.39	35.31	60.00	-24.69	QP		
10	10.1420	33.01	1.39	34.40	50.00	-15.60	AVG		
11	22.4060	24.16	14.76	38.92	60.00	-21.08	QP		
12	22.4060	22.91	14.76	37.67	50.00	-12.33	AVG		

Test Result: Pass

[TestMode: TM1]; [Line: Line]; [Power:120V/60Hz]

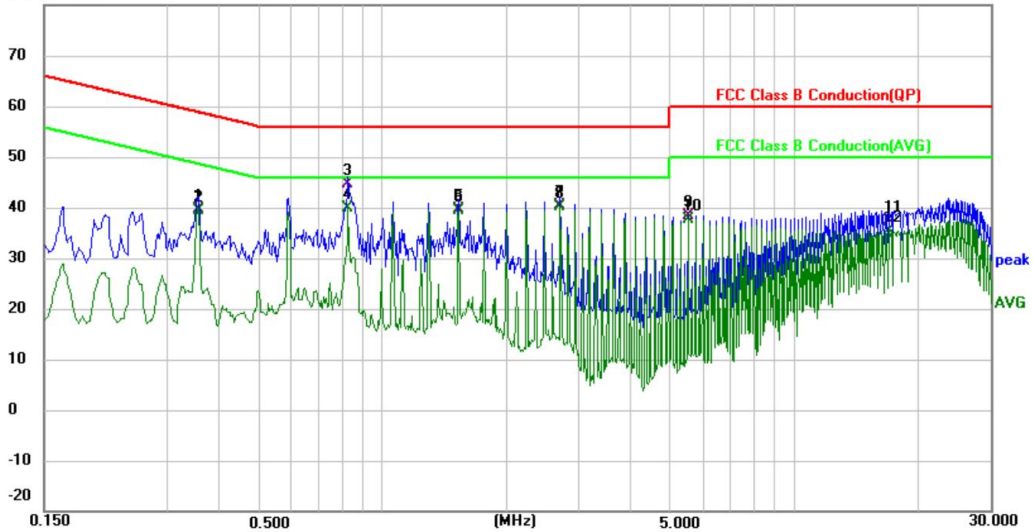
Conducted Emission Measurement

Project No.: CE

Data :#1

2024/3/9

80.0 dBuV



Site	Phase: L1	Temperature: (C)
Limit: FCC Class B Conduction(QP)	Power:	Humidity: %RH
EUT: PowerThru™ Wireless Car Charger	Distance:	RBW: 9 KHz
M/N: CTF T-ATE-232313FRE	VBW: 30 KHz	Sweep Time: 10 ms
Mode: TM1		
Note:		

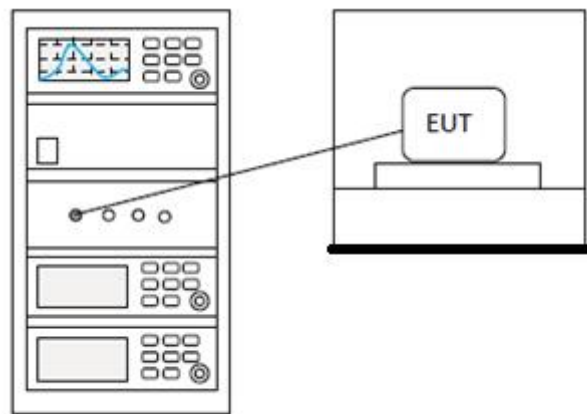
No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree
1	0.3540	29.70	9.94	39.64	58.87	-19.23	QP		
2	0.3540	29.52	9.94	39.46	48.87	-9.41	AVG		
3	0.8220	34.52	10.02	44.54	56.00	-11.46	QP		
4	0.8220	29.83	10.02	39.85	46.00	-6.15	AVG		
5	1.5300	29.63	9.98	39.61	56.00	-16.39	QP		
6	1.5300	29.39	9.98	39.37	46.00	-6.63	AVG		
7	2.7060	30.23	10.09	40.32	56.00	-15.68	QP		
8 *	2.7060	30.13	10.09	40.22	46.00	-5.78	AVG		
9	5.5260	27.94	10.44	38.38	60.00	-21.62	QP		
10	5.5260	27.07	10.44	37.51	50.00	-12.49	AVG		
11	17.0500	23.57	13.80	37.37	60.00	-22.63	QP		
12	17.0500	21.62	13.80	35.42	50.00	-14.58	AVG		

Test Result: Pass

12 20DB BANDWIDTH

Test Standard	FCC Part 15.215
Test Method	ANSI C63.10 (2013) Section 7.8.7
Test Mode (Pre-Scan)	TM1
Test Mode (Final Test)	TM1
Tester	York
Temperature	21℃
Humidity	55%

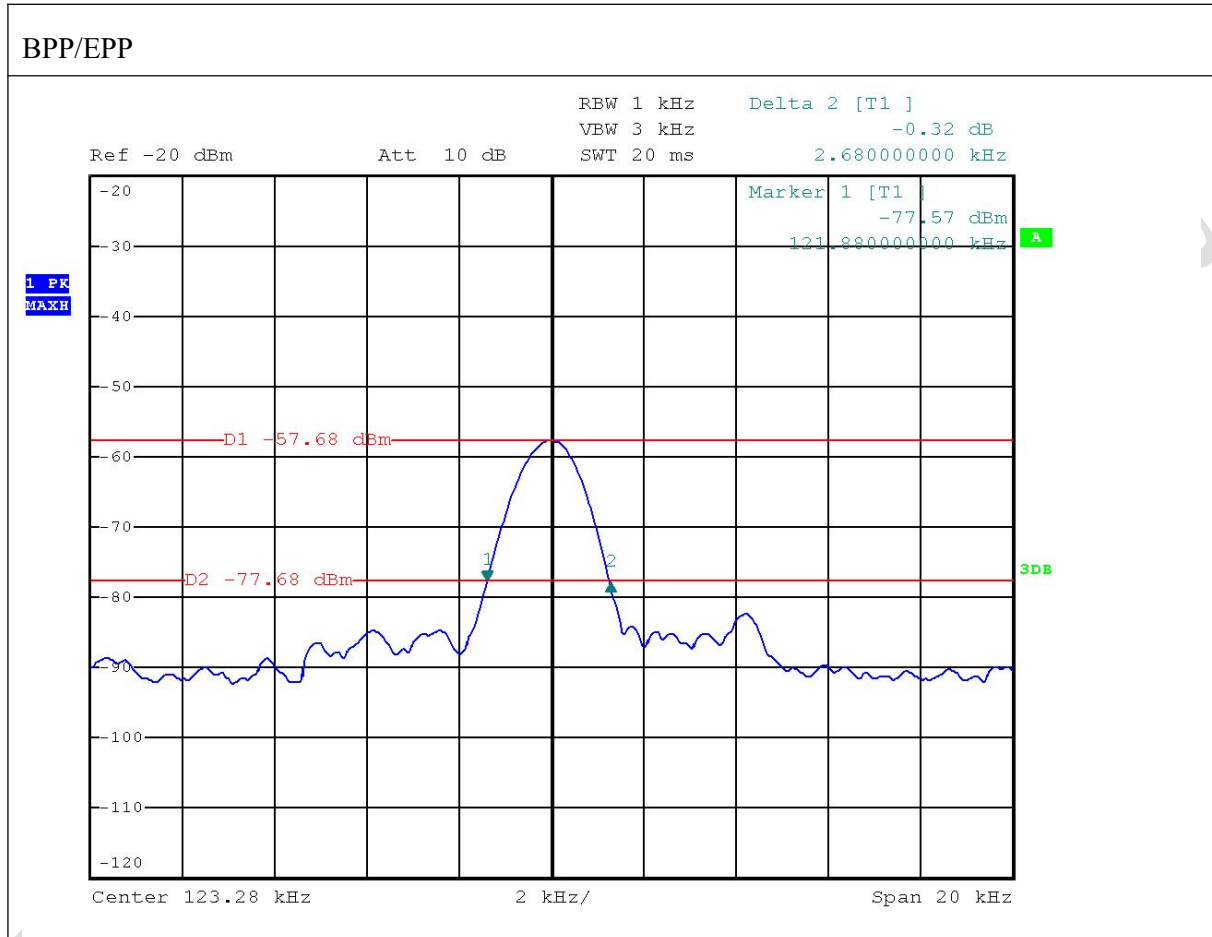
12.1 BLOCK DIAGRAM OF TEST SETUP



12.2 TEST DATA

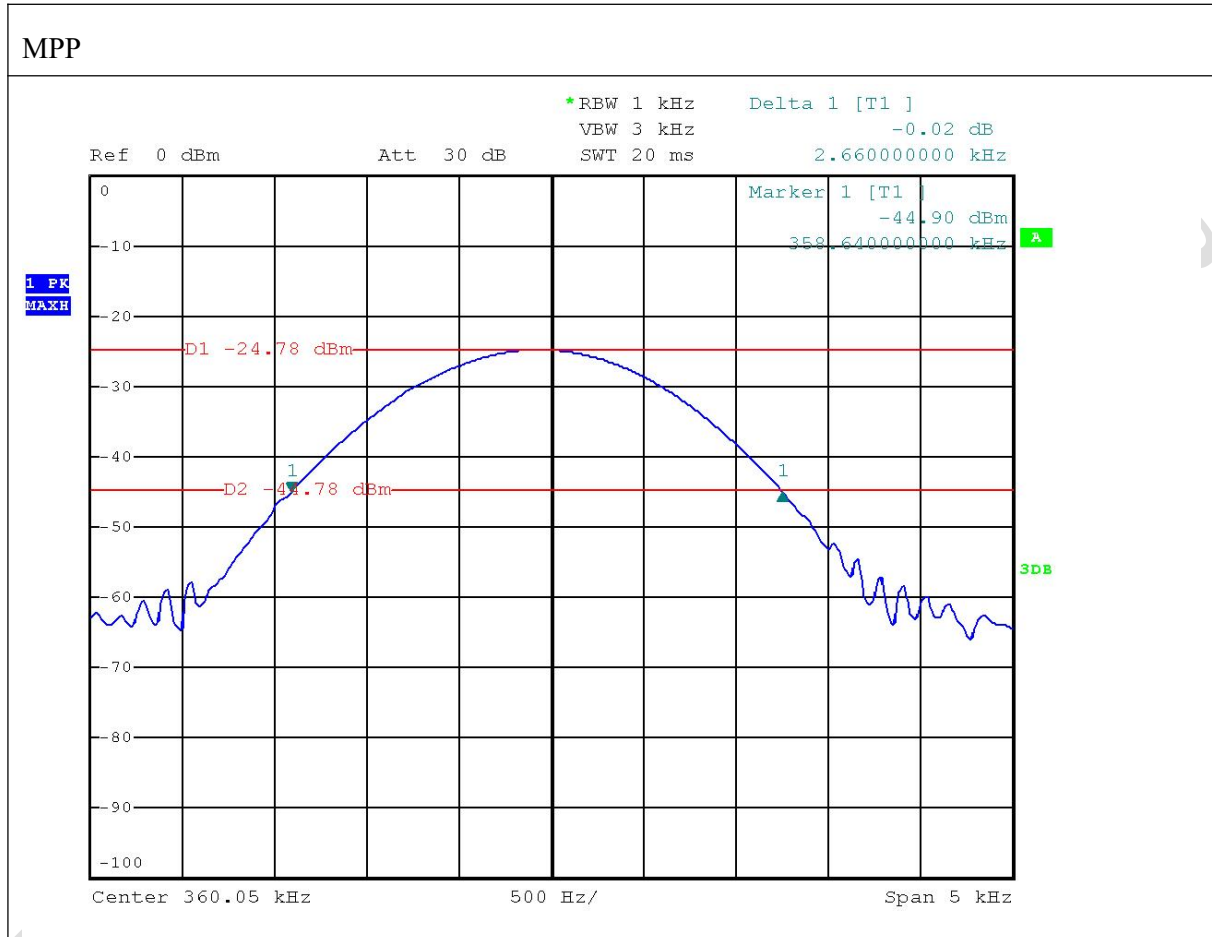
Frequency (kHz)	20dB emission bandwidth (kHz)
123.28	2.68

Test plots as below



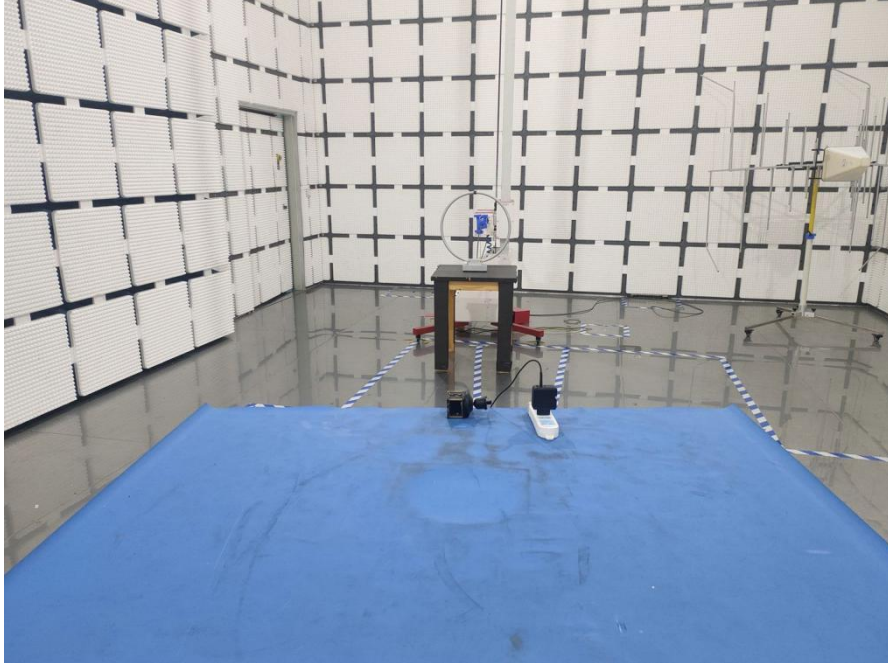
Frequency (kHz)	20dB emission bandwidth (kHz)
360.05	2.66

Test plots as below

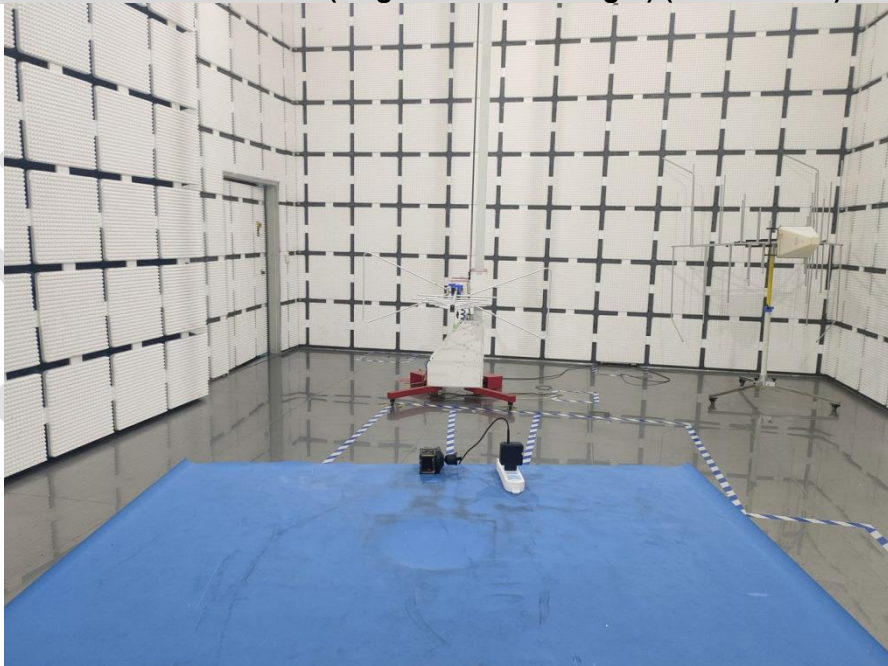


APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Radiated Emissions (Magnetic field Strength) (9kHz-30MHz)



Radiated Emissions (Magnetic field Strength) (30-1000MHz)



Conducted Emissions at Mains Terminals (150kHz-30MHz)



APPENDIX B: PHOTOGRAPHS OF EUT

Reference to the test report No. BLA-EMC-202403-A1101

----END OF REPORT----

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