

# TEST REPORT

**Product** : antenna  
**Trade mark** : N/A  
**Model/Type reference** : S6-3642400-D1  
**Serial Number** : N/A  
**Report Number** : EED32N814245  
**FCC ID** : 2A5DH-S6-3642400-D1  
**Date of Issue** : May 18, 2022  
**Test Standards** : 47 CFR Part 15 Subpart C  
**Test result** : PASS

Prepared for:

**FinDreams Technology Company Limited**  
**NO.3001~3009, Hengping Road, Pingshan New District, Shenzhen,**  
**Guangdong, P.R.China**

Prepared by:

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Date:

May 18, 2022

Check No.:5819221221



## 1 Version

| Version No. | Date         | Description |
|-------------|--------------|-------------|
| 00          | May 18, 2022 | Original    |
|             |              |             |
|             |              |             |

## 2 Test Summary

| Test Item                        | Test Requirement                        | Test method      | Result |
|----------------------------------|---|------------------|--------|
| Antenna Requirement              | 47 CFR Part 15 Subpart C Section 15.203 | ANSI C63.10:2013 | PASS   |
| AC Power Line Conducted Emission | 47 CFR Part 15 Subpart C Section 15.207 | ANSI C63.10:2013 | N/A    |
| Radiated Spurious Emissions      | 47 CFR Part 15 Subpart C Section 15.209 | ANSI C63.10:2013 | PASS   |
| 20dB Bandwidth                   | 47 CFR Part 15 Subpart C Section 2.1049 | ANSI C63.10:2013 | PASS   |

Remark:

1.N/A:Only DC power supply is supported and this item is not considered.

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

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## 4 General Information

### 4.1 Client Information

|                          |  |
|--------------------------|--|
| Applicant:               | FinDreams Technology Company Limited   |
| Address of Applicant:    | NO.3001~3009, Hengping Road, Pingshan New District, Shenzhen, Guangdong, P.R.China |
| Manufacturer:            | FinDreams Technology Company Limited   |
| Address of Manufacturer: | NO.3001~3009, Hengping Road, Pingshan New District, Shenzhen, Guangdong, P.R.China |
| Factory:                 | FinDreams Technology Company Limited   |
| Address of Factory:      | NO.3001~3009, Hengping Road, Pingshan New District, Shenzhen, Guangdong, P.R.China |

### 4.2 General Description of EUT

|                       |  |
|-----------------------|--|
| Product Name:         | antenna  |
| Model No.(EUT):       | S6-3642400-D1  |
| Trade Mark:           | N/A  |
| Product Type:         | <input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fix Location |
| Frequency Range:      | 125kHz   |
| Modulation Type:      | ASK  |
| Number of Channels:   | 1  |
| Antenna Type:         | Internal antenna   |
| Antenna Gain:         | -16dBi   |
| Power Supply:         | DC 12.0V   |
| Test voltage:         | DC 12.0V   |
| Sample Received Date: | Dec. 24, 2021  |
| Sample tested Date:   | Dec. 30, 2021 to Jan. 24, 2022   |

**4.3 Test Environment and Mode**

|                                     |  |
|-------------------------------------|--|
| <b>Operating Environment:</b>       |  |
| <b>Radiated Spurious Emissions:</b> |  |
| Temperature:                        | 22~25.0 °C   |
| Humidity:                           | 50~55 % RH   |
| Atmospheric Pressure:               | 1010mbar   |
| <b>Conducted Emissions:</b>         |  |
| Temperature:                        | 22~25.0 °C   |
| Humidity:                           | 50~55 % RH   |
| Atmospheric Pressure:               | 1010mbar   |
| <b>RF Conducted:</b>                |  |
| Temperature:                        | 22~25.0 °C   |
| Humidity:                           | 50~55 % RH   |
| Atmospheric Pressure:               | 1010mbar   |
| <b>Test mode:</b>                   |  |
| Transmitting mode:                  | Keep the EUT in transmitting mode with modulation. |

## 4.4 Description of Support Units

The EUT has been tested with associated equipment below.

1) support equipment

| Description                | Manufacturer | Model No.   | Certification | Supplied by |
|----------------------------|--------------|-------------|---------------|-------------|
| Integrated body controller | N/A          | TIO-B/A1AE0 | CE&FCC        | Client      |

## 4.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

## 4.6 Deviation from Standards

None.

## 4.7 Abnormalities from Standard Conditions

None.

## 4.8 Other Information Requested by the Customer

None.

## 4.9 Measurement Uncertainty (95% confidence levels, k=2)

| No. | Item                            | Measurement Uncertainty |
|-----|---------------------------------|-------------------------|
| 1   | Radio Frequency                 | $7.9 \times 10^{-8}$    |
| 2   | RF power, conducted             | 0.46dB (30MHz-1GHz)     |
|     |                                 | 0.55dB (1GHz-18GHz)     |
| 3   | Radiated Spurious emission test | 3.3dB (9kHz-30MHz)      |
|     |                                 | 4.3dB (30MHz-1GHz)      |
|     |                                 | 4.5dB (1GHz-12.75GHz)   |
| 4   | Conduction emission             | 3.5dB (9kHz to 150kHz)  |
|     |                                 | 3.1dB (150kHz to 30MHz) |
| 5   | Temperature test                | 0.64°C                  |
| 6   | Humidity test                   | 3.8%                    |
| 7   | DC power voltages               | 0.026%                  |

## 5 Equipment List

| RF test system    |              |          |               |                        |                            |
|-------------------|--------------|----------|---------------|------------------------|----------------------------|
| Equipment         | Manufacturer | Mode No. | Serial Number | Cal. Date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| Spectrum Analyzer | R&S          | FSV40    | 101200        | 08-26-2021             | 08-25-2022                 |

| 3M Semi/full-anechoic Chamber    |                  |                                  |                |                        |                            |
|----------------------------------|------------------|----------------------------------|----------------|------------------------|----------------------------|
| Equipment                        | Manufacturer     | Model No.                        | Serial Number  | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| 3M Chamber & Accessory Equipment | TDK              | SAC-3                            | ---            | 05-24-2019             | 05-23-2022                 |
| TRILOG Broadband Antenna         | Schwarzbeck      | VULB9163                         | 9163-618       | 05-16-2021             | 05-15-2022                 |
| Loop Antenna                     | Schwarzbeck      | FMZB 1519B                       | 1519B-076      | 04-15-2021             | 04-14-2024                 |
| Receiver                         | R&S              | ESCI7                            | 100938-003     | 10-15-2021             | 10-14-2022                 |
| Multi device Controller          | matur            | NCD/070/107<br>11112             | ---            | ---                    | ---                        |
| Temperature/ Humidity Indicator  | Shanghai qixiang | HM10                             | 1804298        | 06-24-2021             | 06-23-2022                 |
| Communication test set           | Agilent          | E5515C                           | GB4705053<br>4 | 03-01-2019             | 02-28-2022                 |
| Cable line                       | Fulai(7M)        | SF106                            | 5219/6A        | ---                    | ---                        |
| Cable line                       | Fulai(6M)        | SF106                            | 5220/6A        | ---                    | ---                        |
| Cable line                       | Fulai(3M)        | SF106                            | 5216/6A        | ---                    | ---                        |
| Cable line                       | Fulai(3M)        | SF106                            | 5217/6A        | ---                    | ---                        |
| band rejection filter            | Sinoscite        | FL5CX01CA<br>08CL12-<br>0393-001 | ---            | ---                    | ---                        |



## 6 Test results and Measurement Data

### 6.1 Antenna Requirement

|   |                                |
|---|--------------------------------|
| <b>Standard requirement:</b>  | 47 CFR Part 15C Section 15.203 |
| 15.203 requirement:<br>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. |                                |
| <b>EUT Antenna:</b>   | Please see Internal photos     |
| The antenna is Internal antenna. The best case gain of the antenna is -16dBi.   |                                |

## 6.2 Radiated Spurious Emissions

**Test Requirement:** 47 CFR Part 15C Section 15.231(b) and 15.209

**Test Method:** ANSI C63.10 2013

**Test Site:** Measurement Distance: 3m (Semi-Anechoic Chamber)

**Receiver Setup:**

| Frequency         | Detector   | RBW    | VBW    | Remark     |
|-------------------|------------|--------|--------|------------|
| 0.009MHz-0.090MHz | Peak       | 10kHz  | 30kHz  | Peak       |
| 0.009MHz-0.090MHz | Average    | 10kHz  | 30kHz  | Average    |
| 0.090MHz-0.110MHz | Quasi-peak | 10kHz  | 30kHz  | Quasi-peak |
| 0.110MHz-0.490MHz | Peak       | 10kHz  | 30kHz  | Peak       |
| 0.110MHz-0.490MHz | Average    | 10kHz  | 30kHz  | Average    |
| 0.490MHz -30MHz   | Quasi-peak | 10kHz  | 30kHz  | Quasi-peak |
| 30MHz-1GHz        | Quasi-peak | 120kHz | 300kHz | Quasi-peak |
| Above 1GHz        | Peak       | 1MHz   | 3MHz   | Peak       |
|                   | Peak       | 1MHz   | 10Hz   | Average    |

**Test Setup:**

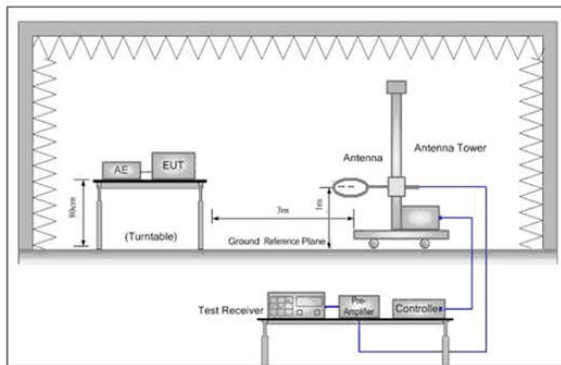


Figure 1. Below 30MHz

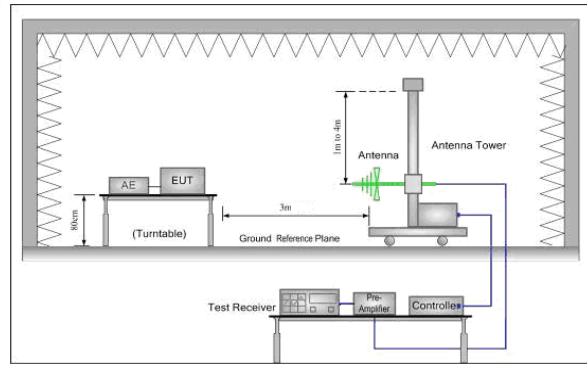


Figure 2. 30MHz to 1GHz

**Test Procedure:** **Below 1GHz test procedure as below:**

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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, 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 rotating 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.

| Frequency         | Magnetic field strength (HField) ( $\mu\text{A/m}$ ) | Limit (dB $\mu\text{A/m}$ ) | Remark | Measurement distance (m) |
|-------------------|--|-----------------------------|--------|--------------------------|
| 0.009MHz-0.490MHz | 6.37/F(kHz)  | 77.00 to 42.28              | -      | 300                      |
| 0.490MHz-1.705MHz | 63.7/F(kHz)  | 22.28 to 11.45              | -      | 30                       |
| 1.705MHz-30MHz    | 0.08   | 18.06                       | -      | 30                       |

**Limit:**  
(Spurious Emissions)

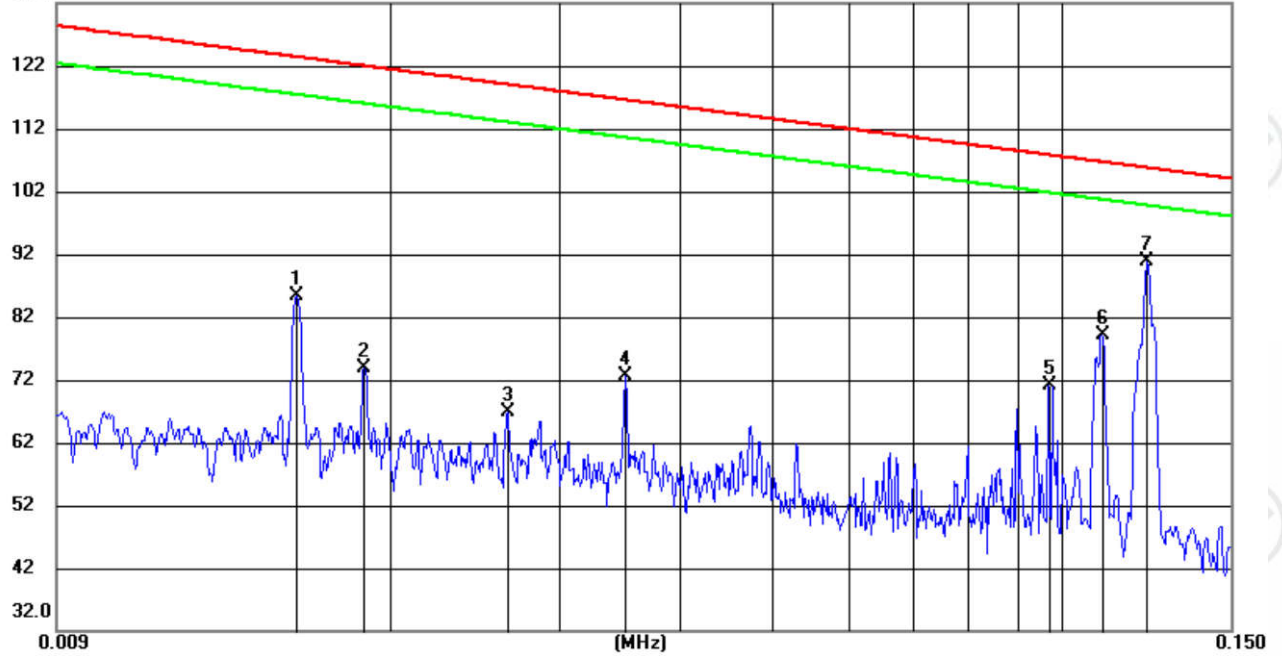
Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

**Test Mode:** Transmitting mode

**Test Results:** Pass

9kHz~150kHz:

132.0 dBuV/m



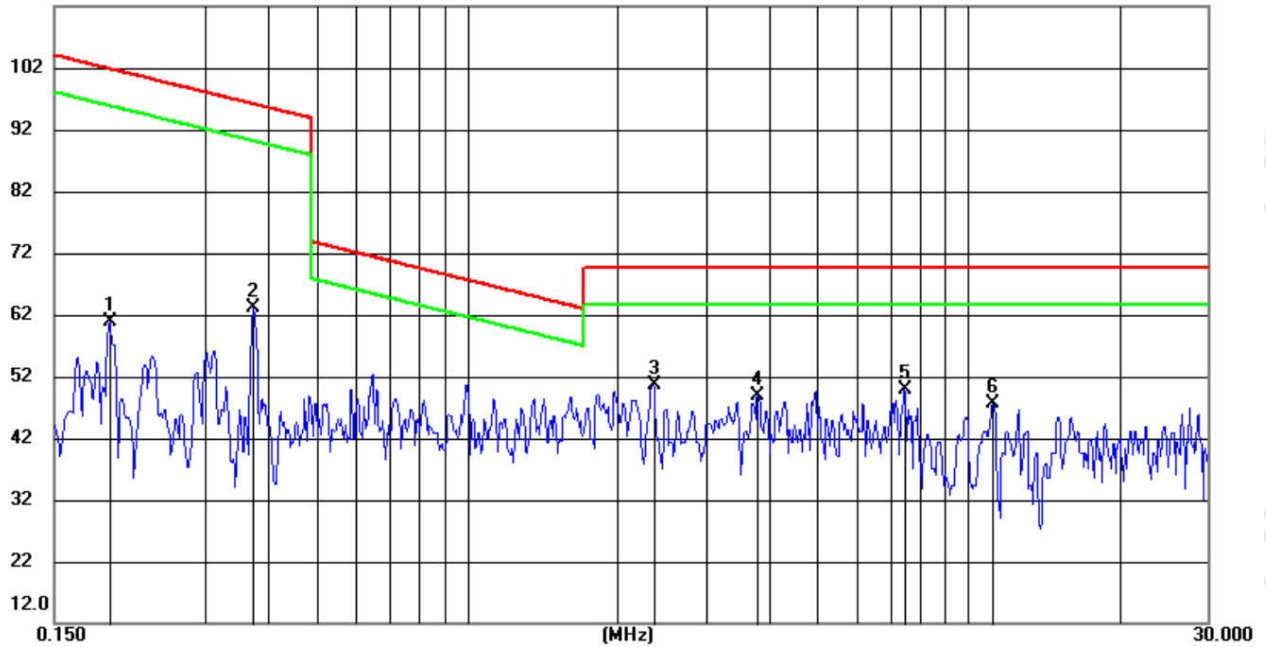
| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Margin | Antenna Height | Table Degree |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz    | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 0.0160 | 43.58         | 41.90          | 85.48       | 123.36 | -37.88 |                |              | peak    |
| 2   |     | 0.0188 | 32.15         | 41.70          | 73.85       | 121.96 | -48.11 |                |              | peak    |
| 3   |     | 0.0265 | 25.24         | 41.56          | 66.80       | 119.00 | -52.20 |                |              | peak    |
| 4   |     | 0.0352 | 31.16         | 41.52          | 72.68       | 116.55 | -43.87 |                |              | peak    |
| 5   |     | 0.0970 | 29.93         | 41.10          | 71.03       | 107.79 | -36.76 |                |              | peak    |
| 6   |     | 0.1101 | 38.12         | 41.08          | 79.20       | 106.70 | -27.50 |                |              | peak    |
| 7   | *   | 0.1228 | 49.83         | 41.12          | 90.95       | 105.75 | -14.80 |                |              | peak    |

Remark:

1. 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.
2. The field strength is calculated by adding the Antenna Factor, Cable Factor & Pre-amplifier. The basic equation with a sample calculation is as follows:  
Final Test Level = Receiver Reading - Correct Factor  
Correct Factor = Pre-amplifier Factor - Antenna Factor - Cable Factor
3. The highest frequency is 125kHz of the EUT, so upper frequency of measurement range is 30MHz.

**150kHz~30MHz:**

112.0 dBuV/m



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|--------------|----------|-------------------------|---------------------------|---------|
| 1   |     | 0.1934       | 19.72                    | 41.10                   | 60.82                      | 101.83          | -41.01       | peak     |                         |                           |         |
| 2   |     | 0.3751       | 22.19                    | 40.98                   | 63.17                      | 96.11           | -32.94       | peak     |                         |                           |         |
| 3   | *   | 2.3460       | 9.85                     | 40.76                   | 50.61                      | 69.54           | -18.93       | peak     |                         |                           |         |
| 4   |     | 3.7994       | 8.25                     | 40.74                   | 48.99                      | 69.54           | -20.55       | peak     |                         |                           |         |
| 5   |     | 7.4465       | 9.10                     | 40.74                   | 49.84                      | 69.54           | -19.70       | peak     |                         |                           |         |
| 6   |     | 11.1977      | 6.79                     | 40.72                   | 47.51                      | 69.54           | -22.03       | peak     |                         |                           |         |

**Remark:**

1.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.

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 - Correct Factor

Correct Factor = Preamplifier Factor- Antenna Factor-Cable Factor

3.The highest frequency is 125kHz of the EUT, so upper frequency of measurement range is 30MHz.

### 6.3 20dB Bandwidth

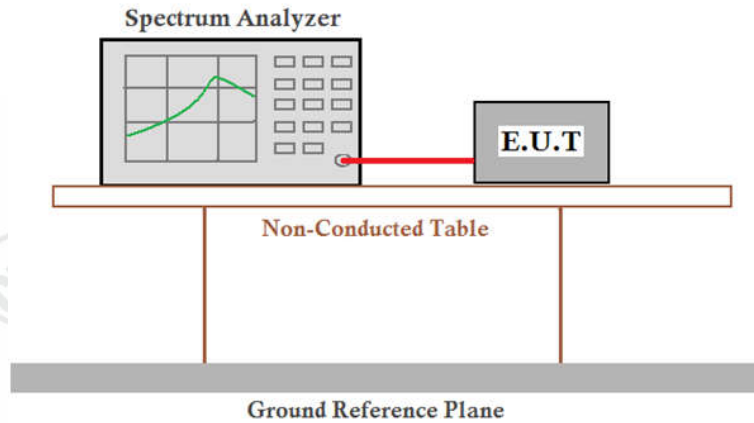
**Test Requirement:** 47 CFR Part 15C Section 2.1049

**Test Method:** ANSI C63.10 2013

**Limit:**

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

**Test Setup:**



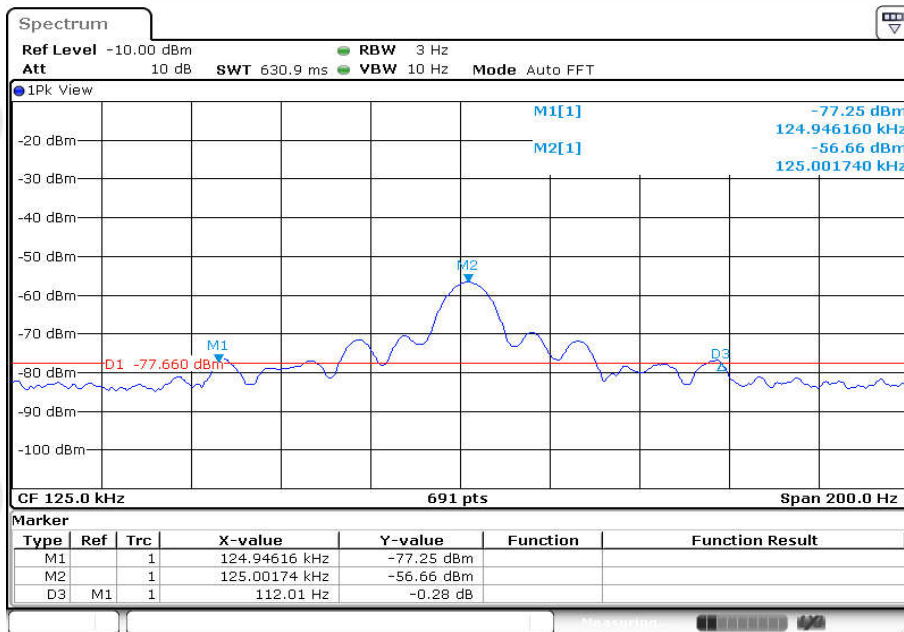
**Test Mode:** Transmitting mode

**Test Results:** Pass

#### Measurement Data

| 20dB bandwidth (kHz) | Results |
|----------------------|---------|
| 112.01               | Pass    |

**Test plot as follows:**



Date: 24 JAN 2022 16:56:25