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# TEST REPORT

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Report No.: SRTC2021-9003(F)-0062  
Product Name: Fi Smart Collar 2  
Model Name: FC2B  
Applicant: Barking Labs Corp.  
Manufacturer: Barking Labs Corp.  
Specification: FCC Part15B (Certification 2021 edition)  
FCC ID: 2ARXN-FC2B

The State Radio\_monitoring\_center Testing Center (SRTC)  
15th Building, No.30 Shixing Street, Shijingshan District,  
Beijing, China

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## 1. General information

### 1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

### 1.2 Information about the testing laboratory

Company: The State Radio\_monitoring\_center Testing Center (SRTC)  
Address: 15th Building, No.30 Shixing Street, Shijingshan District  
Testing location: No.80, Zhaojiachang, BeizangCun, Daxing District, Beijing, China.  
City: Beijing  
Country or Region: China  
Contacted person: Liu Jia  
Tel: +86 10 57996183  
Fax: +86 10 57996388  
Email: liujiaf@srtc.org.cn

### 1.3 Applicant's details

Company: Barking Labs Corp.  
Address: 419 Lafayette St., Fl. 2  
City: New York, NY  
Country or Region: USA  
Contacted person: Bob Blake  
Tel: +1-914-249-9347  
Email: bob@tryfi.com

### 1.4 Manufacturer's details

Company: Barking Labs Corp.  
Address: 419 Lafayette St., Fl. 2  
City: New York, NY  
Country or Region: USA  
Contacted person: Bob Blake  
Tel: +1-914-249-9347  
Email: bob@tryfi.com

## 1.5 Application details

Date of reception of test sample: 26<sup>th</sup> October 2021

Date of test: 26<sup>th</sup> October 2021 to 12<sup>th</sup> November 2021

## 1.6 Reference specification

FCC Part 15B, 2021 (Certification)

## 1.7 Information of EUT

### 1.7.1 General information

|                            |                                                                                    |
|----------------------------|------------------------------------------------------------------------------------|
| Name of EUT                | Fi Smart Collar 2                                                                  |
| Model Name                 | FC2B                                                                               |
| FCC ID                     | 2ARXN-FC2B                                                                         |
| Frequency Range            | LTE cat-M: FDD 2/ FDD 4/ FDD 12<br>Bluetooth: 2.4~2.4835GHz<br>WiFi: 2.4~2.4835GHz |
| Equipment Class            | Class B                                                                            |
| Power Supply               | Charger/Battery                                                                    |
| Rated Power Supply Voltage | 3.85V                                                                              |
| Extreme Temperature        | Lowest:-20°C<br>Highest: 60°C                                                      |
| Extreme Voltage            | Minimum: 3.0V Maximum: 4.35V                                                       |
| HW Version                 | Rev.C                                                                              |
| SW Version                 | 1.0                                                                                |

### 1.7.2EUT details

| Product Name      | Model Name | IMEI |
|-------------------|------------|------|
| Fi Smart Collar 2 | FC2B       | /    |

### 1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Battery

|              |                                            |
|--------------|--------------------------------------------|
| Manufacturer | Jiade Energy<br>Technology(Zhuhai)Co.,Ltd. |
| Model Number | JKIT                                       |

AE (Auxiliary Equipment) 2#: Charger

|              |                                        |
|--------------|----------------------------------------|
| Manufacturer | JIANGSU CHENYANG ELECTRON<br>CO., LTD. |
| Model Number | CA05-050100U                           |

## 2. Test information

### 2.1 Summary of the test results

| No. | Test case           | FCC reference | Verdict |
|-----|---------------------|---------------|---------|
| 1   | Conducted emissions | 15.107        | Pass    |
| 2   | Radiated emissions  | 15.109        | Pass    |

|                                                                       |                                                                          |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------|
| Approved By: Mr. Liu Wei<br>Director of the test department<br><br>刘巍 | Checked By: Mr. Guo Yu<br>Vice director of the test department<br><br>郭雨 |
| Tested By:<br>Mr. Wu Chengwang<br><br>吴成旺                             | Issued date:<br><br>2021.11.12                                           |

## 2.2 Test result

### 2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 22.1℃       | 40.6%             | 100.8kPa |

Test Setup with charger:

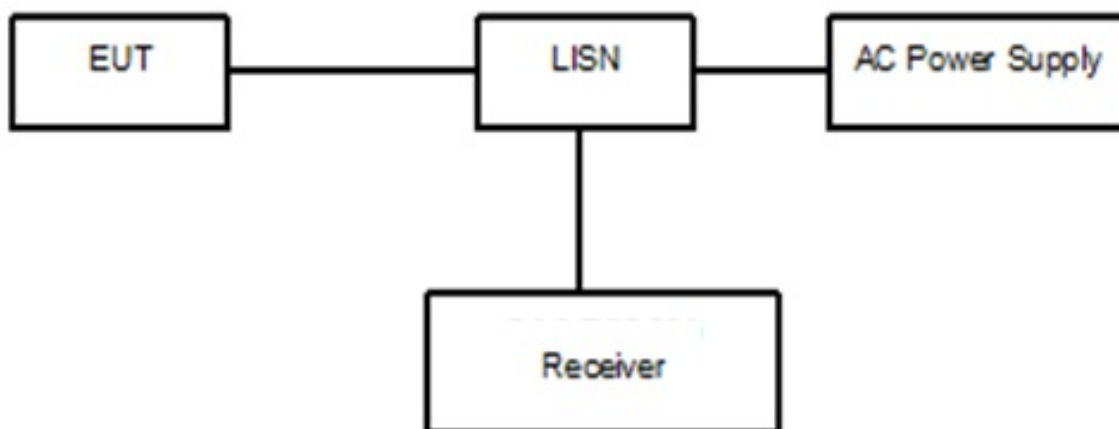


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT is connected with LISN via the charger. The LISN is connected to the reference ground. The EUT was working at charging mode and Receiver mode.

The test set-up and the test methods are performed according to ANSI C63.4:2014. Then start the test software EMC32. Sweep the whole frequency band through the range from 150 KHz to 30 MHz with RBW 9kHz, VBW 30kHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.

The data of cable loss has been calibrated in full testing frequency range before the testing.

A “reference path loss” Corr.(dB) is established and the  $L_{\text{cable}} + \text{ATT} + \text{VDF}$  is the attenuation of “reference path loss”, and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.

The measurement results are obtained as described below:

$$P_{\text{result}} = P_{\text{mea}} + \text{Corr. (dB)}$$

Sample calculation:  $(58.35 \text{ dB}\mu\text{V}) = (28.55 \text{ dB}\mu\text{V}) + (29.8 \text{ dB})$ , the corresponding frequency is 0.150000MHz.

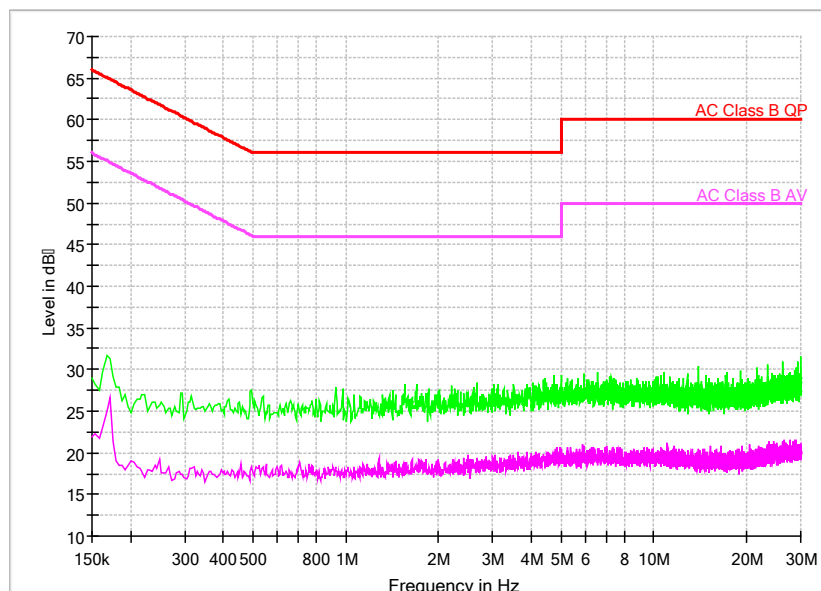
Limit:

| Frequency of Emission(MHz) | Limits(dB $\mu$ V) |           |
|----------------------------|--------------------|-----------|
|                            | Quasi-peak         | Average   |
| 0.15~0.5                   | 66 to 56*          | 56 to 46* |
| 0.5~5                      | 56                 | 46        |
| 5~30                       | 60                 | 50        |

Note: \* Decreases with the logarithm of the frequency

Test result:

Noise Level of the Measuring Instrument

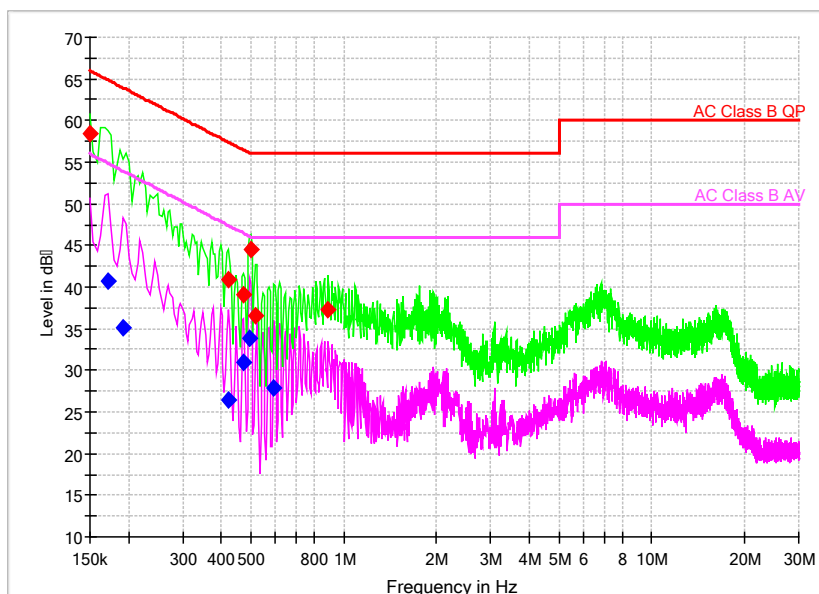


Comment

Pic1. Conducted emission L and N Line



EUT+#Charger:

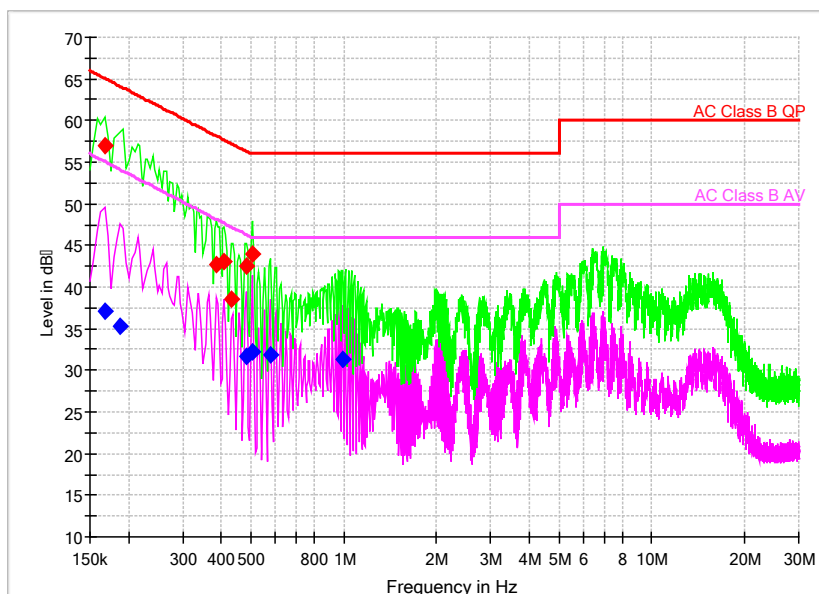


Comment

Pic2. Conducted emission L&N Line Voltage:120V

| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | Pmea QuasiPeak (dBμV) | Pmea Average (dBμV) |
|-----------------|------------------|----------------|--------------|-------------|------|------------|-----------------------|---------------------|
| 0.150000        | 58.35            | ---            | 66.00        | 7.65        | N    | 29.8       | 28.55                 | ---                 |
| 0.171321        | ---              | 40.66          | 54.90        | 14.23       | N    | 29.8       | ---                   | 10.86               |
| 0.192643        | ---              | 35.05          | 53.92        | 18.87       | L1   | 29.7       | ---                   | 5.35                |
| 0.422914        | ---              | 26.43          | 47.39        | 20.97       | L1   | 29.7       | ---                   | -3.27               |
| 0.422914        | 40.87            | ---            | 57.39        | 16.52       | N    | 29.8       | 11.07                 | ---                 |
| 0.474086        | 39.07            | ---            | 56.44        | 17.37       | N    | 29.8       | 9.27                  | ---                 |
| 0.474086        | ---              | 31.03          | 46.44        | 15.41       | L1   | 29.7       | ---                   | 1.33                |
| 0.495407        | ---              | 33.86          | 46.08        | 12.22       | L1   | 29.7       | ---                   | 4.16                |
| 0.499671        | 44.59            | ---            | 56.01        | 11.41       | N    | 29.8       | 14.79                 | ---                 |
| 0.516729        | 36.52            | ---            | 56.00        | 19.48       | N    | 29.8       | 6.72                  | ---                 |
| 0.593486        | ---              | 27.85          | 46.00        | 18.15       | L1   | 29.7       | ---                   | -1.85               |
| 0.891986        | 37.22            | ---            | 56.00        | 18.78       | L1   | 29.7       | 7.52                  | ---                 |

EUT+#Charger:



Comment

Pic3. Conducted emission L&N Line Voltage:220V

| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | Pmea QuasiPeak (dBμV) | Pmea Average (dBμV) |
|-----------------|------------------|----------------|--------------|-------------|------|------------|-----------------------|---------------------|
| 0.167057        | ---              | 37.08          | 55.11        | 18.03       | N    | 29.8       | ---                   | 7.28                |
| 0.167057        | 57.05            | ---            | 65.11        | 8.06        | L1   | 29.7       | 27.35                 | ---                 |
| 0.188379        | ---              | 35.34          | 54.11        | 18.77       | N    | 29.8       | ---                   | 5.54                |
| 0.384536        | 42.68            | ---            | 58.18        | 15.50       | L1   | 29.7       | 12.98                 | ---                 |
| 0.410121        | 43.06            | ---            | 57.65        | 14.58       | N    | 29.8       | 13.26                 | ---                 |
| 0.431443        | 38.63            | ---            | 57.23        | 18.59       | N    | 29.8       | 8.83                  | ---                 |
| 0.482614        | 42.50            | ---            | 56.29        | 13.79       | L1   | 29.7       | 12.8                  | ---                 |
| 0.482614        | ---              | 31.63          | 46.29        | 14.67       | L1   | 29.7       | ---                   | 1.93                |
| 0.503936        | 43.93            | ---            | 56.00        | 12.07       | L1   | 29.7       | 14.23                 | ---                 |
| 0.503936        | ---              | 32.14          | 46.00        | 13.86       | L1   | 29.7       | ---                   | 2.44                |
| 0.576429        | ---              | 31.78          | 46.00        | 14.22       | L1   | 29.7       | ---                   | 2.08                |
| 0.990064        | ---              | 31.33          | 46.00        | 14.67       | N    | 29.8       | ---                   | 1.53                |

## 2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 22.2°C      | 40.3%             | 100.8kPa |

Test Setup:

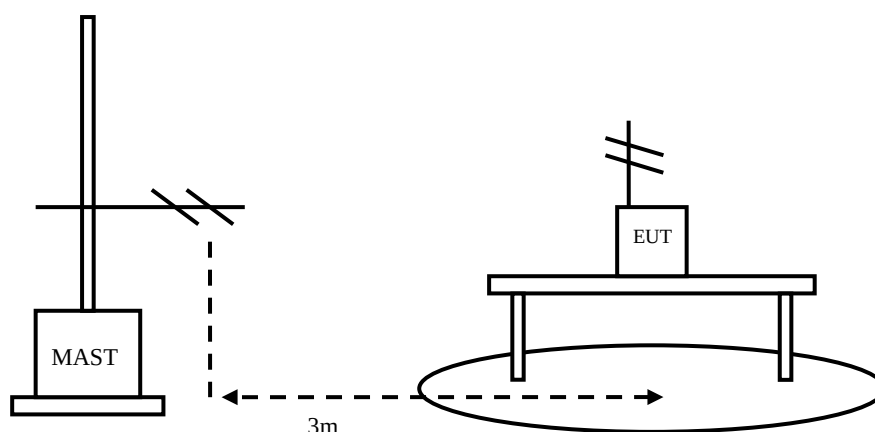


Figure 2

Test Procedure:

EUT+Charger:

The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.

The EUT should work in charging mode. The EUT is connected with the charger. The test set-up and the test methods are performed according to ANSI C63.4:2014. Then start the test software EMC32. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna VULB 9163.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow:  
1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.

The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing. All test results are performed with max hold at the horizontal and vertical polarity.

RBW=120kHz, VBW=300kHz, when the test frequency: 30MHz<f<1GHz

RBW=1MHz, VBW=3MHz, when the test frequency: f>1GHz

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{mea}} + A_{Rpl}$$

Limit:

| Frequency of Emission(MHz)                                              | Limits     |                     |
|-------------------------------------------------------------------------|------------|---------------------|
|                                                                         | Detector   | Unit (dB $\mu$ V/m) |
| 30~88                                                                   | Quasi-peak | 40                  |
| 88~216                                                                  | Quasi-peak | 43.5                |
| 216~960                                                                 | Quasi-peak | 46                  |
| 960~1000                                                                | Quasi-peak | 54                  |
| 1000~5th harmonic of the highest frequency or 40GHz, whichever is lower | Average    | 54                  |
|                                                                         | Peak       | 74                  |

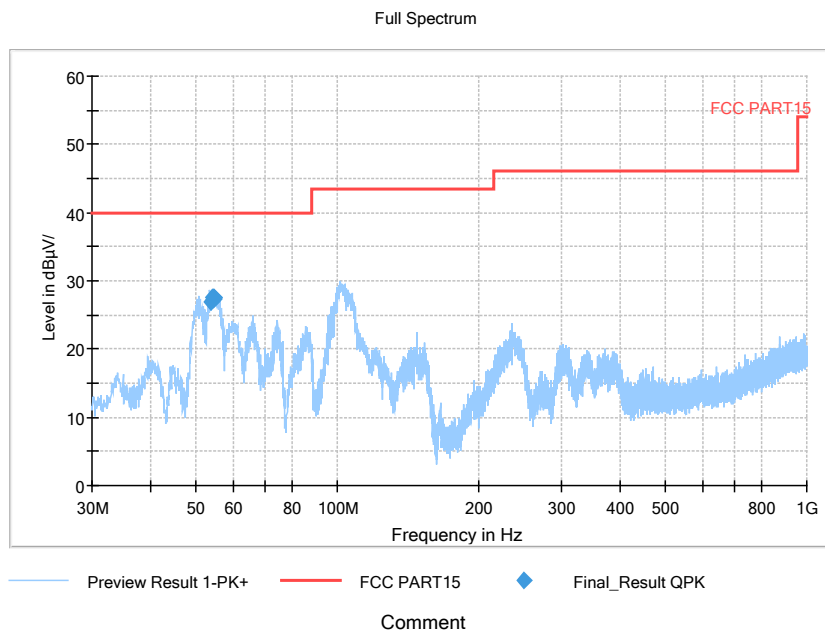
Test result:

Sample calculation: (26.83 dB  $\mu$  V/m) = (44.83 dB  $\mu$  V) + (-18.0 dB/m), the corresponding frequency is 53.822500MHz.

EUT+Charger:

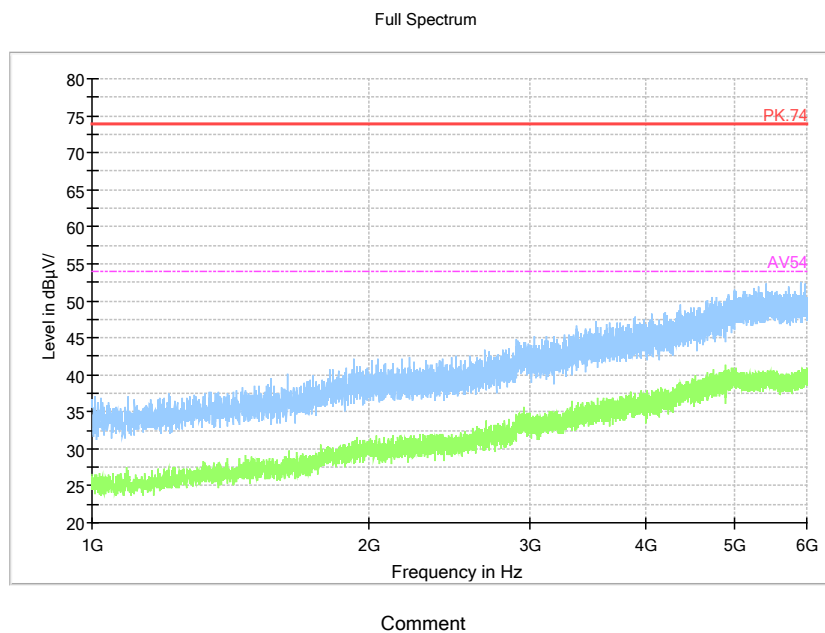
| Frequency(MHz) | Result( dB $\mu$ V/m ) | Limit (dB $\mu$ V/m) | ARpl (dB/m) | Pmea ( dB $\mu$ V) | Polarity |
|----------------|------------------------|----------------------|-------------|--------------------|----------|
| 53.822500      | 26.83                  | 40.00                | -18.0       | 44.83              | V        |
| 54.259000      | 27.09                  | 40.00                | -18.1       | 45.19              | V        |
| 54.344000      | 27.66                  | 40.00                | -18.1       | 45.76              | V        |
| 54.466500      | 27.50                  | 40.00                | -18.1       | 45.60              | V        |
| 54.550000      | 27.41                  | 40.00                | -18.1       | 45.51              | V        |
| 54.569500      | 27.46                  | 40.00                | -18.1       | 45.56              | V        |

EUT+#Charger: refer to Pic4, Pic5, Pic6



Pic4. Radiated emission(30MHz – 1GHz)

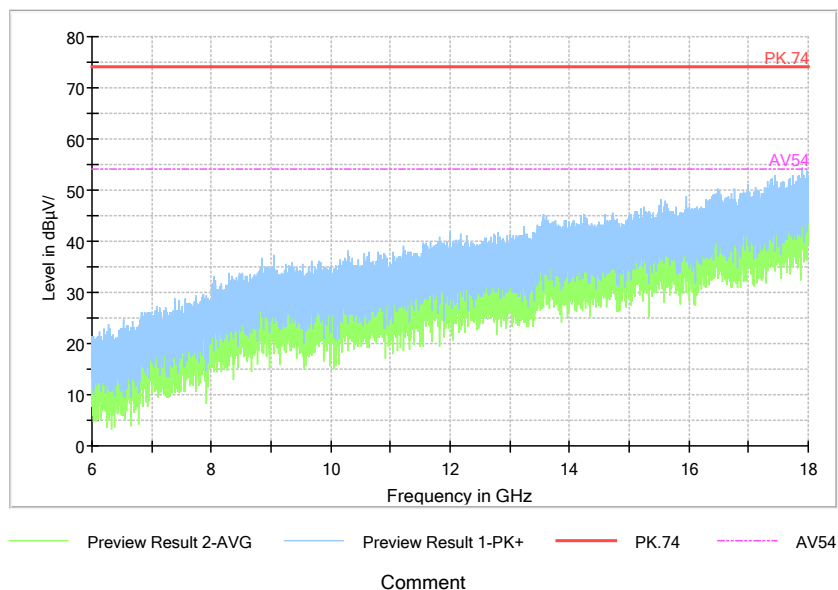
Note: The test data in the graph includes two polarizations: horizontal and vertical



Pic5. Radiated emission (1GHz –6GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

Full Spectrum



Comment

Pic6. Radiated emission (6GHz –18GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical.

## 2.3. List of test equipments

| No. | Name/Model                                     | Manufacturer | S/N              | Calibration Due Date | Calibration Date |
|-----|------------------------------------------------|--------------|------------------|----------------------|------------------|
| 1   | 23.18m×16.88m×9.60mS<br>emi-AnechoicChamber    | FRANKONIA    | -----            | 2023.09.05           | 2018.09.06       |
| 2   | ESW EMI test receiver                          | R&S          | 101574           | 2022.06.19           | 2021.06.20       |
| 3   | ESR3 EMI test receiver                         | R&S          | 102361           | 2022.04.11           | 2021.04.12       |
| 4   | 9.080m×5.255m×3.525m<br>Shielding room         | FRANKONIA    | -----            | 2023.09.05           | 2018.09.06       |
| 5   | VULB 9163 Ultra log test<br>antenna            | schwarzbeck  | 867              | 2023.05.28           | 2021.05.29       |
| 6   | HF 907 Double-Ridged<br>Waveguide Horn Antenna | R&S          | 100512           | 2023.05.12           | 2021.05.13       |
| 7   | SAS-574 Horn Antenna                           | schwarzbeck  | 535              | 2023.06.19           | 2021.06.20       |
| 8   | ENV216 AMN                                     | R&S          | 3560.6550.<br>12 | 2022.06.19           | 2021.06.20       |
| 9   | EMC32EMI test software                         | R&S          | -----            | -----                | -----            |

-----The End-----