

Qingdao Richmat Intelligence Technology Inc

FCC Class II Permissive Change Report

Report Type:
FCC Part 15.247 RF report

MODEL:
HJ8258

REPORT NUMBER:
2503B0465SHA-001

ISSUE DATE:
April 17, 2025

DOCUMENT CONTROL NUMBER:
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TEST REPORT

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Report no.: 2503B0465SHA-001

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Manufacturer: Qingdao Richmat Intelligence Technology Inc
NO.78 Kongquehe 4th Road, Qingdao Clothing Industry park, Jimo,
Qingdao, Shandong Province, China.

FCC ID: 2AJJGHJ8258

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 15 (2023): Radio Frequency Devices (Subpart C)

ANSI C63.10 (2020): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

PREPARED BY:

Project Engineer
Scout Gong

REVIEWED BY:

Reviewer
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TEST REPORT**Revision History**

| Report No. | Version | Description | Issued Date |
|------------------|---------|-------------------------|----------------|
| 2503B0465SHA-001 | Rev. 01 | Initial issue of report | April 17, 2025 |

TEST REPORT**Measurement Result Summary**

| TEST ITEM | FCC REFERENCE | RESULT |
|--|-----------------------------|--------|
| Radiated Emissions in restricted frequency bands | 15.247(d), 15.205&15.209 | Pass |

Notes: 1: NA =Not Applicable

2: Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

3: Additions, Deviations and Exclusions from Standards: None.

TEST REPORT**1 GENERAL INFORMATION****1.1 Description of Equipment Under Test (EUT)**

| | |
|-----------------------|---|
| Product name: | Module |
| Type/Model: | HJ8258 |
| Description of EUT | The report is C2PC report, the following host model (BLE remote control) was added. Therefore, the host model was tested. |
| Host models: | HJSR69G Ble |
| Rating: | Module: DC 3.3V |
| EUT type: | <input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing |
| Software Version: | / |
| Hardware Version: | / |
| Sample No.: | A250330-22-001 |
| Sample received date: | March 30, 2025 |
| Date of test: | March 30, 2025, to April 17, 2025 |

1.2 Technical Specification

| | |
|----------------------|--|
| Frequency Range: | 2402-2480MHz |
| Support Standards: | Bluetooth LE |
| Type of Modulation: | GFSK |
| Channel Number: | 40 |
| Data Rate: | 1Mbps |
| Channel Separation: | 2MHz |
| Antenna Information: | 3dBi, PCB antenna (declared by the manufacturer) |

TEST REPORT**1.3 Description of Test Facility**

| | |
|------------|---|
| Name: | Intertek Testing Services (Shanghai FTZ) Co., Ltd. |
| Address: | Building 86, No. 1198 Qinzhou Road (North), Shanghai 200233, P.R. China |
| Telephone: | 86 21 61278200 |
| Telefax: | 86 21 54262353 |

| | |
|---|---|
| The test facility is recognized, certified, or accredited by these organizations: | CNAS Accreditation Lab Registration No. CNAS L21189 |
| | FCC Accredited Lab Designation Number: CN0175 |
| | IC Registration Lab CAB identifier.: CN0014 |
| | VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252 |
| | A2LA Accreditation Lab Certificate Number: 3309.02 |

TEST REPORT

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2023)

ANSI C63.10 (2020)

KDB 558074(v05)

2.2 Mode of operation during the test

While testing transmitting mode of EUT, the internal modulation and continuously transmission was applied.

Radiated test mode: EUT transmitted signal with BT antenna.

The lowest, middle and highest channel were tested as representatives.

| Frequency Band (MHz) | | | | 2402 ~ 2480 | | | |
|----------------------|-----------------|---------|-----------------|-------------|-----------------|-----------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 0 | 2402 | 10 | 2422 | 20 | 2442 | 30 | 2462 |
| 1 | 2404 | 11 | 2424 | 21 | 2444 | 31 | 2464 |
| 2 | 2406 | 12 | 2426 | 22 | 2446 | 32 | 2466 |
| 3 | 2408 | 13 | 2428 | 23 | 2448 | 33 | 2468 |
| 4 | 2410 | 14 | 2430 | 24 | 2450 | 34 | 2470 |
| 5 | 2412 | 15 | 2432 | 25 | 2452 | 35 | 2472 |
| 6 | 2414 | 16 | 2434 | 26 | 2454 | 36 | 2474 |
| 7 | 2416 | 17 | 2436 | 27 | 2456 | 37 | 2476 |
| 8 | 2418 | 18 | 2438 | 28 | 2458 | 38 | 2478 |
| 9 | 2420 | 19 | 2440 | 29 | 2460 | 39 | 2480 |

Data rate VS Power:

The test setting software is offered by the manufactory.

| Test software and Power Setting parameter | | | |
|---|-------------------|---------|---------|
| Test Software | EMI_Test_Tool.exe | | |
| Working Mode | BLE | | |
| Test Channel | 2402MHz | 2442MHz | 2480MHz |
| Power Setting | default | default | default |

TEST REPORT**2.3 Test software list**

| Test Items | Software | Manufacturer | Version |
|--------------------|----------|--------------|---------|
| Conducted emission | ESxS-K1 | R&S | V2.1.0 |
| Radiated emission | ES-K1 | R&S | V1.71 |

2.4 Test peripherals list

| Item No. | Name | Band and Model | Description |
|----------|-----------------|------------------|----------------------|
| 1 | Laptop computer | HP ProBook 6470b | 100-240V AC, 50/60Hz |

2.5 Test environment condition:

| Test items | Temperature | Humidity |
|--|-------------|----------|
| Radiated emissions in restricted frequency bands | 22°C | 55% RH |

TEST REPORT**2.6 Instrument list**

| Radiated Emission | | | | | |
|-------------------------------------|--------------------------|--------------|-------------|--------------|------------|
| Used | Equipment | Manufacturer | Type | Internal no. | Due date |
| <input checked="" type="checkbox"/> | Test Receiver | R&S | ESIB 26 | EC 3045 | 2025-08-18 |
| <input checked="" type="checkbox"/> | Test Receiver | R&S | ESR | EC 6501 | 2025-09-10 |
| <input checked="" type="checkbox"/> | Bilog Antenna | TESEQ | CBL 6112B | EC 6411 | 2025-09-11 |
| <input checked="" type="checkbox"/> | TRILOG broadband Antenna | Schwarzbeck | VULB9168 | EC 6402 | 2026-03-18 |
| <input checked="" type="checkbox"/> | Pre-amplifier | Tonscend | tap01018050 | EC 6432-1 | 2025-12-03 |
| <input checked="" type="checkbox"/> | Horn antenna | Tonscend | bha9120d | EC 6432-2 | 2026-03-19 |
| <input checked="" type="checkbox"/> | Horn antenna | ETS | 3116c | EC 5955 | 2025-08-14 |
| <input checked="" type="checkbox"/> | Semi-anechoic chamber | Albatross | - | EC 3048 | 2026-07-11 |
| Additional instrument | | | | | |
| Used | Equipment | Manufacturer | Type | Internal no. | Due date |
| <input checked="" type="checkbox"/> | Therom-Hygrograph | Testo | 175h1 | EC 6641 | 2025-08-29 |

TEST REPORT**2.7 Measurement uncertainty**

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Test item | Measurement uncertainty |
|---|-------------------------|
| Maximum peak output power | ± 0.74dB |
| Radiated Emissions in restricted frequency bands below 1GHz | ± 4.90dB |
| Radiated Emissions in restricted frequency bands above 1GHz | ± 5.02dB |
| Emission outside the frequency band | ± 2.89dB |
| Occupied Channel Bandwidth | ± 0.88 % |
| Power line conducted emission | ± 3.19dB |

TEST REPORT

3 Radiated Emissions in restricted frequency bands

Test result: Pass

3.1 Limit

| Fundamental Frequency (MHz) | Fundamental limit (dBuV/m) | Harmonic limit (dBuV/m) |
|---|----------------------------|-------------------------|
| <input type="checkbox"/> 902 - 928 | 94 | 54 |
| <input checked="" type="checkbox"/> 2400 - 2483.5 | 94 | 54 |
| <input type="checkbox"/> 5725 - 5875 | 94 | 54 |
| <input type="checkbox"/> 24000 - 24250 | 108 | 68 |

The radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits:

| Frequencies (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 |

3.2 Measurement Procedure

For Radiated emission below 30MHz:

- The EUT was placed on the top of a rotating table 0.8 meters(0.1 meters for floor-standing device) above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, the lowest height of the magnetic antenna was 1 m above the ground.
- Both X and Y axes of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

TEST REPORT**For Radiated emission above 30MHz:**

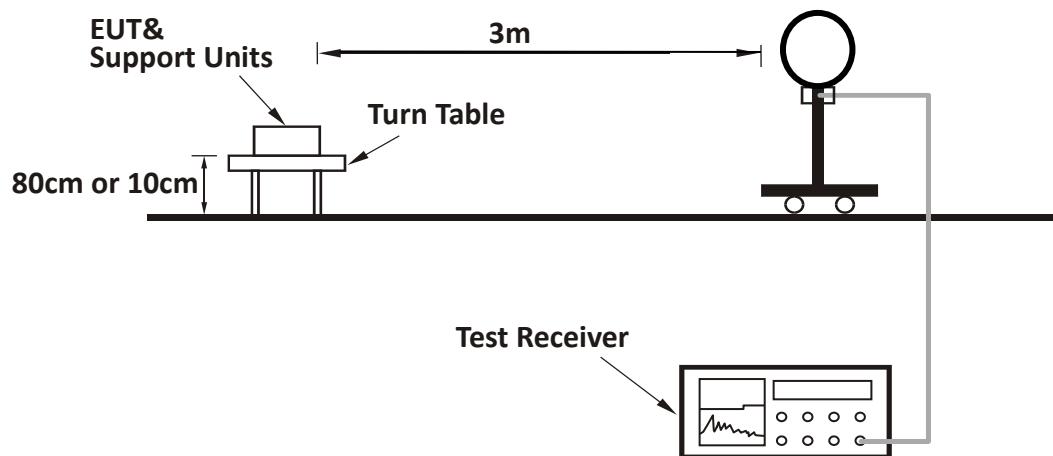
- a) The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) or 0.1 meters (for floor-standing device) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) The height of antenna 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.
- d) 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 and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

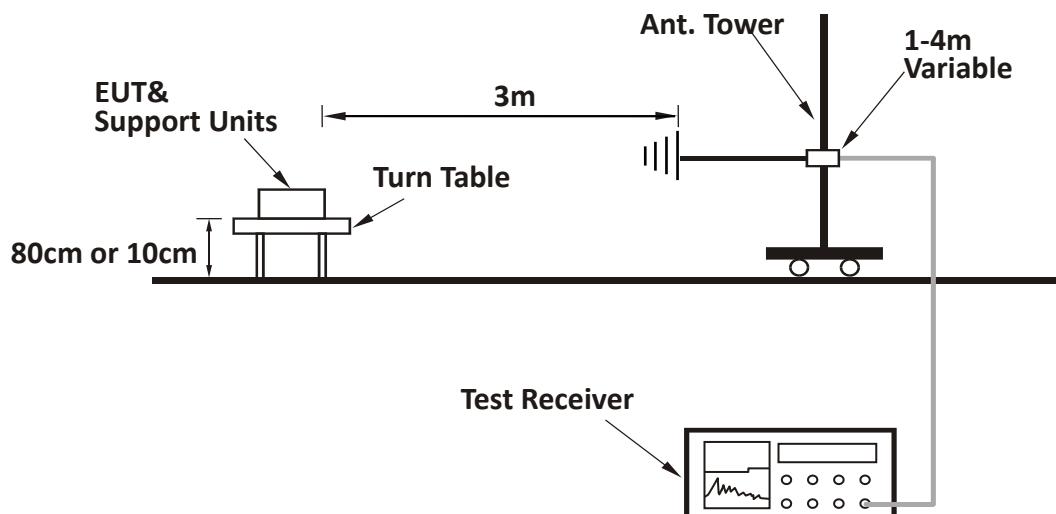
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or $3 \times RBW$ (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported

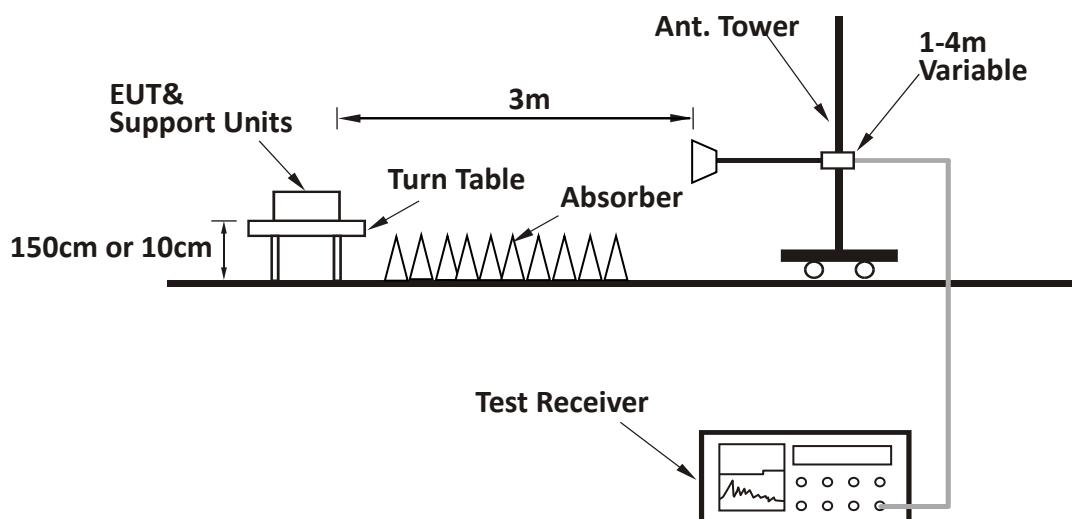
TEST REPORT**3.3 Test Configuration**

For Radiated emission below 30MHz:



For Radiated emission 30MHz to 1GHz:

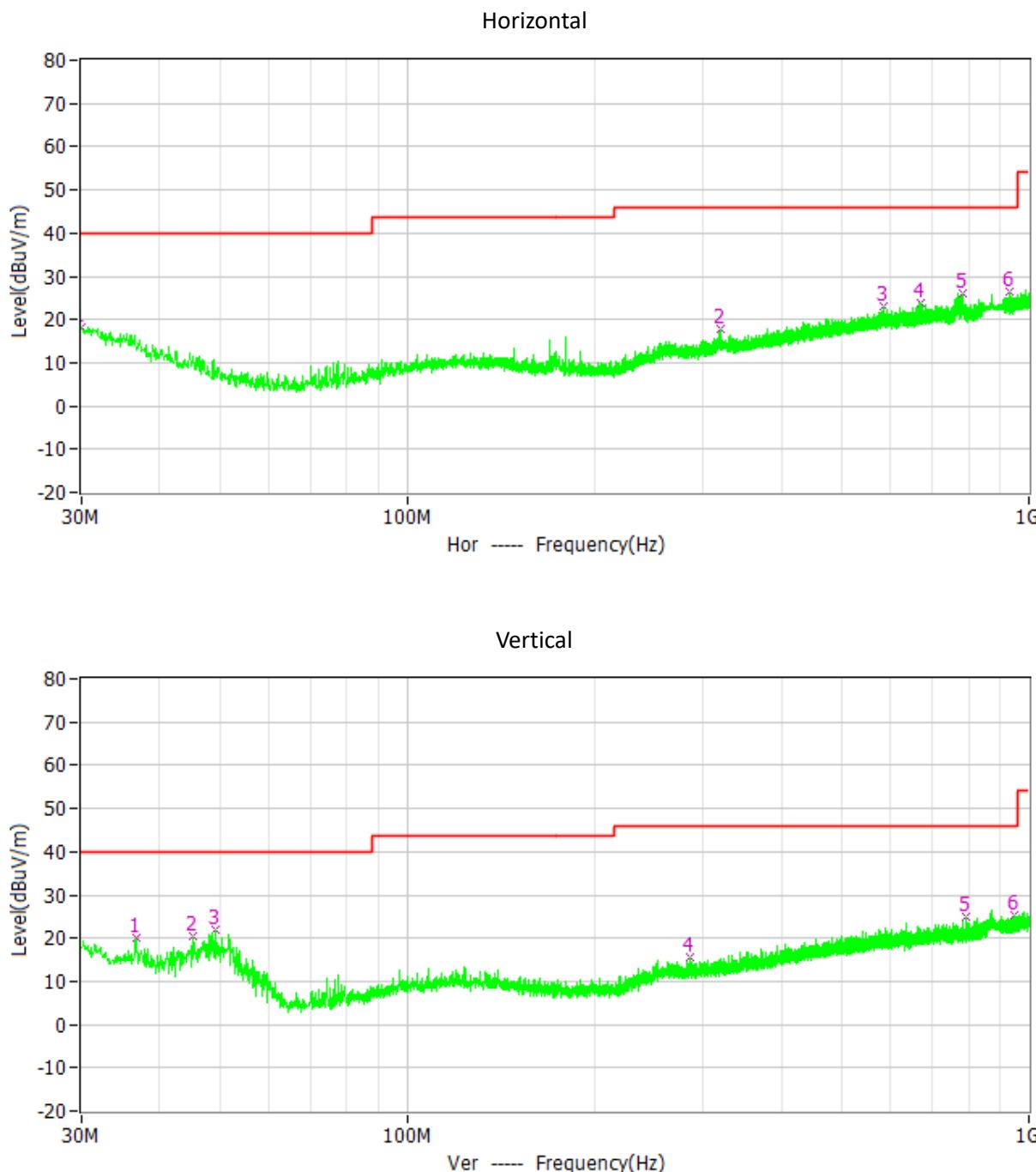


TEST REPORT**For Radiated emission above 1GHz:**

TEST REPORT**3.4 Test Results of Radiated Emissions**

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

The worst waveform from 30MHz to 1000MHz is listed as below:



TEST REPORT**Test data below 1GHz**

| Antenna | Frequency (MHz) | Corrected Reading (dBuV/m) | Correct Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|---------|-----------------|----------------------------|-----------------------|----------------|-------------|----------|
| H | 30.000 | 18.30 | 19.80 | 40.00 | 21.70 | PK |
| H | 320.127 | 17.90 | 15.80 | 46.00 | 28.10 | PK |
| H | 582.512 | 23.10 | 21.20 | 46.00 | 22.90 | PK |
| H | 669.618 | 23.70 | 21.80 | 46.00 | 22.30 | PK |
| H | 783.496 | 25.90 | 22.60 | 46.00 | 20.10 | PK |
| H | 929.675 | 26.40 | 24.40 | 46.00 | 19.60 | PK |
| V | 36.693 | 19.90 | 16.10 | 40.00 | 20.10 | PK |
| V | 45.326 | 20.30 | 11.60 | 40.00 | 19.70 | PK |
| V | 49.206 | 21.80 | 9.70 | 40.00 | 18.20 | PK |
| V | 284.625 | 15.40 | 15.00 | 46.00 | 30.60 | PK |
| V | 794.069 | 24.80 | 22.70 | 46.00 | 21.20 | PK |
| V | 945.195 | 25.20 | 24.60 | 46.00 | 20.80 | PK |

TEST REPORT
Test result above 1GHz:

| CH | Antenna | Frequency (MHz) | Corrected Reading (dBuV/m) | Correct Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|----|---------|-----------------|----------------------------|-----------------------|----------------|-------------|----------|
| L | H/V | 2402.00 | 87.10 | 32.60 | 114.00 | 26.90 | PK |
| | H/V | 2402.00 | 85.40 | 32.60 | 94.00 | 8.60 | AV |
| | H/V | 2390.00 | 52.10 | 32.60 | 74.00 | 21.90 | PK |
| | H/V | 2390.00 | 37.90 | 32.60 | 54.00 | 16.10 | AV |
| | H/V | 4804.00 | 51.40 | -12.90 | 74.00 | 22.60 | PK |
| | H/V | 4804.00 | 45.20 | -12.90 | 54.00 | 8.80 | AV |
| M | H/V | 2442.00 | 86.70 | 32.70 | 114.00 | 27.30 | PK |
| | H/V | 2442.00 | 84.90 | 32.70 | 94.00 | 9.10 | AV |
| | H/V | 4884.00 | 51.70 | -12.40 | 74.00 | 22.30 | PK |
| | H/V | 4884.00 | 41.20 | -12.40 | 54.00 | 12.80 | AV |
| H | H/V | 2480.00 | 86.80 | 32.90 | 114.00 | 27.20 | PK |
| | H/V | 2480.00 | 85.90 | 32.90 | 94.00 | 8.10 | AV |
| | H/V | 2483.50 | 55.40 | 32.90 | 74.00 | 18.60 | PK |
| | H/V | 2483.50 | 45.40 | 32.90 | 54.00 | 8.60 | AV |
| | H/V | 4960.00 | 52.90 | -12.20 | 74.00 | 21.10 | PK |
| | H/V | 4960.00 | 48.80 | -12.20 | 54.00 | 5.20 | AV |

Remark: 1. Correct Factor = Antenna Factor + Cable Loss (- Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.

2. Corrected Reading = Original Receiver Reading + Correct Factor

3. Margin = Limit - Corrected Reading

4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
 Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10.00dBuV,
 Limit = 40.00dBuV/m.
 Then Correct Factor = $30.20 + 2.00 - 32.00 = 0.20$ dB/m;
 Corrected Reading = $10\text{dBuV} + 0.20\text{dB/m} = 10.20\text{dBuV/m}$;
 Margin = $40.00\text{dBuV/m} - 10.20\text{dBuV/m} = 29.80\text{dB}$.

***** END *****