

TEST REPORT

Product Name : ZETA AP
Brand Name : N/A
Model : APZT-GO10
Series Model : APZT-GO20
FCC ID : 2BMWA-TJZETA
Applicant : Tianjin ZifiSense Technology Co., Ltd
Address : Room 1701, Building 2, Tianjin Science and Technology Plaza
(Tiankai Park), West of Keyan East Road, Nankai District, Tianjin
Manufacturer : Tianjin ZifiSense Technology Co., Ltd
Address : Room 1701, Building 2, Tianjin Science and Technology Plaza
(Tiankai Park), West of Keyan East Road, Nankai District, Tianjin
Standard(s) : FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of Receipt : 14 Jul., 2025
Date of Test : 15 Jul., to 31 Dec., 2025
Issued Date : 07 Jan., 2026

Issued By: **Guangdong Asia Hongke Test Technology Limited**
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/ **Reviewed by:** Aaron Ye
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Approved by: Allen Wang
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Note: This device has been tested and found to comply with the standard(s) listed, this test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory. This report shall not be reproduced except in full, without the written approval of Guangdong Asia Hongke Test Technology Limited. If there is a need to alter or revise this document, the right belongs to Guangdong Asia Hongke Test Technology Limited, and it should give a prior written notice of the revision document. This test report must not be used by the client to claim product endorsement.



Report Revise Record

Report Version	Issued Date	Notes
M1	07 Jan., 2026	Initial Release

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.249](#): Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 -24.25 GHz.

[ANSI C63.10: 2020](#): American National Standard for Testing Unlicensed Wireless Devices

1.2 Test Summary

FCC PART 15.249		
FCC Part 15.249(a)	Field Strength of Fundamental	PASS
FCC Part 15.209	Spurious Emission	PASS
FCC Part 15.215(c)	20dB bandwidth	PASS
FCC Part 15.207	Conducted Emission	PASS
FCC Part 15.203	Antenna Requirement	PASS

1.3 Test Facility

Test Laboratory:

Guangdong Asia Hongke Test Technology Limited

B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

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

FCC-Registration No.: 251906 Designation Number: CN1376

Guangdong Asia Hongke Test Technology Limited 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.

IC —Registration No.: 31737 CAB identifier: CN0165

The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

A2LA-Lab Cert. No.: 7133.01

Guangdong Asia Hongke Test Technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

1.4 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Guangdong Asia Hongke Test Technology Limited's quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Asia Hongke laboratory is reported:

Test	Measurement Uncertainty	Notes
Power Line Conducted Emission	9KHz~30MHz ± 1.20 dB	(1)
Radiated Emission	9KHz~30MHz ± 3.10 dB	(1)
Radiated Emission	30MHz~1GHz ± 3.75 dB	(1)
Radiated Emission	1GHz~18GHz ± 3.88 dB	(1)
Radiated Emission	18GHz~40GHz ± 3.88 dB	(1)
RF power, conducted	30MHz~6GHz ± 0.16 dB	(1)
RF power density, conducted	± 0.24 dB	(1)
Spurious emissions, conducted	± 0.21 dB	(1)
Temperature	$\pm 1^{\circ}\text{C}$	(1)
Humidity	$\pm 3\%$	(1)
DC and low frequency voltages	$\pm 1.5\%$	(1)
Time	$\pm 2\%$	(1)
Duty cycle	$\pm 2\%$	(1)

The report uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty Multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

2 GENERAL INFORMATION

2.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 General Description of EUT

Product Name:	ZETAAP
Model/Type reference:	APZT-GO10
Series Model:	APZT-GO20
Power Rating:	DC 48V (POE Supply)
Adapter information:	Model No.: ACS-SDR-POW-AC INPUT: 85-305VAC 50/60Hz OUTPUT: 47-49VDC
Hardware Version:	N/A
Software Version:	N/A
Sample(s) Status:	AiTSZ-251017001-1 (Normal sample) AiTSZ-251017001-2 (Engineer sample)
SRD:	
Operation frequency:	920 MHz - 925 MHz
Modulation:	FSK
Channel number:	≤5000
Antenna type:	External FRP Antenna
Antenna gain:	2.0 dBi (declare by Applicant)
EIRP Power	Less than 50mW

Remark:

The above DUT's information was declared by manufacturer. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual..

2.3 Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.

Test Frequency:

Channel	Frequency (MHz)
Low channel	920
Mid channel	922.5
High channel	925

Note1: Frequency range: 920-925MHz, 1KHz channel spacing, first frequency is 920MHz.

Formula: $920.000\text{MHz} + 1 \cdot N(\text{kHz})$, $N \leq 5000$.

Power setting during the test:

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameters:

Test Software Version	Fixed frequency firmware
Frequency	920MHz, 922.5MHz, 925MHz
Power setting	default

2.4 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Serial No.	Provided by	Other
Adapter	HNT	HNT-QC530	/	Test lab	/
/	/	/	/	/	/

2.5 Equipment List for the Test

Conducted Emission measurement							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Pre.Cal. Date	New Cal. Date	Cal.Due
☒ 1	EMI Test Receiver	R&S	ESPI	100771	2024.09.25	2025.09.23	2026.09.22
☒ 2	LISN	R&S	NNLK 8129	8130179	2024.09.24	2025.09.23	2026.09.22
☒ 3	ISN	TESEQ	T800	29429	2024.09.26	2025.09.23	2026.09.22
☒ 4	Pulse Limiter	R&S	ESH3-Z2	102789	2024.09.24	2025.09.23	2026.09.22
☒ 5	CE Software	EZ	EZ-EMC_CE	Ver.AIT-03A	N/A	N/A	N/A

Radiation Emission measurement							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Pre.Cal. Date	New Cal. Date	Cal.Due
☒ 1	EMI Measuring Receiver	R&S	ESR	101160	2024.09.25	2025.09.23	2026.09.22
☒ 2	Low Noise Pre Amplifier	SCHWARZBECK	BBV 9745	00282	2024.09.25	2025.09.23	2026.09.22
☒ 3	Low Noise Pre Amplifier	CESHENG	CSKJLNA23 1016A	CSKJLNA23 1016A	2024.09.25	2025.09.23	2026.09.22
☒ 4	Spectrum Analyzer	R&S	FSV40	101470	2024.09.23	2025.09.23	2026.09.22
☒ 5	Passive Loop	ETS	6512	00165355	2024.08.29	/	2026.08.28
☒ 6	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9168	01434	2024.08.29	/	2027.08.28
☒ 7	Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	452	2024.08.29	/	2027.08.28
☒ 8	Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA91703 67	2024.08.28	/	2027.08.27
☒ 9	6dB Attenuator	JFW	50FPE-006	4360846-94 9-1	2024.09.24	2025.09.23	2026.09.22
☒ 10	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A	N/A

RF Conducted measurement							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Pre.Cal. Date	New Cal. Date	Cal.Due
☒ 1	Spectrum Analyzer	Agilent	N9020A	MY5342157 0	2024.09.25	2025.09.23	2026.09.22
☐ 2	Power Sensor	Agilent	8481A	MY4109769 7	2024.09.25	2025.09.23	2026.09.22
☐ 3	Vector Signal Generator	Agilent	N5182A	MY5014300 9	2024.09.25	2025.09.23	2026.09.22
☐ 4	Analog signal generator	Agilent	E8257	MY5155425 6	2024.09.25	2025.09.23	2026.09.22
☐ 5	Const Temp. & Humidity Chamber	Eastlab	YH-HW-408 L	23051109	2024.09.24	2025.09.23	2026.09.22
☐ 6	Wideband Radio communication tester	R&S	CMW500	1201.0002K 50	2024.09.24	2025.09.23	2026.09.22
☐ 7	DC power supply	ZHAOXIN	RXN-305D-2	2807000255 9	2024.09.24	2025.09.23	2026.09.22
☐ 8	RF Test box	TST	TSTPASS	21033016	2024.09.25	2025.09.23	2026.09.22
☐ 9	RF Software	TST	TSTPASS	Version 2.0	N/A	N/A	N/A
☐ 10	RF Software	Cesheng	WCN Regulatory	Ver 25.03.2901	N/A	N/A	N/A

Note: ☐ is not applicable in this Test Report. ☒ is applicable in this Test Report.

3 TEST CONDITIONS AND RESULTS

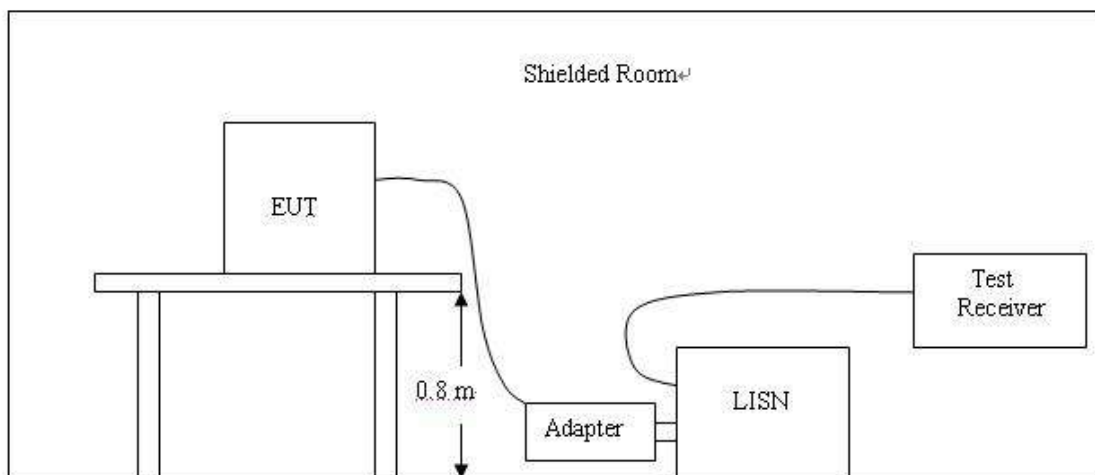
3.1 Conducted Emissions Test

LIMIT

Frequency range (MHz)	Limit (dBuV)	
	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.

TEST CONFIGURATION

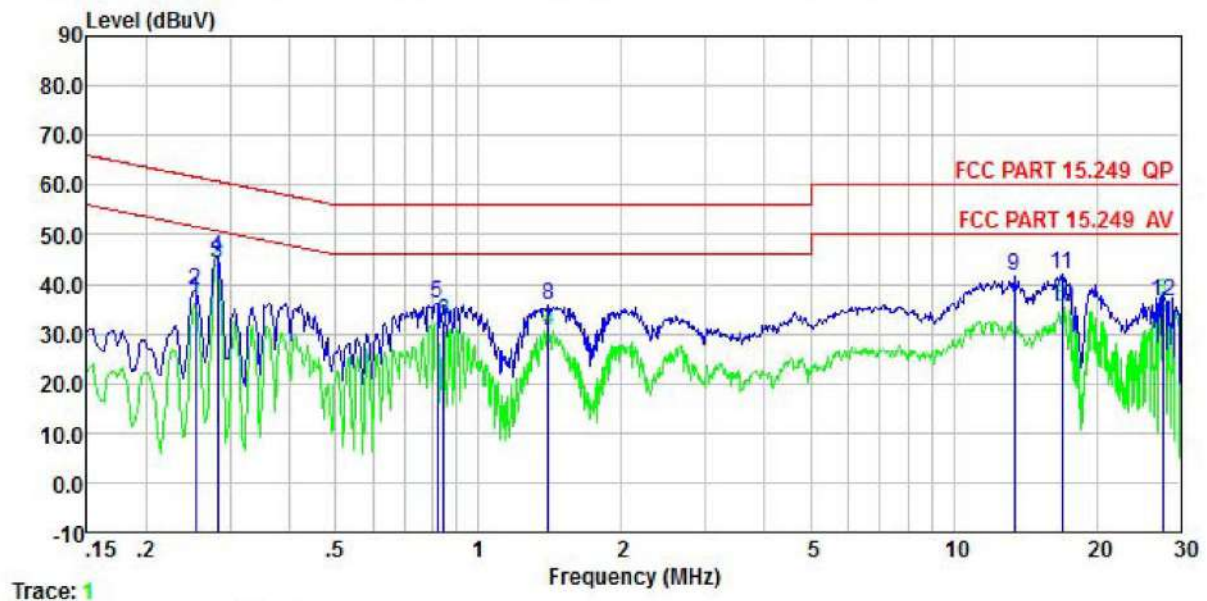


TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Test Mode	TX mode	Line:	L
Test voltage:	AC 120 V/60 Hz		

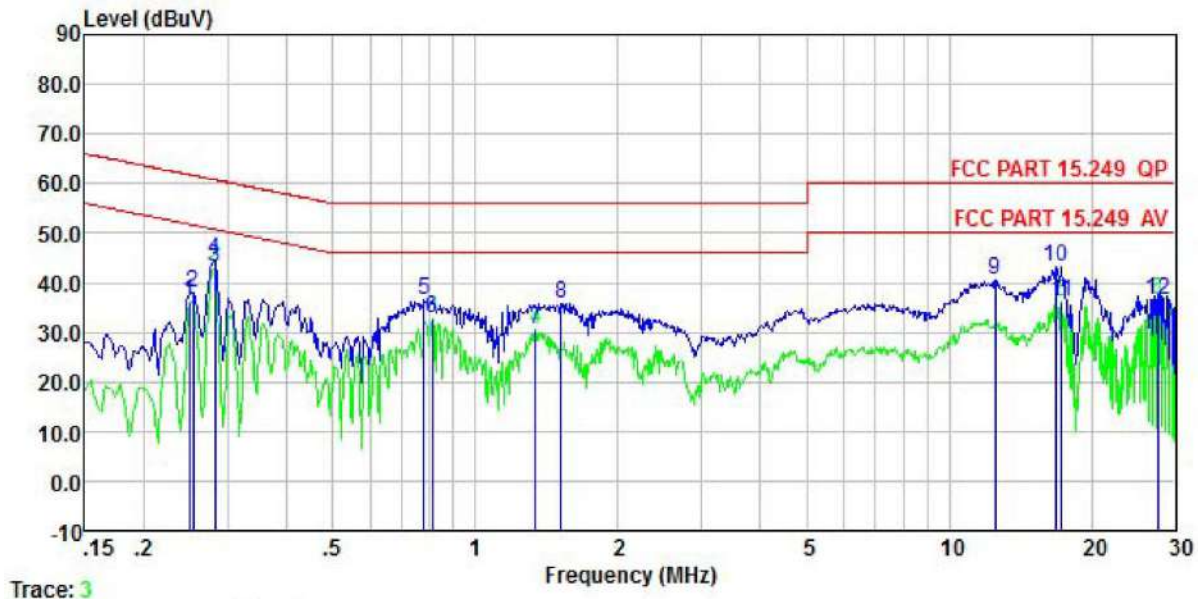


Remark: Correct Factor = Insertion loss of LISN + Cable loss + Insertion loss of Pulse Limiter;
Measurement Result = Reading Level + Correct Factor;

Margin = Measurement Result- Limit

	Freq	Read Level	LISN Factor	Aux Factor	Aux2 Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB	
1	0.253	17.05	10.10	0.00	9.88	0.00	37.03	51.64	-14.61	Average
2	0.253	18.80	10.10	0.00	9.88	0.00	38.78	61.64	-22.86	QP
3	0.282	24.16	10.10	0.00	9.88	0.00	44.14	50.76	-6.62	Average
4	0.282	25.44	10.10	0.00	9.88	0.00	45.42	60.76	-15.34	QP
5	0.817	16.06	10.11	0.00	9.88	0.00	36.05	56.00	-19.95	QP
6	0.844	12.26	10.12	0.00	9.88	0.00	32.26	46.00	-13.74	Average
7	1.403	10.72	10.15	0.00	9.88	0.00	30.75	46.00	-15.25	Average
8	1.403	15.64	10.15	0.00	9.88	0.00	35.67	56.00	-20.33	QP
9	13.408	20.90	10.66	0.00	9.92	0.00	41.48	60.00	-18.52	QP
10	16.928	14.80	10.64	0.00	9.94	0.00	35.38	50.00	-14.62	Average
11	16.928	21.58	10.64	0.00	9.94	0.00	42.16	60.00	-17.84	QP
12	27.562	16.25	10.32	0.00	10.02	0.00	36.59	50.00	-13.41	Average

Test Mode	TX mode	Line:	N
Test voltage:	AC 120 V/60 Hz		



Remark: Correct Factor = Insertion loss of LISN + Cable loss + Insertion loss of Pulse Limiter;
Measurement Result = Reading Level + Correct Factor;

Margin = Measurement Result- Limit

	Read Freq	LISN Level	Aux Factor	Aux2 Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.249	16.19	10.17	0.00	9.88	0.00	36.24	51.78	-15.54 Average
2	0.253	17.83	10.17	0.00	9.88	0.00	37.88	61.64	-23.76 QP
3	0.282	22.93	10.15	0.00	9.88	0.00	42.96	50.76	-7.80 Average
4	0.282	24.41	10.15	0.00	9.88	0.00	44.44	60.76	-16.32 QP
5	0.779	16.31	10.30	0.00	9.88	0.00	36.49	56.00	-19.51 QP
6	0.813	12.79	10.29	0.00	9.88	0.00	32.96	46.00	-13.04 Average
7	1.338	10.40	10.24	0.00	9.88	0.00	30.52	46.00	-15.48 Average
8	1.519	15.79	10.26	0.00	9.88	0.00	35.93	56.00	-20.07 QP
9	12.516	20.06	10.46	0.00	9.92	0.00	40.44	60.00	-19.56 QP
10	16.839	22.54	10.60	0.00	9.94	0.00	43.08	60.00	-16.92 QP
11	17.291	15.63	10.60	0.00	9.94	0.00	36.17	50.00	-13.83 Average
12	27.562	16.04	10.52	0.00	10.02	0.00	36.58	50.00	-13.42 Average

3.2 Radiated Emissions and Band Edge

Limit

According 15.249, the field strength of emissions from intentional radiators operated within 902-928 MHz shall not exceed 94dB μ V/m (50mV/m).

FCC PART 15.249(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

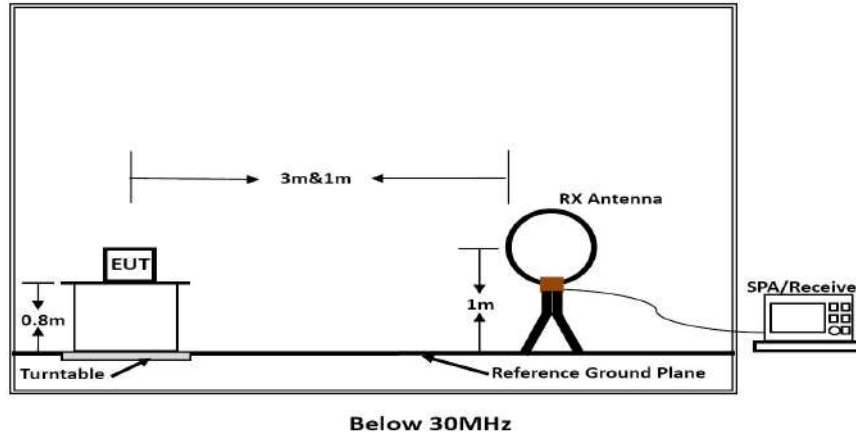
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

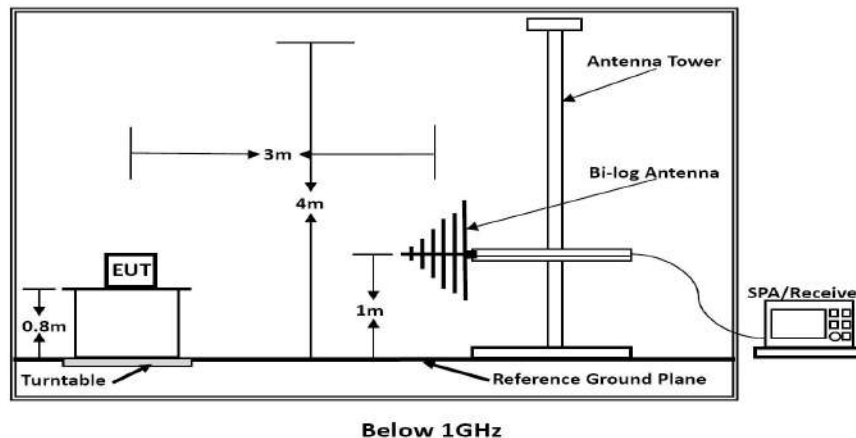
Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

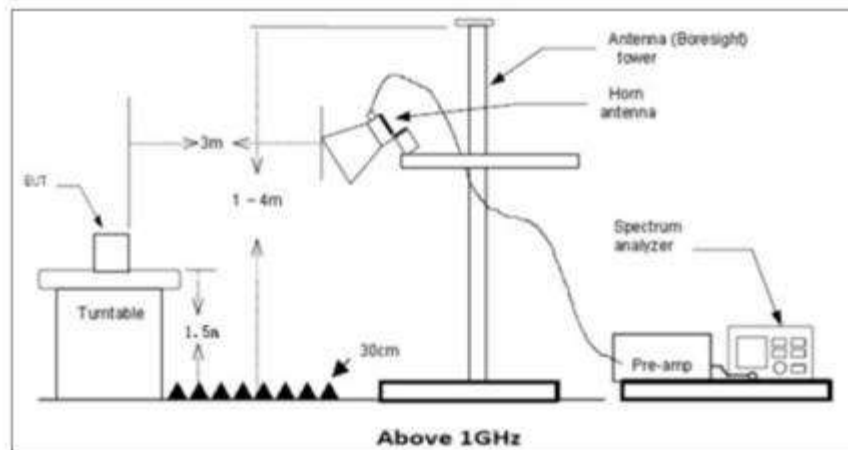
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



Test Procedure

- Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measurements have been completed.
- Radiated emission test frequency band from 9KHz to 10GHz.
- The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3
1GHz-10GHz	Horn Antenna	3

- Setting test receiver/spectrum as following table states:

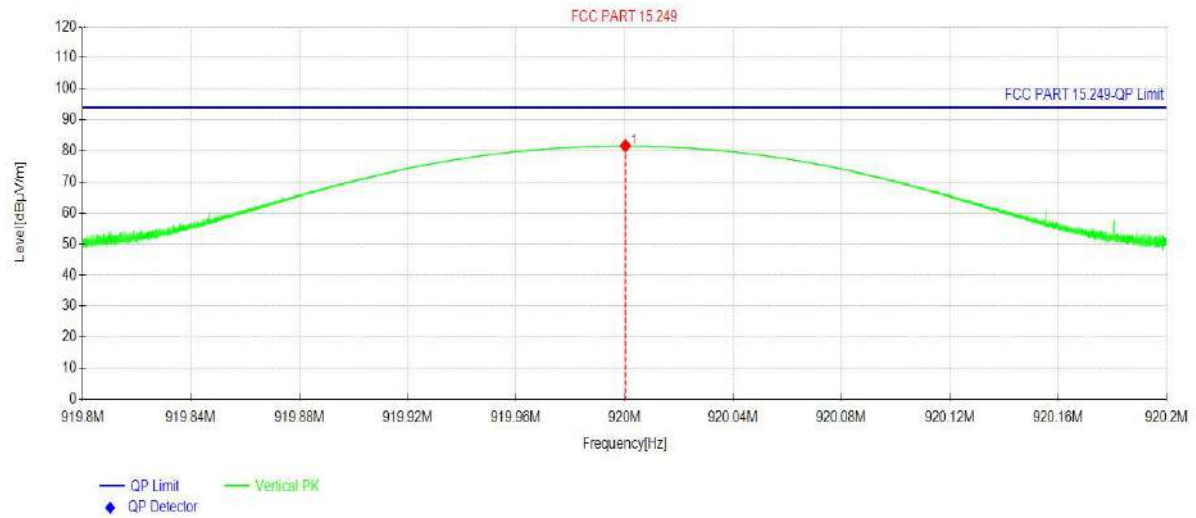
Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz, Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz, Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz, Sweep time=Auto	QP
1GHz-10GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

TEST RESULTS

Remark:

- Radiated Emission measured from 9 KHz to 10GHz and recorded worst case.
- Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and the emission levels from 9kHz to 30MHz are attenuated 20dB below the limit and not recorded in report.

Test channel: Lowest Channel Polarization: Vertical



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

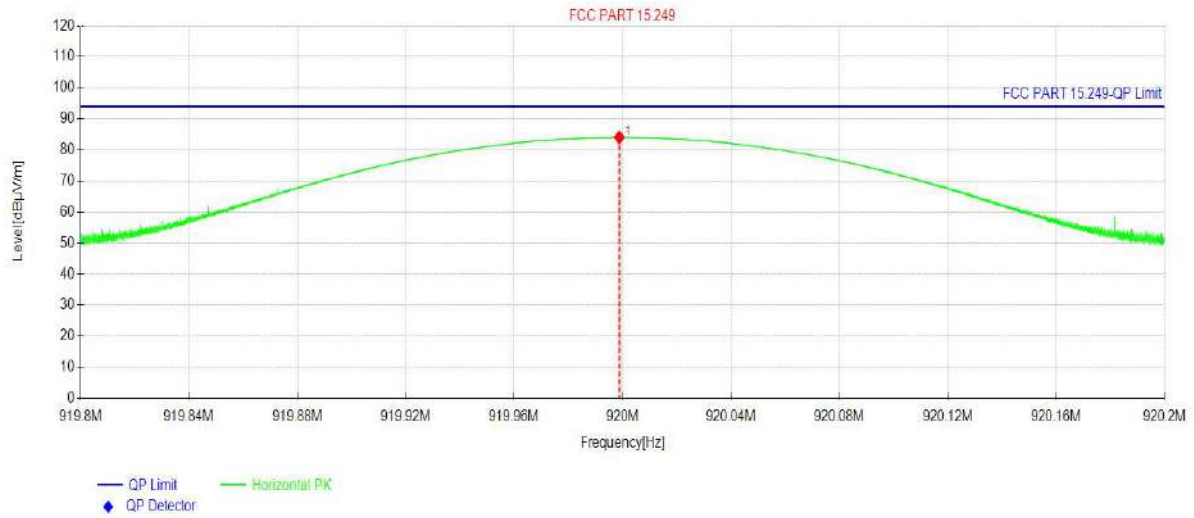
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	920.0003	54.31	27.35	81.66	94.00	12.34	PK	Vertical

Test channel:

Lowest Channel

Polarization:

Horizontal



Remark:

Emission Level = Reading + Factor;

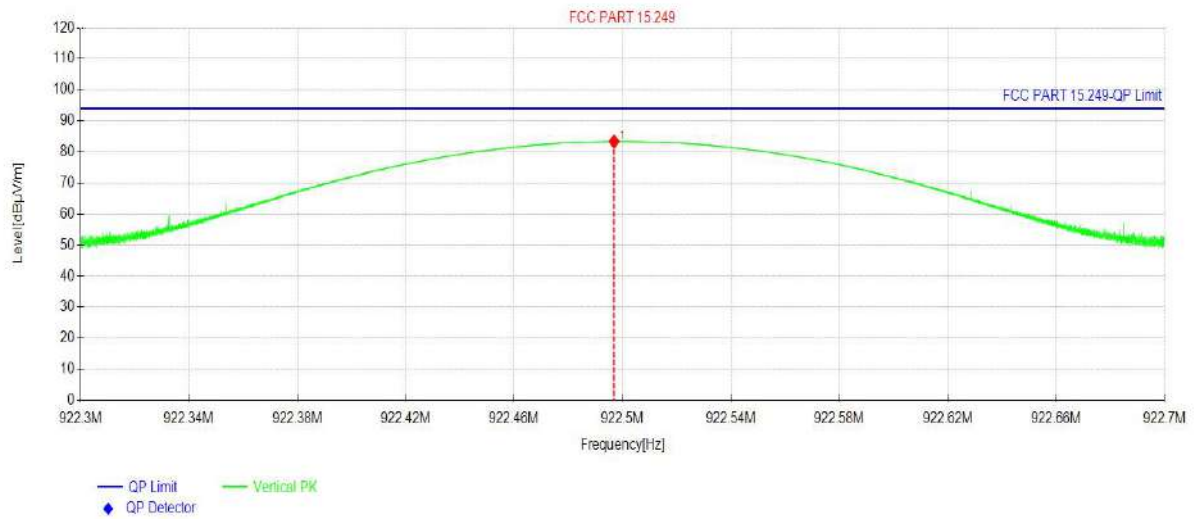
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	919.9988	56.68	27.35	84.03	94.00	9.97	PK	Horizontal

Test channel: Middle Channel Polarization: Vertical



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

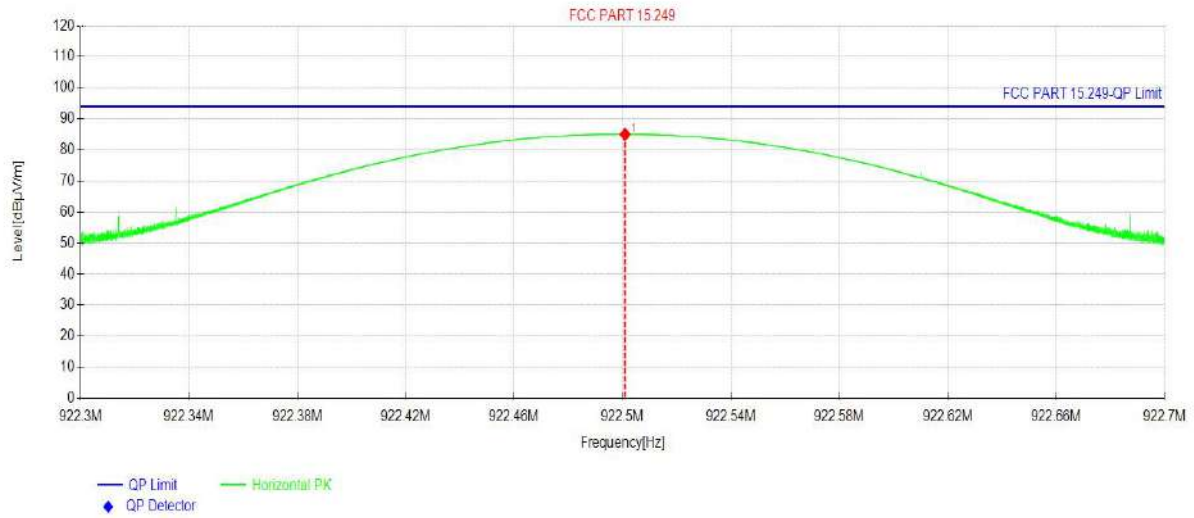
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	922.4969	55.95	27.38	83.33	94.00	10.67	PK	Vertical

Test channel:

Middle Channel

Polarization:

Horizontal



Remark:

Emission Level = Reading + Factor;

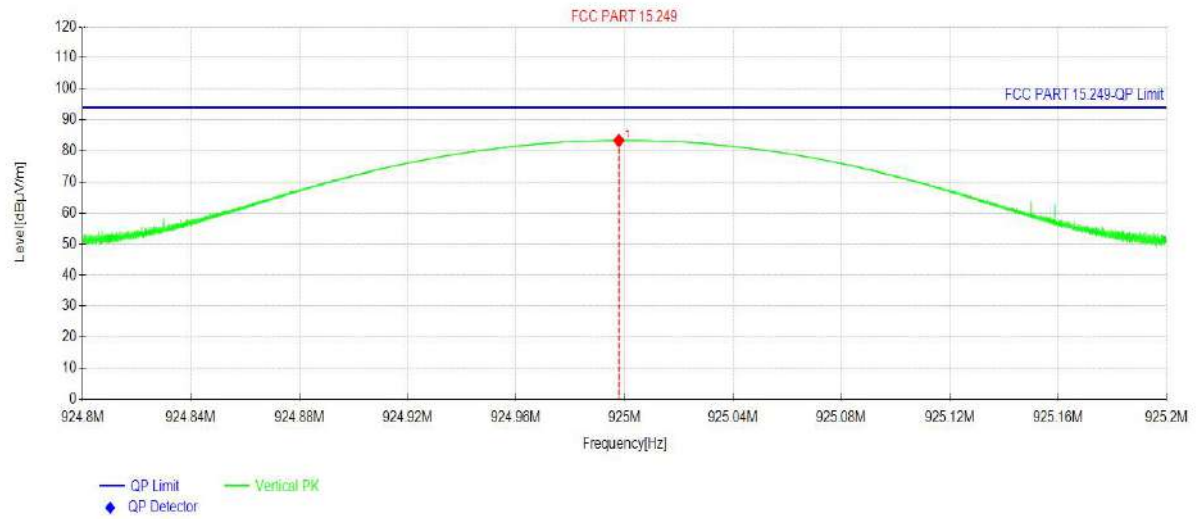
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	922.5009	57.61	27.38	84.99	94.00	9.01	PK	Horizontal

Test channel: Highest channel Polarization: Vertical



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

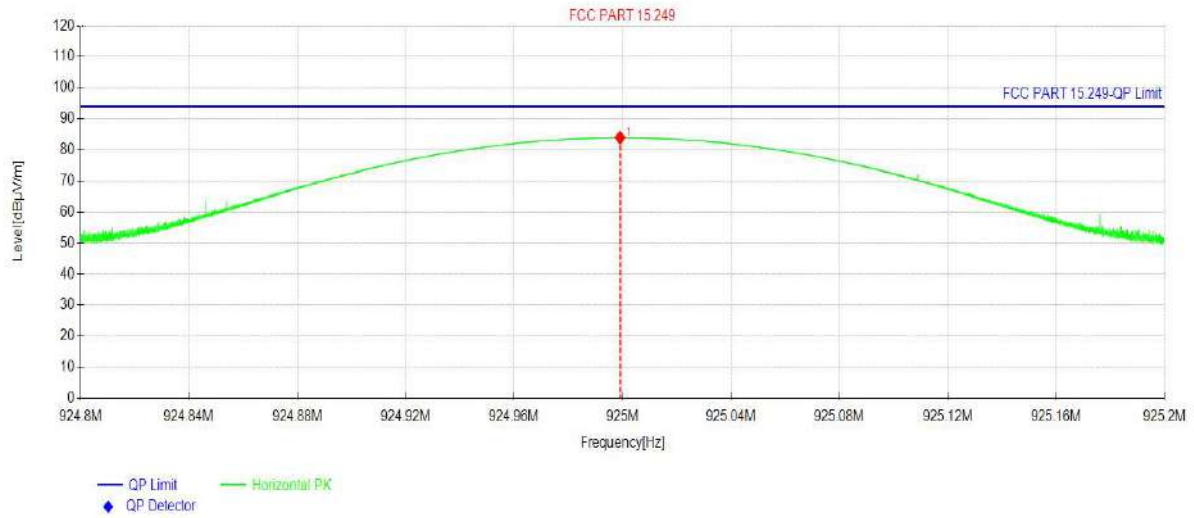
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	924.9979	55.92	27.41	83.33	94.00	10.67	PK	Vertical

Test channel:

Highest channel

Polarization:

Horizontal



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

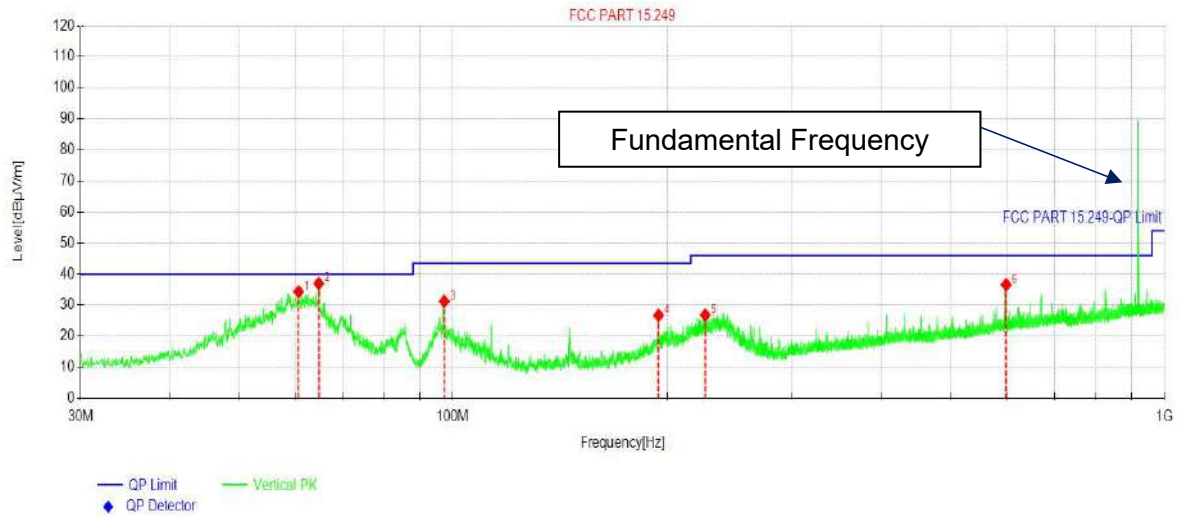
Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	924.9991	56.54	27.41	83.95	94.00	10.05	PK	Horizontal

For 30MHz-1GHz

Test channel:	Lowest Channel	Polarization:	Vertical
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

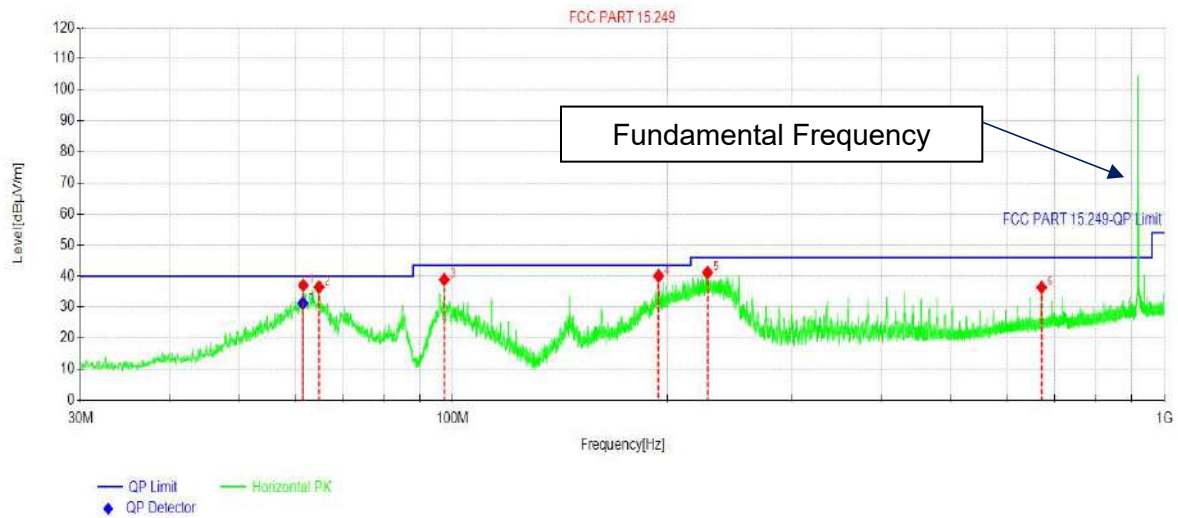
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	60.7505	48.47	-14.13	34.34	40.00	5.66	PK	Vertical
2	64.8247	51.69	-14.69	37.00	40.00	3.00	PK	Vertical
3	97.3214	46.02	-14.77	31.25	43.50	12.25	PK	Vertical
4	194.6657	41.66	-14.93	26.73	43.50	16.77	PK	Vertical
5	226.3863	40.88	-14.08	26.80	46.00	19.20	PK	Vertical
6	599.4185	41.54	-4.94	36.60	46.00	9.40	PK	Vertical

Test channel:	Lowest Channel	Polarization:	Horizontal
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

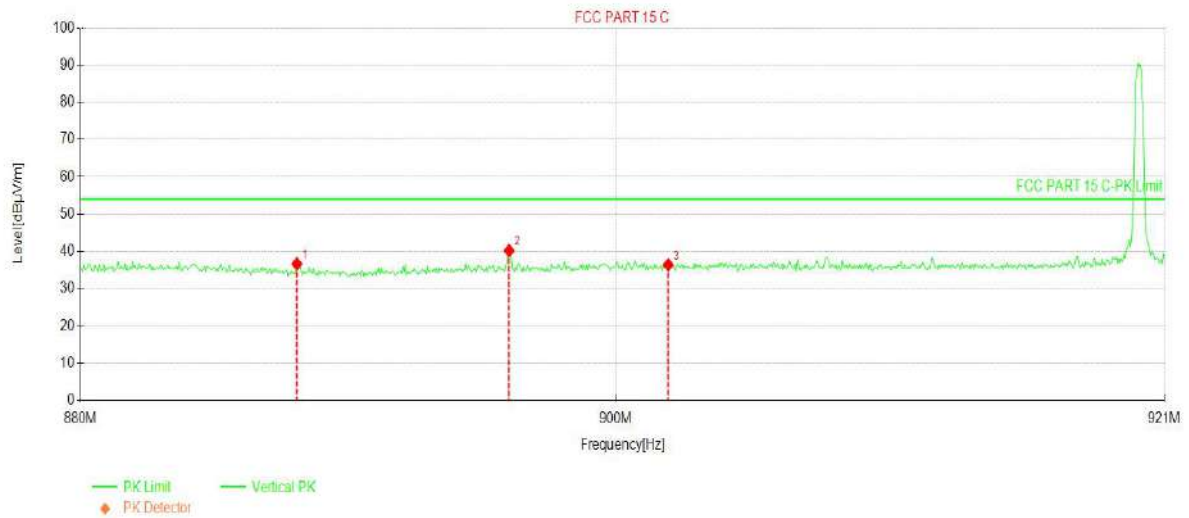
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	61.6721	51.36	-14.32	37.04	40.00	2.96	PK	Horizontal
2	64.8732	51.17	-14.70	36.47	40.00	3.53	PK	Horizontal
3	97.3214	53.65	-14.77	38.88	43.50	4.62	PK	Horizontal
4	194.7142	54.98	-14.93	40.05	43.50	3.45	PK	Horizontal
5	228.0839	55.15	-14.01	41.14	46.00	4.86	PK	Horizontal
6	672.1721	40.09	-3.74	36.35	46.00	9.65	PK	Horizontal

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Angle [°]	Verdict
1	61.5859	45.62	-14.33	31.29	40.00	8.71	165.5	PASS

Test channel:	Lowest Channel	Polarization:	Vertical
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

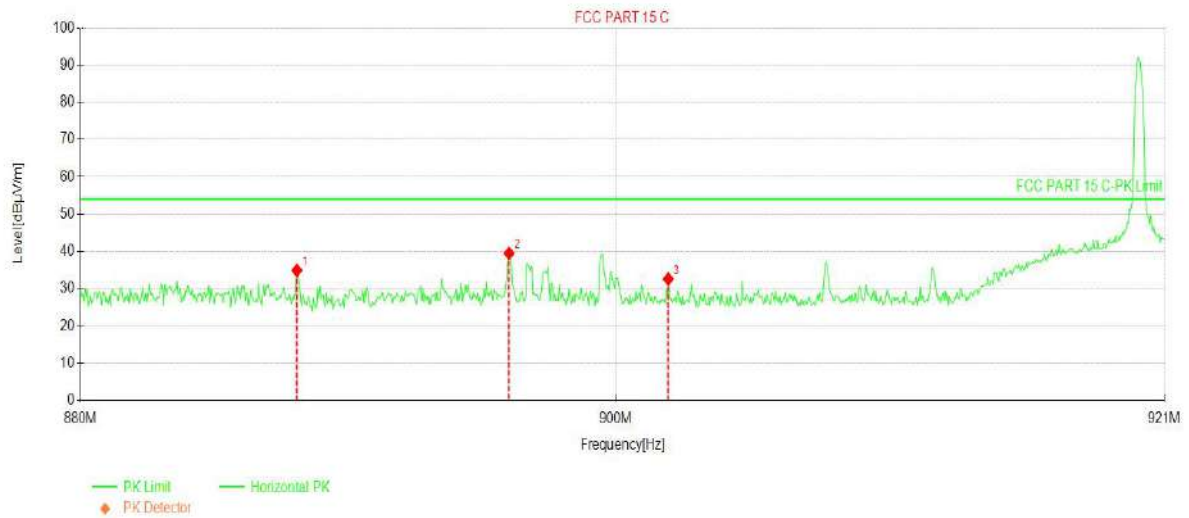
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	888.0360	37.26	-0.66	36.60	54.00	17.40	PK	Vertical
2	895.9900	39.95	0.24	40.19	54.00	13.81	PK	Vertical
3	902.0000	35.87	0.49	36.36	54.00	17.64	PK	Vertical

Test channel:	Lowest Channel	Polarization:	Horizontal
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	888.0360	35.52	-0.66	34.86	54.00	19.14	PK	Horizontal
2	895.9900	39.24	0.24	39.48	54.00	14.52	PK	Horizontal
3	902.0000	32.08	0.49	32.57	54.00	21.43	PK	Horizontal

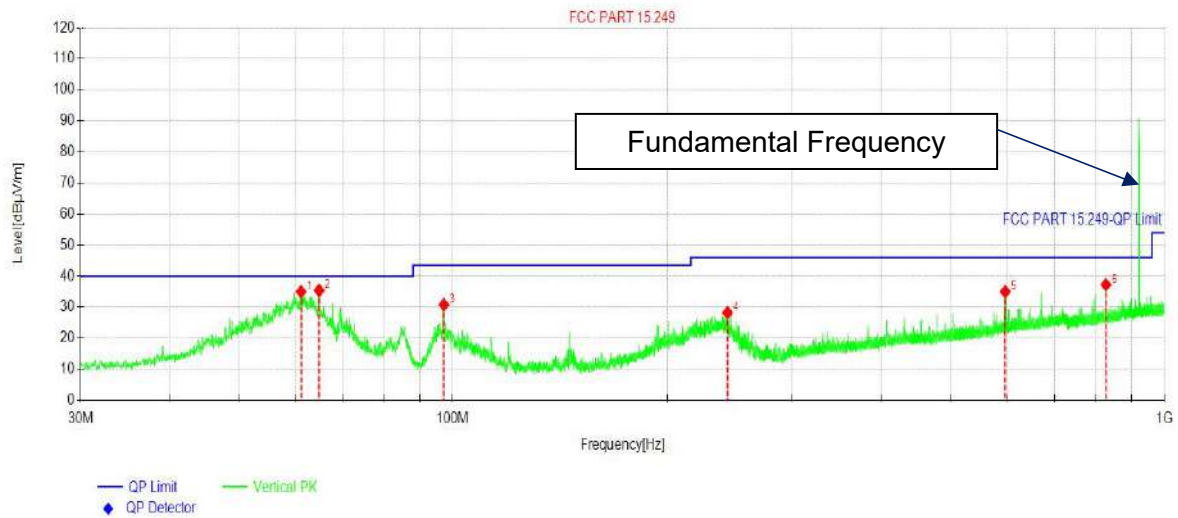
GFSK (above 1GHz)

Test channel:		Lowest Channel		Polarity:	Vertical	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1840.00	58.25	-22.36	35.89	74.00	38.11	PEAK
1840.00	49.61	-22.36	27.25	54.00	26.75	AVG

Test channel:		Lowest Channel		Polarity:	Horizontal	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1840.00	57.19	-22.36	34.83	74.00	39.17	PEAK
1840.00	46.95	-22.36	24.59	54.00	29.41	AVG

1. Emission level (dBuV/m) = Reading (dBuV)+ Factor (dB/m)
2. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin=Limit - Emission Level.
4. Other emission levels are attenuated 20dB below the limit and not recorded in report.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

Test channel:	Middle Channel	Polarization:	Vertical
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

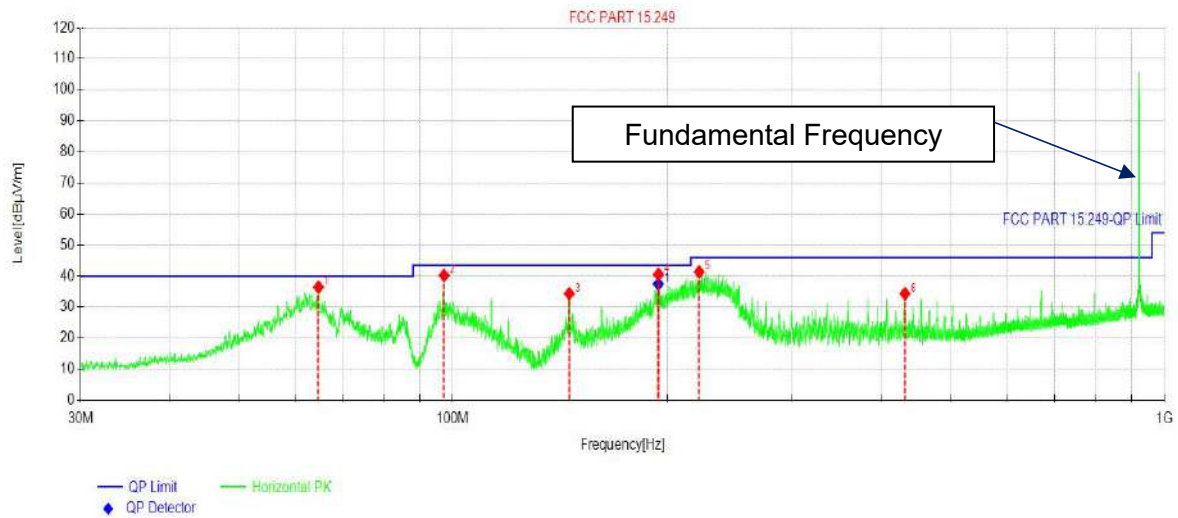
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	61.2356	49.21	-14.24	34.97	40.00	5.03	PK	Vertical
2	64.9217	50.11	-14.71	35.40	40.00	4.60	PK	Vertical
3	97.2244	45.61	-14.79	30.82	43.50	12.68	PK	Vertical
4	243.2652	41.50	-13.28	28.22	46.00	17.78	PK	Vertical
5	597.4784	39.93	-4.95	34.98	46.00	11.02	PK	Vertical
6	827.6224	38.24	-1.01	37.23	46.00	8.77	PK	Vertical

Test channel:	Middle Channel	Polarization:	Horizontal
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	64.7762	51.12	-14.67	36.45	40.00	3.55	PK	Horizontal
2	97.2729	54.99	-14.78	40.21	43.50	3.29	PK	Horizontal
3	145.8238	52.09	-17.75	34.34	43.50	9.16	PK	Horizontal
4	194.6172	55.46	-14.93	40.53	43.50	2.97	PK	Horizontal
5	222.0211	55.62	-14.27	41.35	46.00	4.65	PK	Horizontal
6	432.0366	43.14	-8.82	34.32	46.00	11.68	PK	Horizontal

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Angle [°]	Verdict
1	194.4657	52.42	-14.93	37.49	43.50	6.01	129.6	PASS

GFSK (above 1GHz)

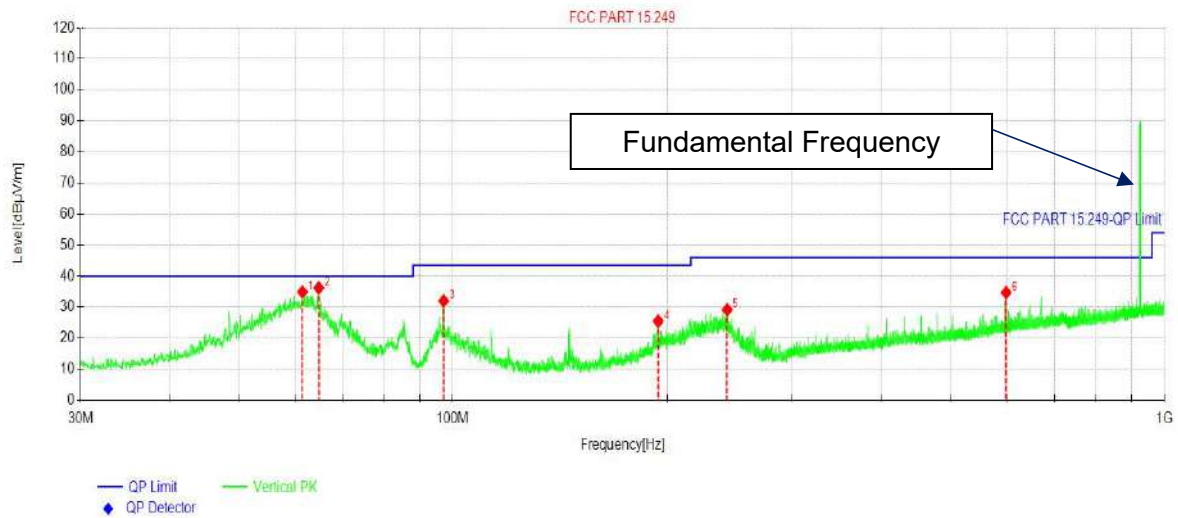
Test channel:		Middle Channel		Polarity:	Vertical	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1845.00	64.12	-22.30	41.82	74.00	32.18	PEAK
1845.00	51.88	-22.30	29.58	54.00	24.42	AVG

Test channel:		Middle Channel		Polarity:	Horizontal	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1845.00	55.64	-22.30	33.34	74.00	40.66	PEAK
1845.00	46.26	-22.30	23.96	54.00	30.04	AVG

REMARKS:

1. Emission level (dBuV/m) = Reading (dBuV)+ Factor (dB/m)
2. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin=Limit - Emission Level.
4. Other emission levels are attenuated 20dB below the limit and not recorded in report.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

Test channel:	Highest Channel	Polarization:	Vertical
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

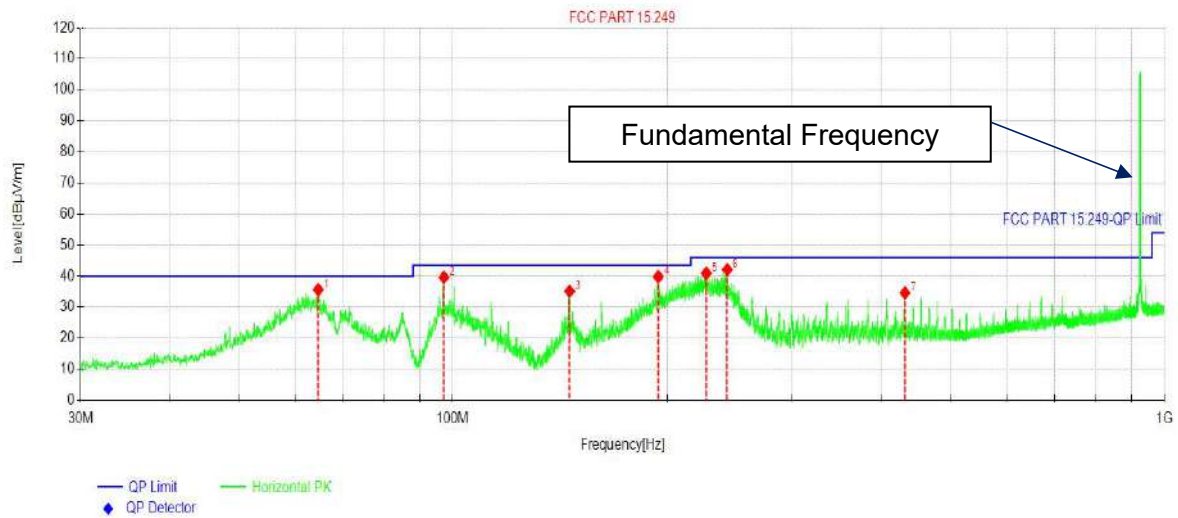
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	61.5266	49.19	-14.30	34.89	40.00	5.11	PK	Vertical
2	64.8247	50.90	-14.69	36.21	40.00	3.79	PK	Vertical
3	97.1274	46.84	-14.81	32.03	43.50	11.47	PK	Vertical
4	194.4232	40.40	-14.92	25.48	43.50	18.02	PK	Vertical
5	243.0712	42.48	-13.28	29.20	46.00	16.80	PK	Vertical
6	599.3215	39.62	-4.94	34.68	46.00	11.32	PK	Vertical

Test channel:	Highest Channel	Polarization:	Horizontal
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

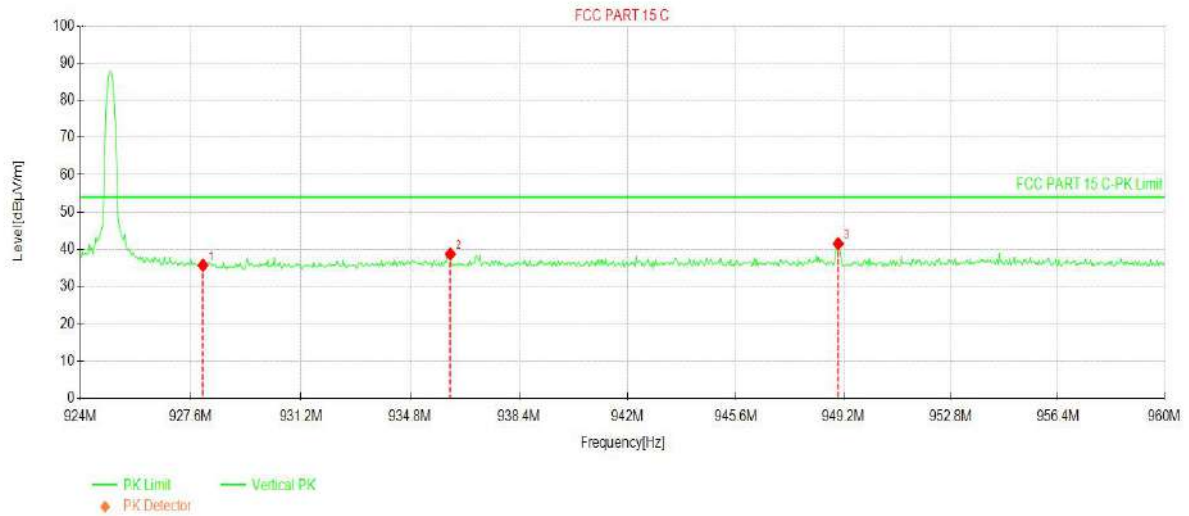
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	64.7277	50.30	-14.66	35.64	40.00	4.36	PK	Horizontal
2	97.2244	54.42	-14.79	39.63	43.50	3.87	PK	Horizontal
3	145.9693	52.86	-17.73	35.13	43.50	8.37	PK	Horizontal
4	194.4717	54.74	-14.92	39.82	43.50	3.68	PK	Horizontal
5	227.1624	54.97	-14.05	40.92	46.00	5.08	PK	Horizontal
6	243.0712	55.34	-13.28	42.06	46.00	3.94	PK	Horizontal
7	431.9881	43.42	-8.82	34.60	46.00	11.40	PK	Horizontal

Test channel:	Highest Channel	Polarization:	Vertical
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

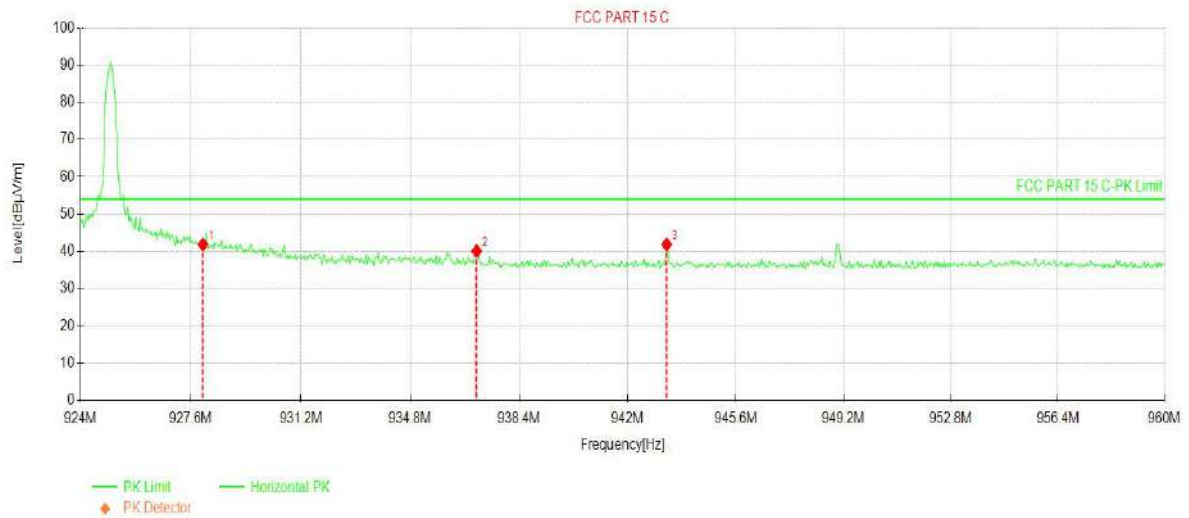
Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	928.0000	35.36	35.69	0.33	54.00	18.31	PK	Vertical
2	936.1320	37.94	38.72	0.78	54.00	15.28	PK	Vertical
3	949.0200	40.76	41.51	0.75	54.00	12.49	PK	Vertical

Test channel:	Highest Channel	Polarization:	Horizontal
Test voltage:	AC 120 V/60 Hz		



Remark:

Emission Level = Reading + Factor;

Factor = Antenna Factor + Cable Loss – Pre-amplifier;

Margin=Limit - Emission Level.

Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	928.0000	41.51	41.84	0.33	54.00	12.16	PK	Horizontal
2	936.9960	39.33	40.07	0.74	54.00	13.93	PK	Horizontal
3	943.2960	41.07	41.84	0.77	54.00	12.16	PK	Horizontal

GFSK (above 1GHz)

Test channel:		Highest Channel		Polarity:	Vertical	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1850.00	63.59	-22.25	41.34	74.00	32.66	PEAK
1850.00	52.35	-22.25	30.10	54.00	23.90	AVG

Test channel:		Highest Channel		Polarity:	Horizontal	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1850.00	57.64	-22.25	35.39	74.00	38.61	PEAK
1850.00	48.87	-22.25	26.62	54.00	27.38	AVG

REMARKS:

1. Emission level (dBuV/m) = Reading (dBuV)+ Factor (dB/m)
2. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin=Limit - Emission Level.
4. Other emission levels are attenuated 20dB below the limit and not recorded in report.

RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

3.3 20dB Bandwidth

Limit

N/A

Test Procedure

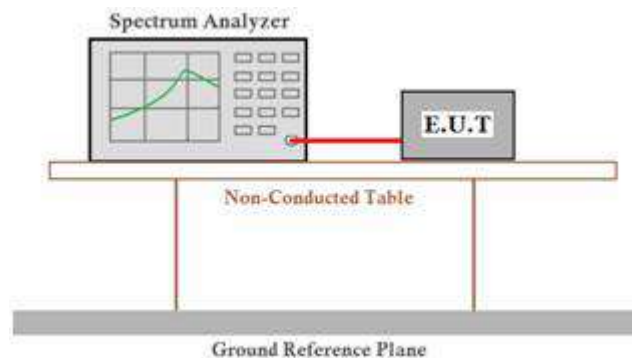
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Spectrum Analyzer. Place the EUT on the table and set it in transmitting mode.

Use the following spectrum analyzer settings:

- 1) Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel.
- 2) RBW $\geq 1\%$ of the 20 dB bandwidth, VBW $\geq$ RBW.
- 3) Detector function = peak.
- 4) Trace = max hold.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Test Configuration



Test Results

Test channel	Test Frequency (MHz)	20dB bandwidth (KHz)	Result
Lowest channel	920.0	3.644	Pass
Middle channel	922.5	2.644	Pass
Highest channel	925.0	2.669	Pass

Test plot as follows:

Lowest channel



Middle channel



Highest channel



3.4 Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

Test Result

The maximum gain of antenna was 2.0dBi with impedance 50Ω.

4 Test Setup Photographs of EUT





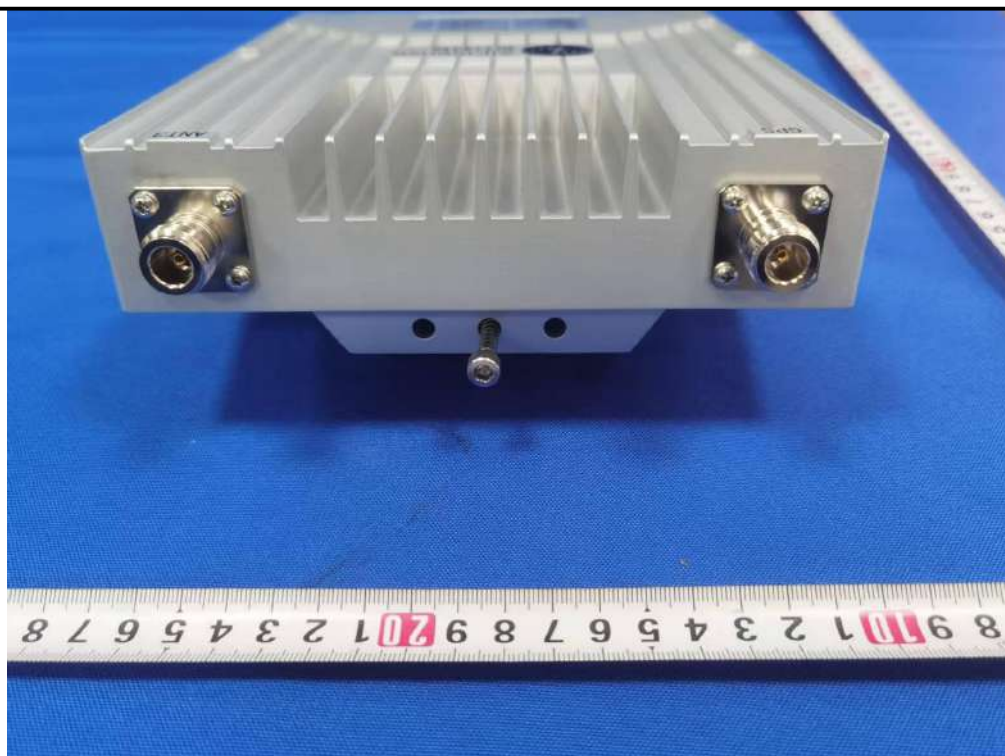
5 Photos of EUT

External Photos





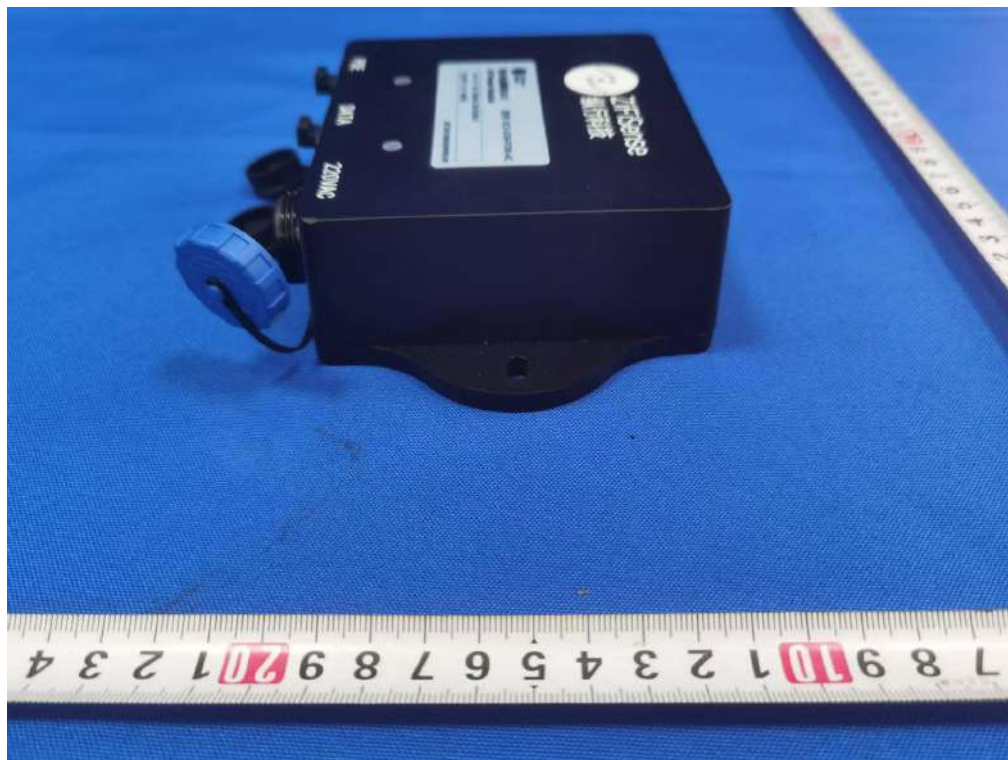


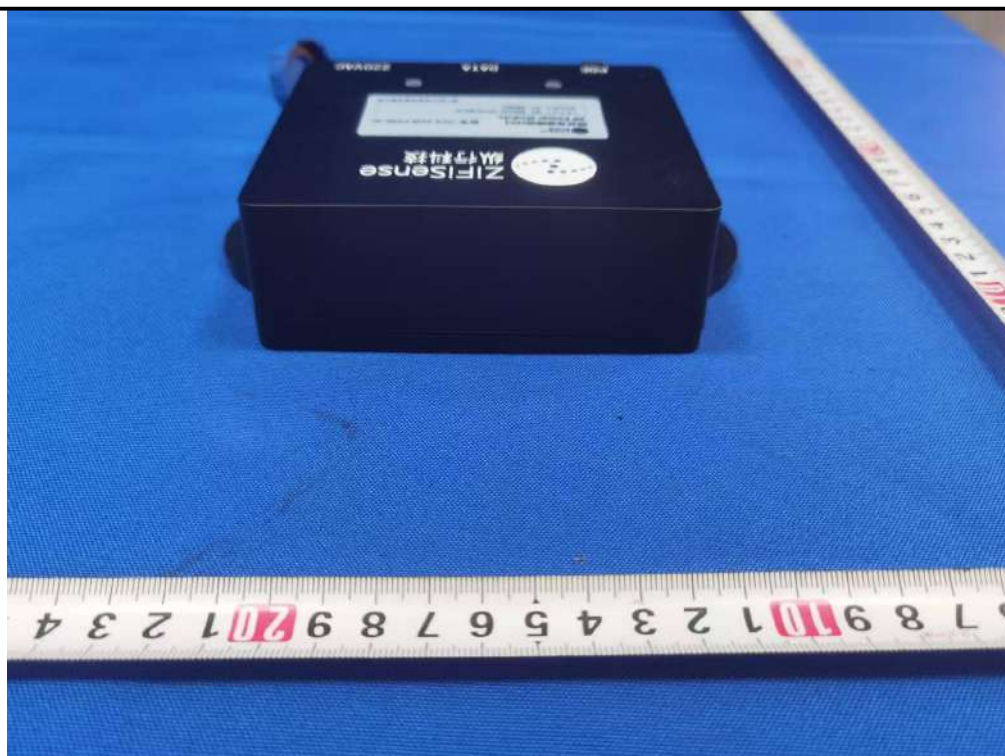




Power supply

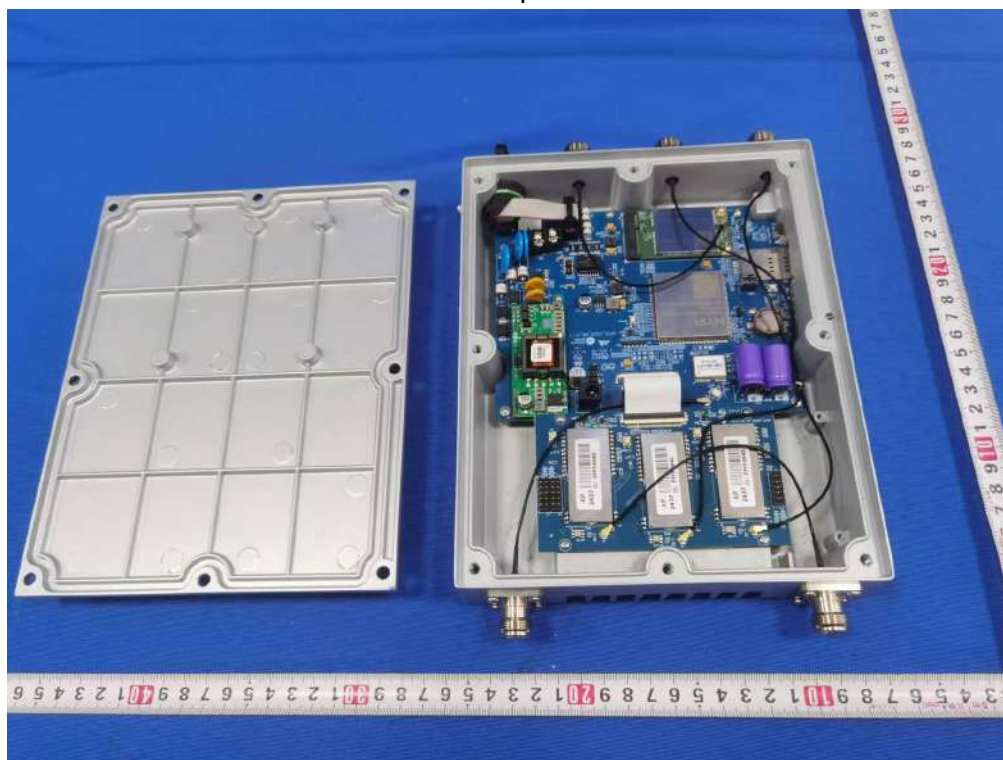


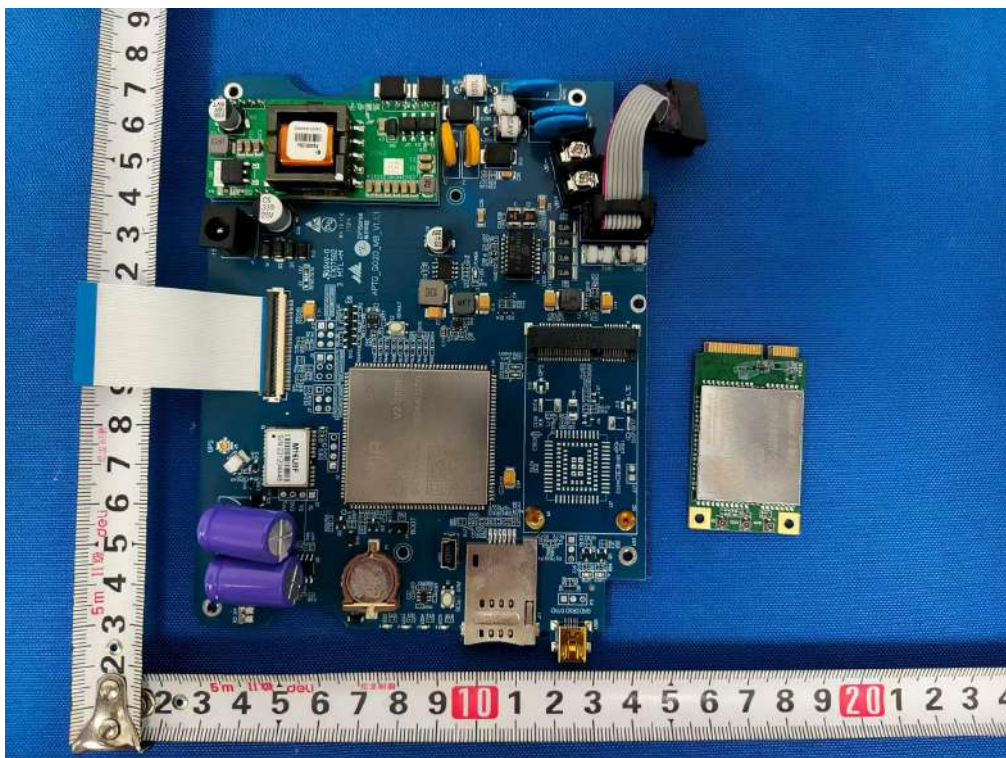
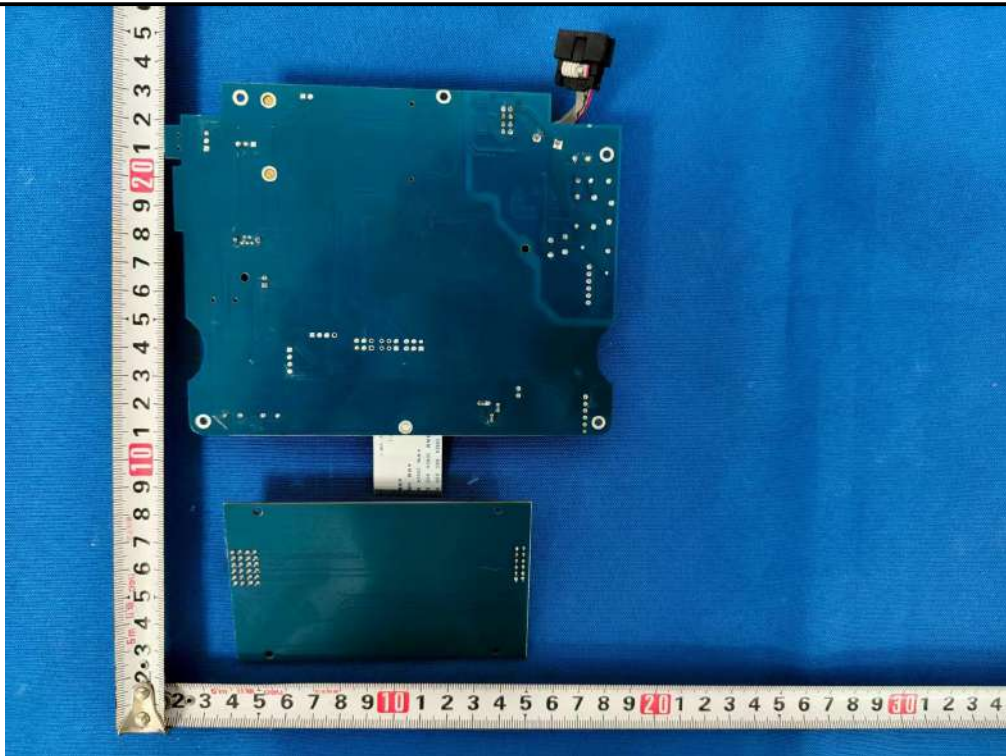


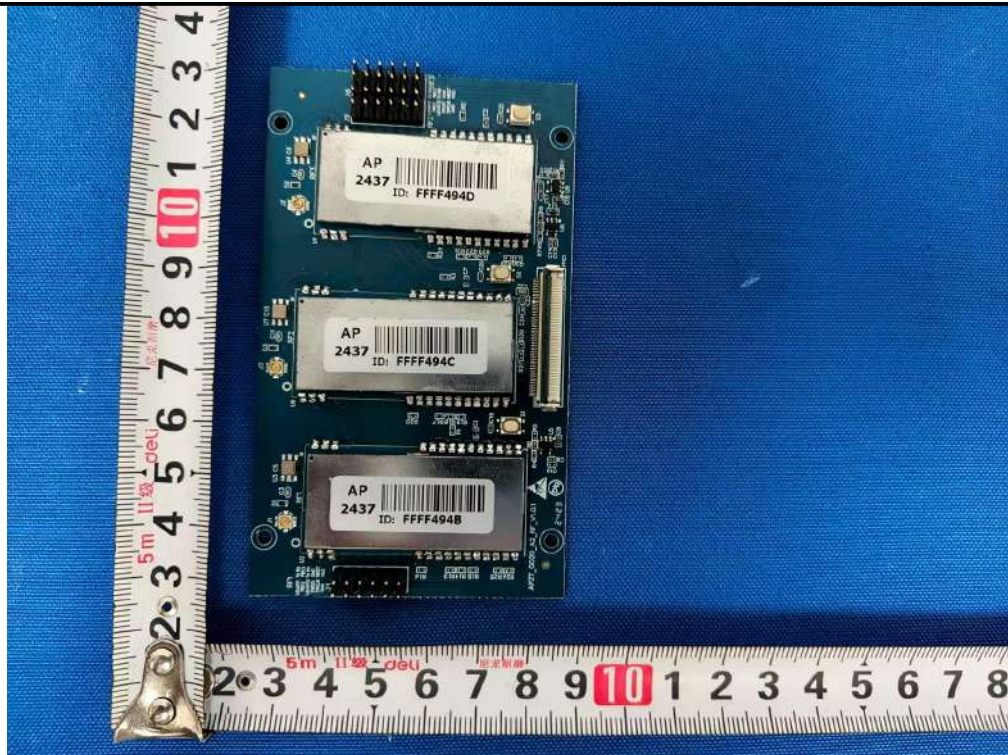


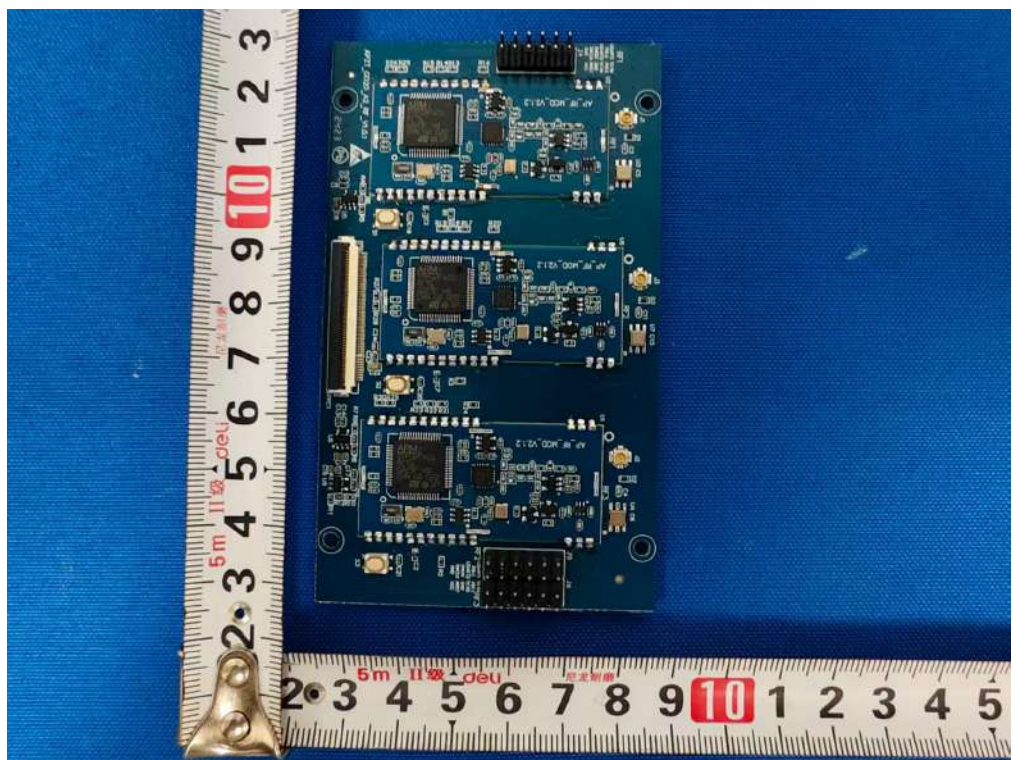
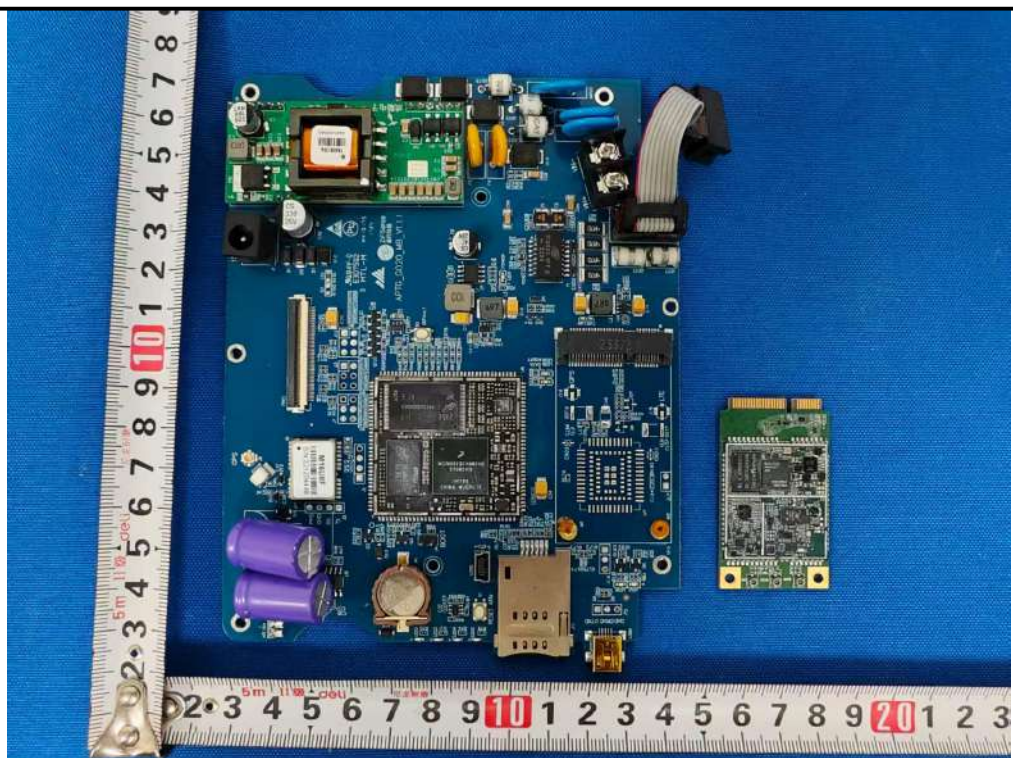


Internal photos

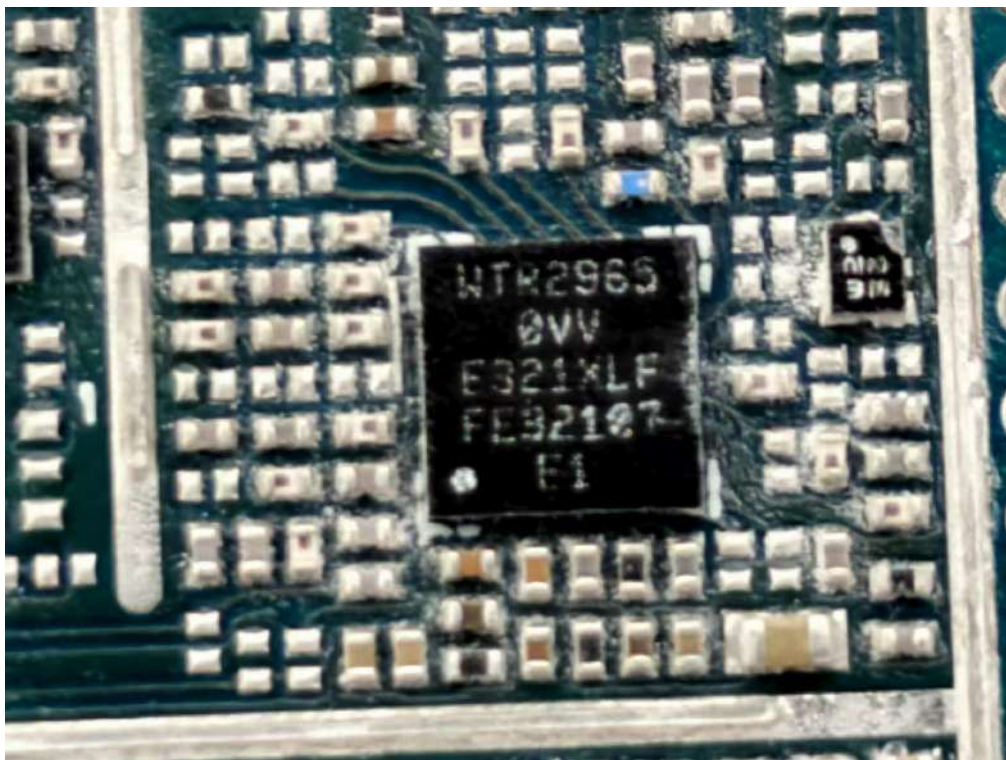


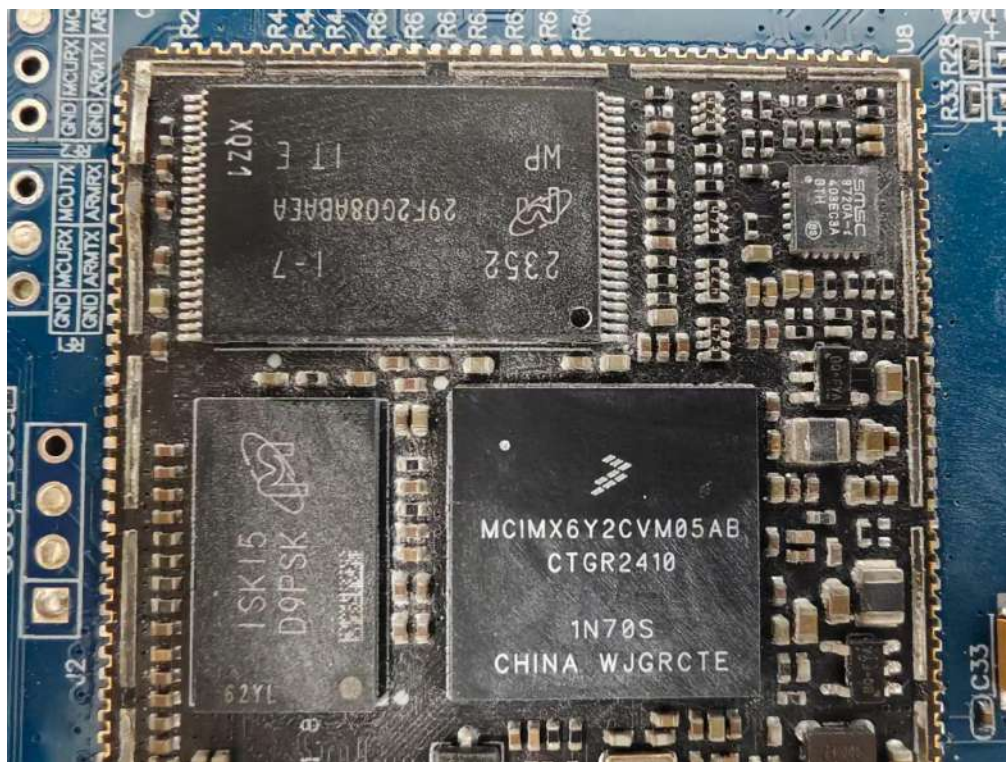
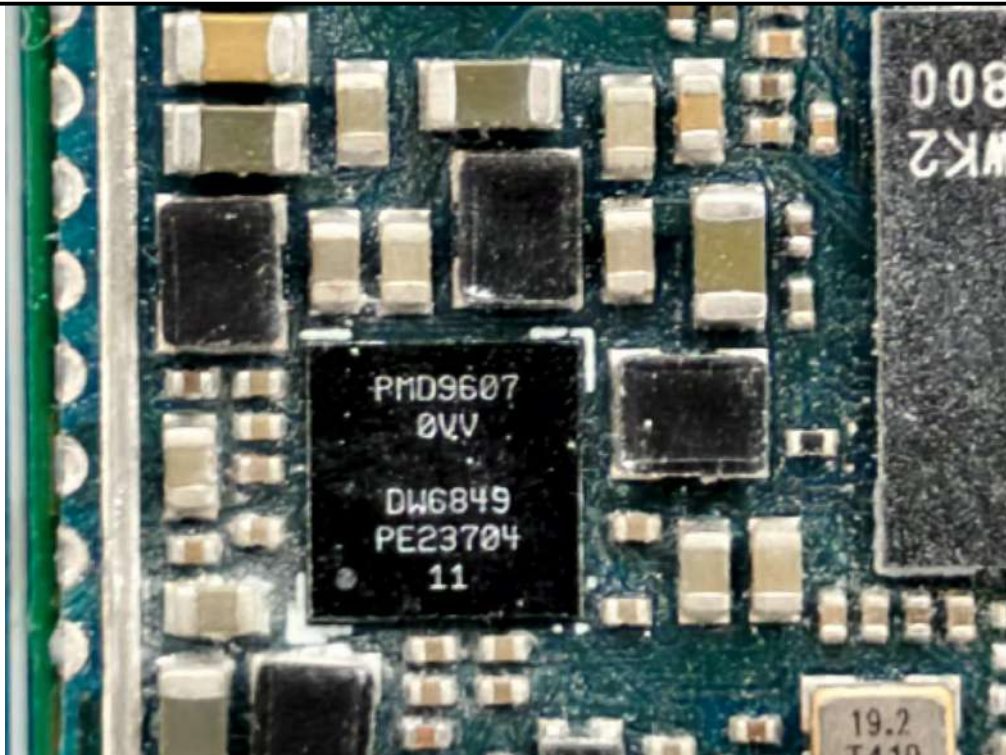


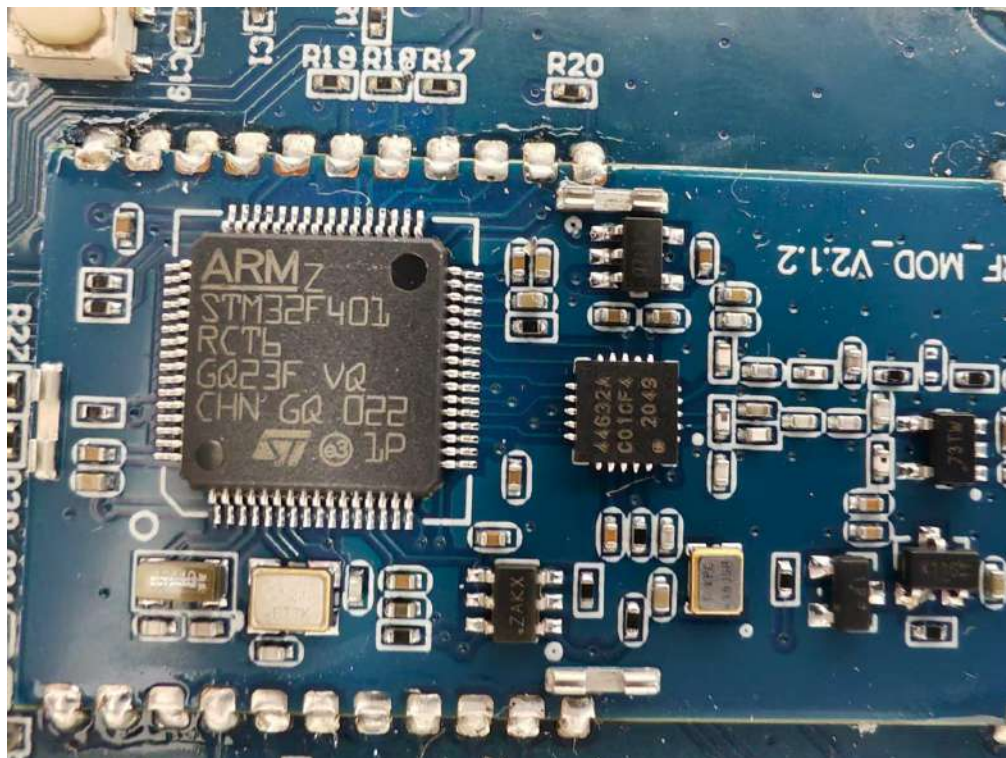
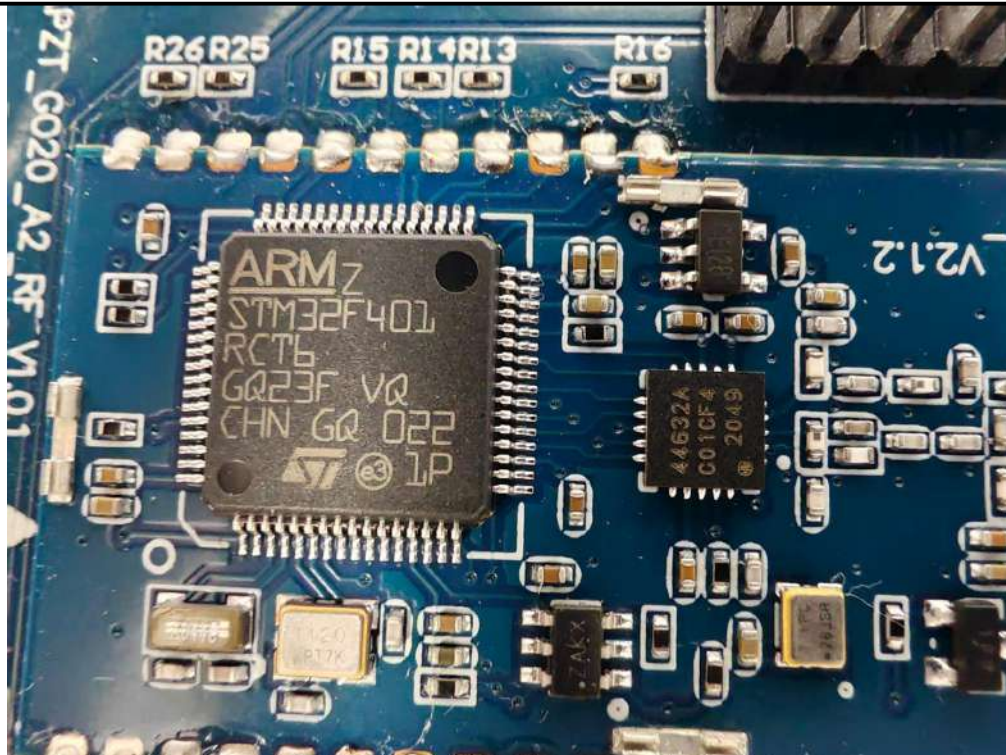


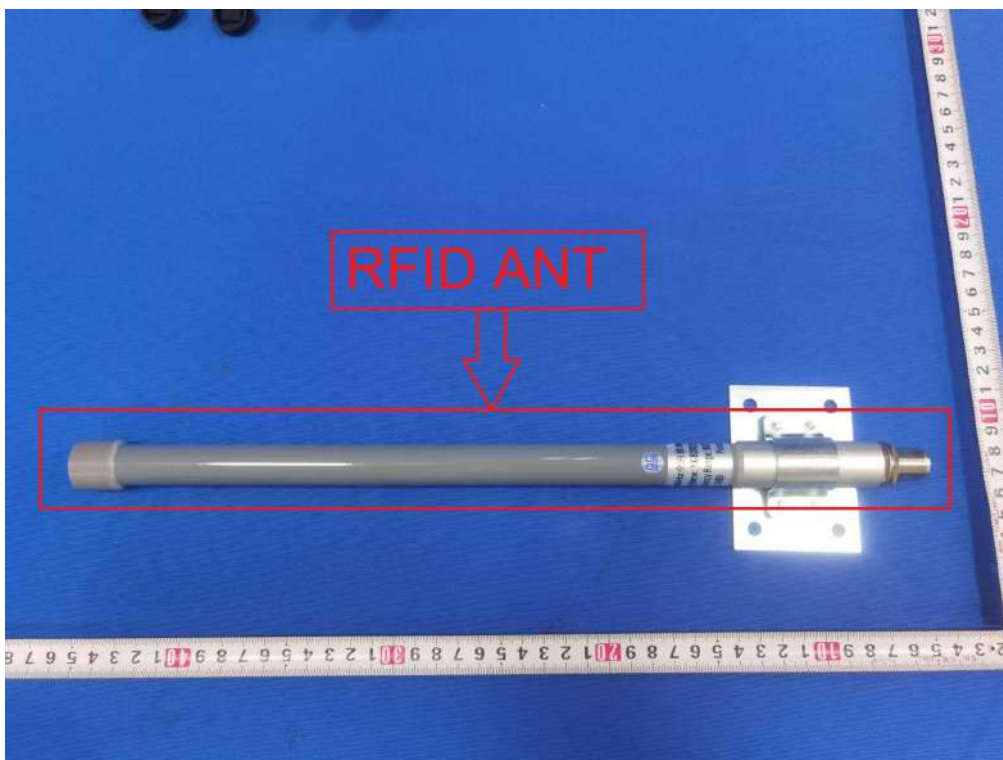
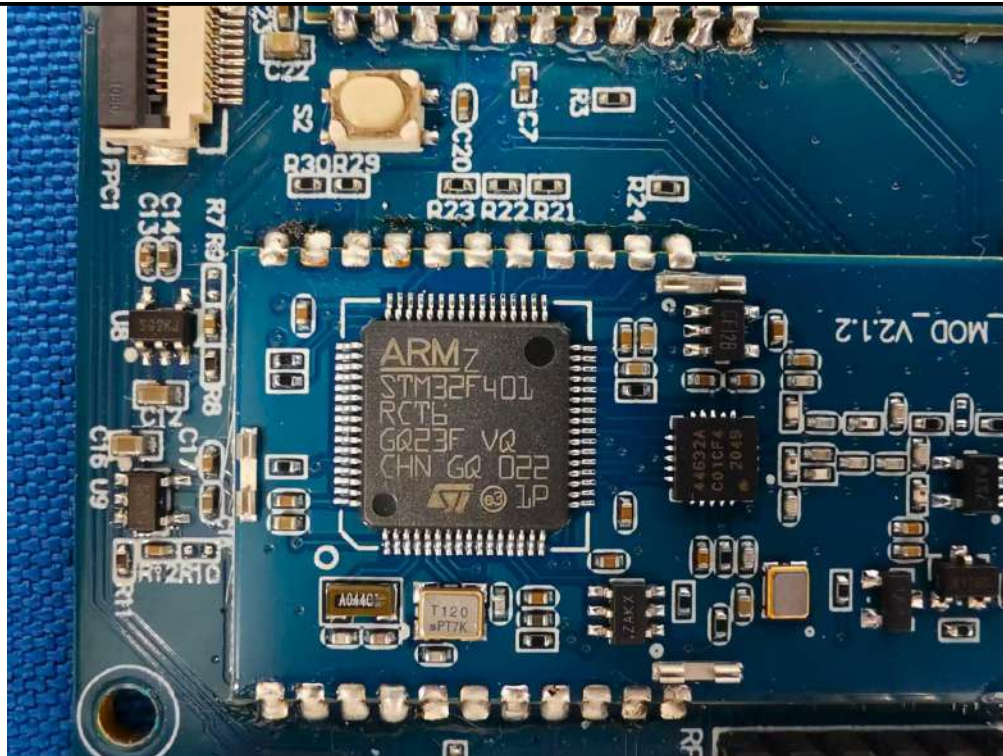




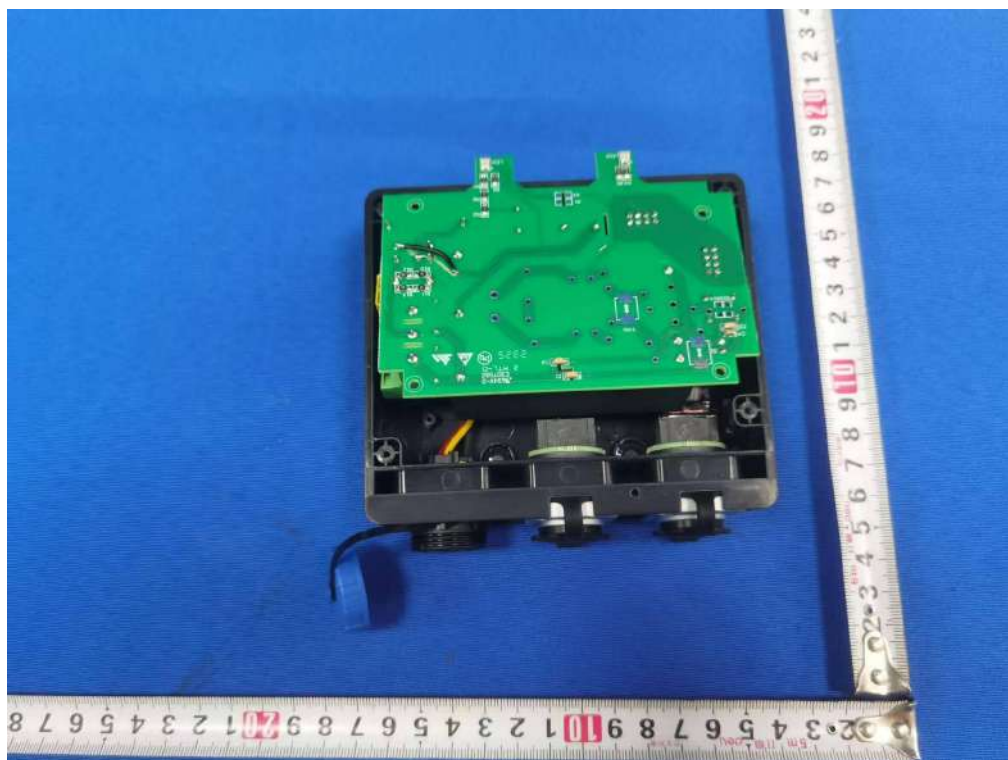
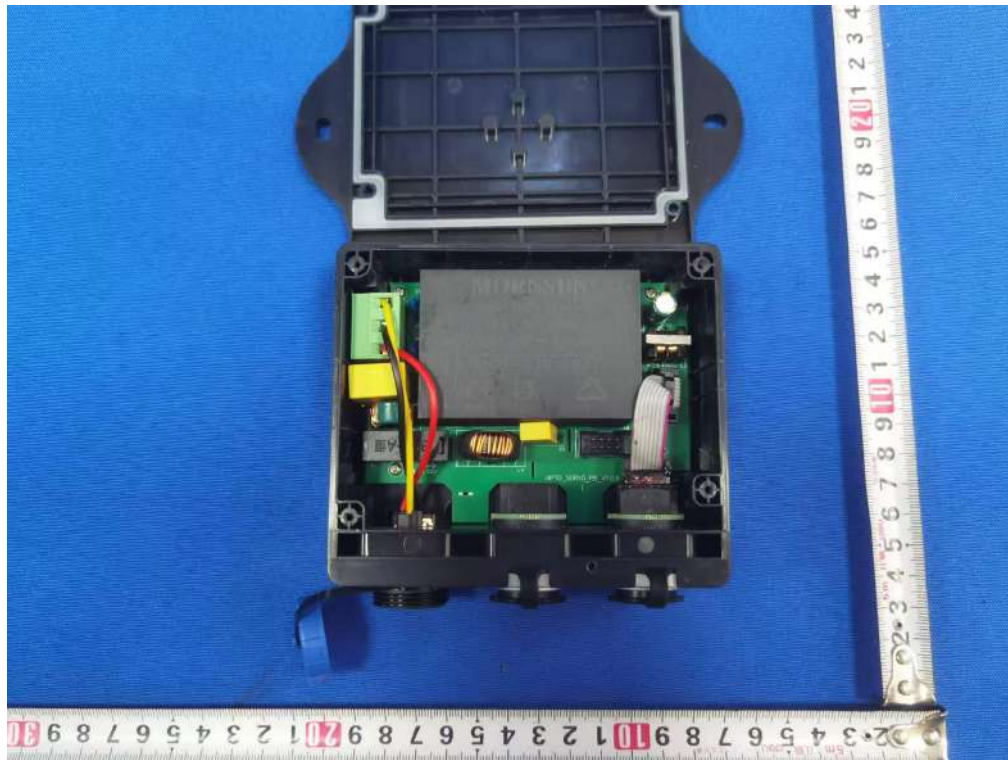








Power supply



***** End of Report *****