

FCC CERTIFICATION TEST REPORT

FOR

| | | |
|-----------------------------|---|---|
| Applicant | : | MOTREX Co., LTD. |
| Address | : | Seoyoung Bldg. 25, Hwangsaеul-ro 258beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, South Korea |
| Equipment under Test | : | Equipo de Audio y Video para Vehiculo |
| Model No. | : | MTXMO500ASU2i, MTXMO500ASP2i |
| Trade Mark | : | MOTREX |
| FCC ID | : | BP9-MO500ASP2I |
| Manufacturer | : | Skypine Electronics (ShenZhen)Co.,Ltd |
| Address | : | A1, A5 Building, No.6, Xinxing Industrial Park, Xinhe Village, Fuyong Town, Bao'an District, Shenzhen City, Guangdong Province, China |

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park,
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Test Report Declare

| | | |
|-----------------------------|---|---|
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| Address | : | Seoyoung Bldg. 25, Hwangsaedul-ro 258beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, South Korea |
| Equipment under Test | : | Equipo de Audio y Video para Vehiculo |
| Model No. | : | MTXMO500ASU2i, MTXMO500ASP2i |
| Trade Mark | : | MOTREX |
| Manufacturer | : | Skypine Electronics (ShenZhen) Co., Ltd. |
| Address | : | A1, A5 Building, No.6, Xinxing Industrial Park, Xinhe Village, Fuyong Town, Bao'an District, Shenzhen City, Guangdong Province, China |

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C

Test procedure used:

ANSI C63.10:2013

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

| | | | |
|-------------------------|--------------------|----------------------|-------------------------------|
| Report No.: | DDT-R21060707-2E01 | | |
| Date of Receipt: | Jun. 13, 2021 | Date of Test: | Jun. 13, 2021 ~ Jul. 22, 2021 |

Prepared By:

Jacky Huang

Jacky Huang/Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

| Rev. | Revisions | Issue Date | Revised By |
|------|---------------|---------------|------------|
| --- | Initial issue | Jul. 22, 2021 | |
| | | | |

1. Summary of Test Results

| Description of Test Item | Standard | Results |
|--|---|---------|
| Maximum Peak Output Power | FCC Part 15: 15.247(b)(1) ANSI C63.10:2013 | Pass |
| 20 dB Bandwidth and 99% Bandwidth | FCC Part 15: 15.215 ANSI C63.10:2013 | Pass |
| Carrier Frequency Separation | FCC Part 15: 15.247(a)(1) ANSI C63.10:2013 | Pass |
| Number of Hopping Channel | FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10:2013 | Pass |
| Dwell Time | FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10:2013 | Pass |
| Radiated Emission | FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10:2013 | Pass |
| Band Edge Compliance | FCC Part 15: 15.247(d) ANSI C63.10:2013 | Pass |
| Power Line Conducted Emissions | FCC Part 15: 15.207 ANSI C63.10:2013 | N/A |
| Antenna Requirement | FCC Part 15: 15.203 | Pass |
| Note: N/A is an abbreviation for Not Applicable. | | |

2. General Test Information

2.1. Description of EUT

| | |
|--------------------------|--|
| EUT* Name | : Equipo de Audio y Video para Vehiculo |
| Model Number | : MTXMO500ASU2i, MTXMO500ASP2i |
| Difference of models | : All models are identical except the appearance and control panel, therefore the test performed on the model MTXMO500ASU2i. |
| EUT function description | : Please reference user manual of this device |
| Power supply | : DC 12V |
| Radio Specification | : Bluetooth V5.0 |
| Operation frequency | : 2402MHz-2480MHz |
| Modulation | : GFSK, $\pi/4$ -DQPSK, 8DPSK |
| Data rate | : 1 Mbps, 2 Mbps, 3 Mbps |
| Antenna Gain | : maximum PK gain: 4.51 dBi |
| Sample Type | : Series production |

Note: EUT is the abbreviation of equipment under test.

| Channel information | | | | | |
|---------------------|-----------------|---------|-----------------|---------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 0 | 2402 | 27 | 2429 | 54 | 2456 |
| 1 | 2403 | 28 | 2430 | 55 | 2457 |
| 2 | 2404 | 29 | 2431 | 56 | 2458 |
| 3 | 2405 | 30 | 2432 | 57 | 2459 |
| 4 | 2406 | 31 | 2433 | 58 | 2460 |
| 5 | 2407 | 32 | 2434 | 59 | 2461 |
| 6 | 2408 | 33 | 2435 | 60 | 2462 |
| 7 | 2409 | 34 | 2436 | 61 | 2463 |
| 8 | 2410 | 35 | 2437 | 62 | 2464 |
| 9 | 2411 | 36 | 2438 | 63 | 2465 |
| 10 | 2412 | 37 | 2439 | 64 | 2466 |
| 11 | 2413 | 38 | 2440 | 65 | 2467 |
| 12 | 2414 | 39 | 2441 | 66 | 2468 |
| 13 | 2415 | 40 | 2442 | 67 | 2469 |
| 14 | 2416 | 41 | 2443 | 68 | 2470 |
| 15 | 2417 | 42 | 2444 | 69 | 2471 |
| 16 | 2418 | 43 | 2445 | 70 | 2472 |
| 17 | 2419 | 44 | 2446 | 71 | 2473 |
| 18 | 2420 | 45 | 2447 | 72 | 2474 |
| 19 | 2421 | 46 | 2448 | 73 | 2475 |
| 20 | 2422 | 47 | 2449 | 74 | 2476 |
| 21 | 2423 | 48 | 2450 | 75 | 2477 |
| 22 | 2424 | 49 | 2451 | 76 | 2478 |
| 23 | 2425 | 50 | 2452 | 77 | 2479 |
| 24 | 2426 | 51 | 2453 | 78 | 2480 |
| 25 | 2427 | 52 | 2454 | | |
| 26 | 2428 | 53 | 2455 | | |

2.2. Device Capabilities

This device contains the following capabilities:

Bluetooth (BR, EDR), 802.11b/g/n WLAN, 802.11a/ac UNII

This device supports simultaneous transmission operations. The table below shows all configurations possible.

| Simultaneous Transmission | | | |
|---------------------------|---|------------------------|------------------------|
| NO. | Simultaneous Transmission Configuration | Antenna 2 2.4G WIFI | Antenna 2 5.8G WIFI |
| 1 | Antenna 1 BT | Yes | Yes |

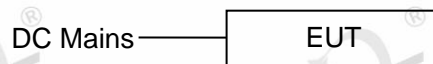
2.3. Accessories of EUT

| Description of Accessories | Manufacturer | Model number | Description | Remark |
|----------------------------|--------------|--------------|-------------|--------|
| N/A | N/A | N/A | N/A | N/A |

2.4. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | EMC Compliance | SN |
|---------------------|--------------|--------------|----------------|-----|
| N/A | N/A | N/A | N/A | N/A |

2.5. Block diagram of EUT configuration for test



Test software: cmd.exe

The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.

| Tested mode, channel, information | | | |
|------------------------------------|------------------|-------------|-----------------|
| Mode | Setting Tx Power | Channel | Frequency (MHz) |
| GFSK hopping on Tx mode | / | CH0 to CH78 | 2402 to 2480 |
| $\pi/4$ -DQPSK hopping on Tx mode | / | CH0 to CH78 | 2402 to 2480 |
| 8DPSK hopping on Tx mode | / | CH0 to CH78 | 2402 to 2480 |
| GFSK hopping off Tx mode | / | CH0 | 2402 |
| | / | CH39 | 2441 |
| | / | CH78 | 2480 |
| $\pi/4$ -DQPSK hopping off Tx mode | / | CH0 | 2402 |
| | / | CH39 | 2441 |
| | / | CH78 | 2480 |
| 8DPSK hopping off Tx mode | / | CH0 | 2402 |
| | / | CH39 | 2441 |
| | / | CH78 | 2480 |

2.6. Deviations of test standard

No deviation.

2.7. Test environment conditions

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

| | |
|--------------------|------------|
| Temperature range: | 21-25 °C |
| Humidity range: | 40-75% |
| Pressure range: | 86-106 kPa |

2.8. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2.9. Measurement uncertainty

| Test Item | Uncertainty |
|---|--------------------------------------|
| Bandwidth | 1.1% |
| Peak Output Power (Conducted) (Spectrum analyzer) | 0.86 dB (10 MHz \leq f < 3.6 GHz); |
| | 1.38 dB (3.6 GHz \leq f < 8 GHz) |
| Peak Output Power (Conducted) (Power Sensor) | 0.74 dB |

| | |
|---|--|
| Power Spectral Density | 0.74 dB (10 MHz ≤ f < 3.6 GHz); |
| | 1.38 dB (3.6 GHz ≤ f < 8 GHz) |
| Frequencies Stability | 6.7 × 10 ⁻⁸ (Antenna couple method) |
| | 5.5 × 10 ⁻⁸ (Conducted method) |
| Conducted spurious emissions | 0.86 dB (10 MHz ≤ f < 3.6 GHz); |
| | 1.40 dB (3.6 GHz ≤ f < 8 GHz) |
| | 1.66 dB (8 GHz ≤ f < 22 GHz) |
| Uncertainty for radio frequency (RBW < 20 kHz) | 3×10 ⁻⁸ |
| Temperature | 0.4 °C |
| Humidity | 2 % |
| Uncertainty for Radiation Emission test (30 MHz - 1 GHz) | 4.70 dB (Antenna Polarize: V) |
| | 4.84 dB (Antenna Polarize: H) |
| Uncertainty for Radiation Emission test (1 GHz - 40 GHz) | 4.10 dB (1-6 GHz) |
| | 4.40 dB (6 GHz - 18 GHz) |
| | 3.54 dB (18 GHz - 26 GHz) |
| | 4.30 dB (26 GHz - 40 GHz) |
| Uncertainty for Power line conduction emission test | 3.32 dB (150 kHz - 30 MHz) |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

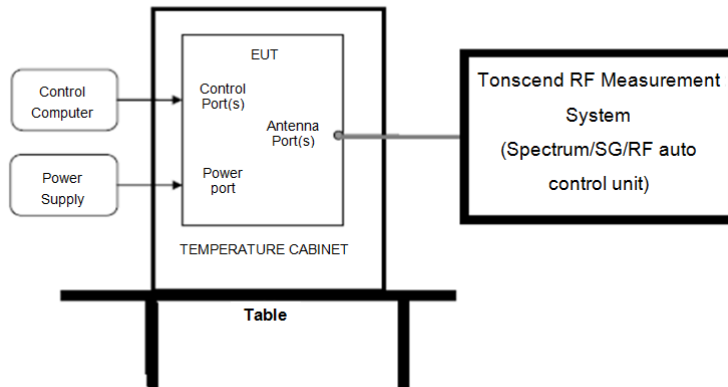
3. Equipment Used During Test

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|--------------|-----------------|-------------------|---------------|---------------|
| ☐RF Connected Test (Tonscend RF Measurement System 1#) | | | | | |
| Spectrum analyzer | R&S | FSU26 | 200071 | Sep. 25, 2020 | 1 Year |
| Wideband Radio Communication tester | R&S | CMW500 | 117491 | Jun. 01, 2021 | 1 Year |
| Vector Signal Generator | Agilent | E8267D | US49060192 | Sep. 24, 2020 | 1 Year |
| Vector Signal Generator | Agilent | N5182A | MY48180737 | Jun. 01, 2021 | 1 Year |
| Power Sensor | Agilent | U2021XA | MY55150010 | Jun. 01, 2021 | 1 Year |
| Power Sensor | Agilent | U2021XA | MY55150011 | Jun. 01, 2021 | 1 Year |
| RF Cable | Micable | C10-01-01-1 | 100309 | Sep. 28, 2020 | 1 Year |
| Temp&Humi Programmable | ZHIXIANG | ZXGDJS-150L | ZX170110-A | Jun. 01, 2021 | 1 Year |
| Test Software | JS Tonscend | JS1120-3 | Ver.2.7 | N/A | N/A |
| ☑RF Connected Test (Tonscend RF Measurement System 2#) | | | | | |
| Spectrum analyzer | R&S | FSU26 | 101472 | Jun. 01, 2021 | 1 Year |
| Wideband Radio Communication tester | R&S | CMW500 | 120259 | Jan. 19, 2021 | 1 Year |
| Vector Signal Generator | Agilent | N5182A | MY19060405 | Jun. 01, 2021 | 1 Year |
| Vector Signal Generator | Agilent | N5182A | MY48180912 | Jun. 01, 2021 | 1 Year |
| RF Control Unit | Tonsend | JS0806-2 | DDT-ZC01449 | Jun. 01, 2021 | 1 Year |
| RF Cable | Micable | C10-01-01-1 | 100309 | Sep. 28, 2020 | 1 Year |
| Temp&Humi Programmable | ZHIXIANG | ZXGDJS-150L | ZX170110-A | Jun. 01, 2021 | 1 Year |
| Test Software | JS Tonscend | JS1120-3 | Ver.2.7 | N/A | N/A |
| ☑Radiation 1#chamber | | | | | |
| EMI Test Receiver | R&S | ESU8 | 100316 | Sep. 24, 2020 | 1 Year |
| Spectrum analyzer | Agilent | E4447A | MY50180031 | Jun. 01, 2021 | 1 Year |
| Trilog Broadband Antenna | Schwarzbeck | VULB9163 | 9163-462 | Nov. 13, 2020 | 1 Year |
| Active Loop antenna | Schwarzbeck | FMZB-1519 | 1519-038 | Nov. 18, 2020 | 1 Year |
| Double Ridged Horn Antenna | R&S | HF907 | 100276 | Nov. 13, 2020 | 1 Year |
| Broad Band Horn Antenna | Schwarzbeck | BBHA 9170 | 790 | May 07, 2021 | 1 Year |
| Pre-amplifier | A.H. | PAM-0118 | 360 | Sep. 28, 2020 | 1 Year |
| RF Cable | HUBSER | CP-X2+ CP-X1 | W11.03+ W12.02 | Sep. 24, 2020 | 1 Year |
| RF Cable | N/A | 5m+6m+1m | 06270619 | Sep. 30, 2020 | 1 Year |
| MI Cable | HUBSER | C10-01-01-1M | 1091629 | Sep. 30, 2020 | 1 Year |
| Test software | Audix | E3 | V 6.11111b | N/A | N/A |
| ☑Radiation 2#chamber | | | | | |

| | | | | | |
|---|-------------|------------------|----------------------|---------------|--------|
| EMI Test Receiver | R&S | ESCI | 101364 | Sep. 28, 2020 | 1 Year |
| Spectrum analyzer | Agilent | E4447A | MY50180031 | Jun. 01, 2021 | 1 Year |
| Trilog Broadband Antenna | Schwarzbeck | VULB 9163 | 9163-994 | Nov. 13, 2020 | 1 Year |
| Active Loop antenna | Schwarzbeck | FMZB-1519 | 1519-038 | Nov. 18, 2020 | 1 Year |
| Double Ridged Horn Antenna | Schwarzbeck | BBHA9120 | 02108 | Jul. 17, 2021 | 1 Year |
| Broad Band Horn Antenna | Schwarzbeck | BBHA 9170 | 790 | May 07, 2021 | 1 Year |
| Pre-amplifier | TERA-MW | TRLA-0040 G35 | 1013 03 | Sep. 28, 2020 | 1 Year |
| RF Cable | N/A | 14+1.5m | 06270619 | Sep. 28, 2020 | 1 Year |
| Test software | Audix | E3 | V 6.11111b | N/A | N/A |
| □ Power Line Conducted Emissions Test 1# | | | | | |
| EMI Test Receiver | R&S | ESU8 | 100316 | Sep. 24, 2020 | 1 Year |
| LISN 1 | R&S | ENV216 | 101109 | Sep. 28, 2020 | 1 Year |
| LISN 2 | R&S | ESH2-Z5 | 100309 | Sep. 28, 2020 | 1 Year |
| Pulse Limiter | R&S | ESH3-Z2 | 101242 | Sep. 24, 2020 | 1 Year |
| CE Cable 1 | HUBSER | N/A | W10.01 | Sep. 24, 2020 | 1 Year |
| Test software | Audix | E3 | V 6.11111b | N/A | N/A |
| □ Power Line Conducted Emissions Test 2# | | | | | |
| Test Receiver | R&S | ESPI | 101761 | Sep. 24, 2020 | 1 Year |
| LISN 1 | R&S | ENV216 | 101170 | Sep. 28, 2020 | 1 Year |
| LISN 2 | R&S | ESH2-Z5 | 100309 | Sep. 28, 2020 | 1 Year |
| Pulse Limiter | R&S | KH43101 | 43101180156 8-12# | Jul. 01, 2020 | 1 Year |
| CE Cable 2 | HUBSER | N/A | W11.02 | Sep. 24, 2020 | 1 Year |
| Test software | Audix | E3 | V 6.11111b | N/A | N/A |

4. Maximum Peak Output Power

4.1. Block diagram of test setup



4.2. Limits

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W.

4.3. Test procedure

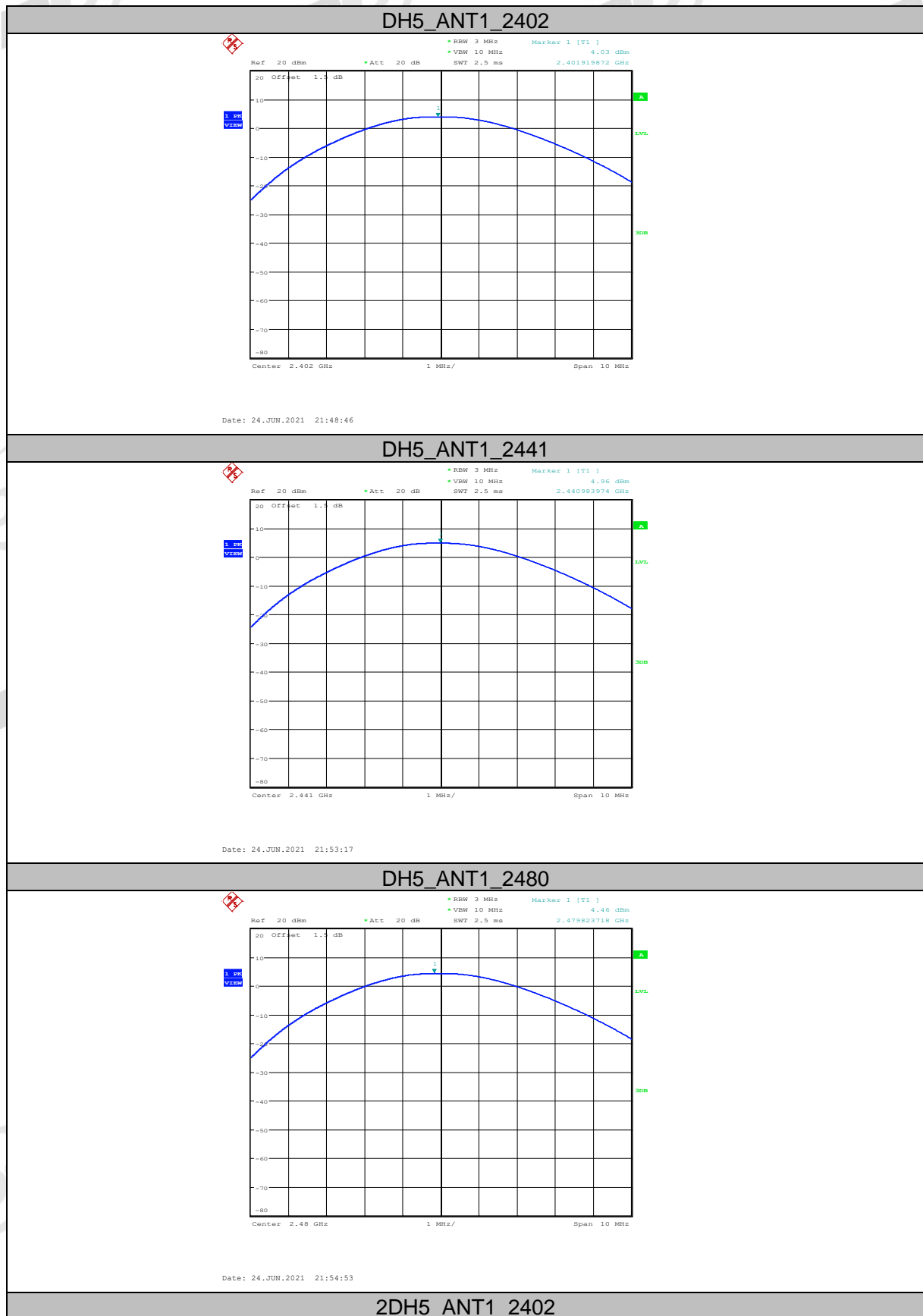
- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) Measure the maximum output power of EUT by spectrum analyzer with PK detector and RBW=3 MHz (above 20 dB bandwidth of measured signal), VBW=10 MHz

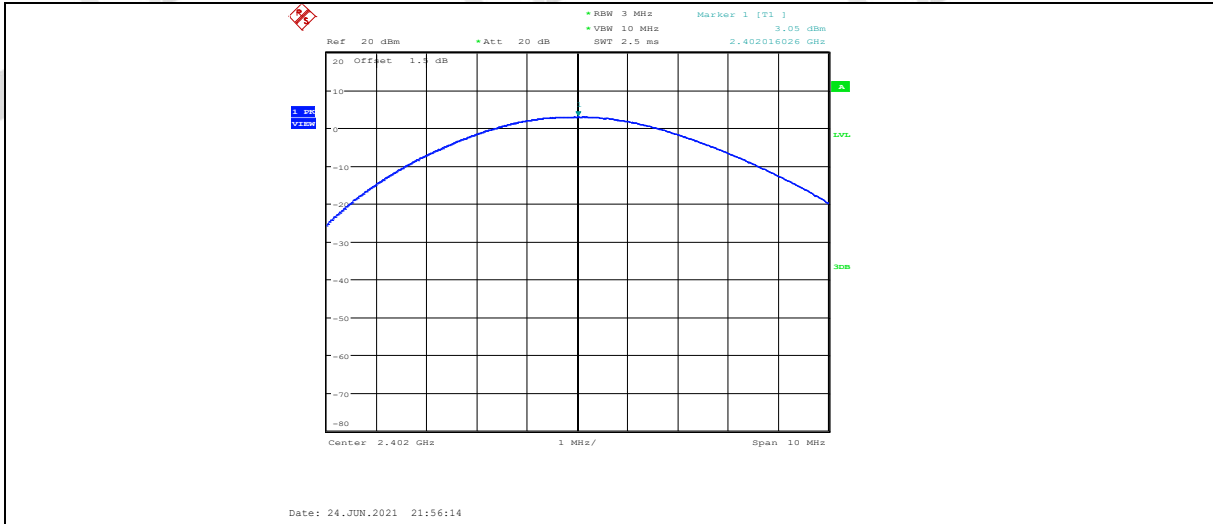
Note: The attenuator loss was inputted into spectrum analyzer as amplitude offset.

4.4. Test result

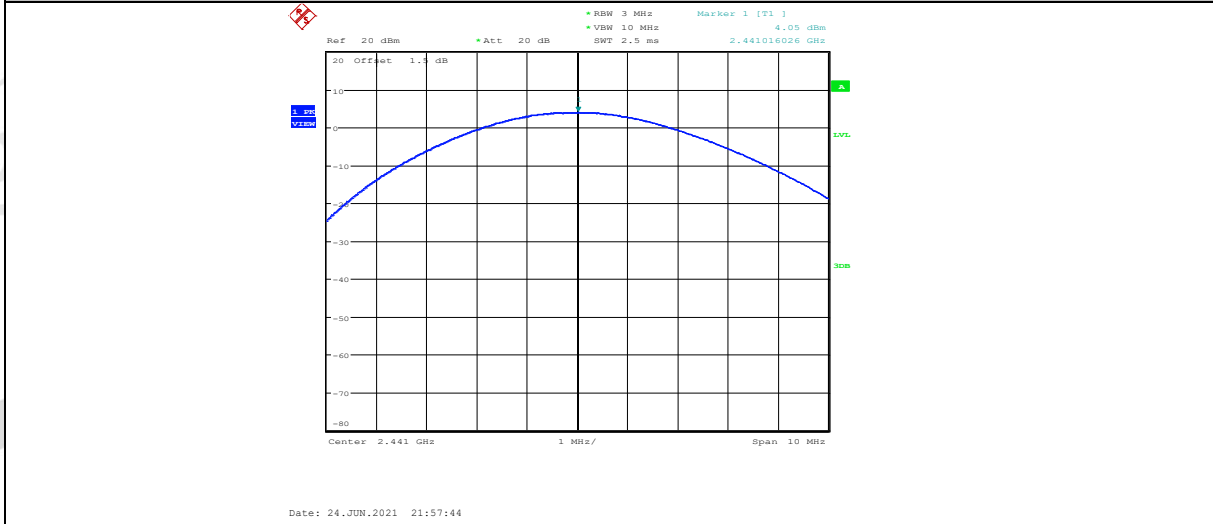
| Mode | Antenna | Freq. (MHz) | Result (dBm) | Limit (dBm) | Verdict |
|----------------|---------|-------------|--------------|-------------|---------|
| GFSK | ANT1 | 2402 | 4.03 | 21 | Pass |
| | ANT1 | 2441 | 4.96 | 21 | Pass |
| | ANT1 | 2480 | 4.46 | 21 | Pass |
| $\pi/4$ -DQPSK | ANT1 | 2402 | 3.05 | 21 | Pass |
| | ANT1 | 2441 | 4.05 | 21 | Pass |
| | ANT1 | 2480 | 3.58 | 21 | Pass |
| 8DPSK | ANT1 | 2402 | 3.31 | 21 | Pass |
| | ANT1 | 2441 | 4.28 | 21 | Pass |
| | ANT1 | 2480 | 3.82 | 21 | Pass |

4.5. Original test data

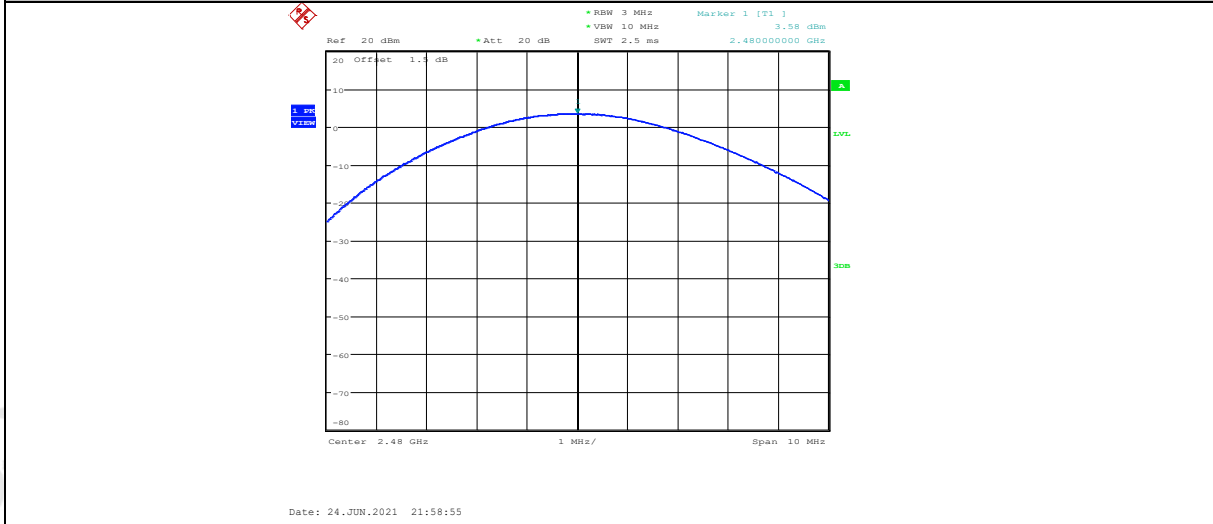




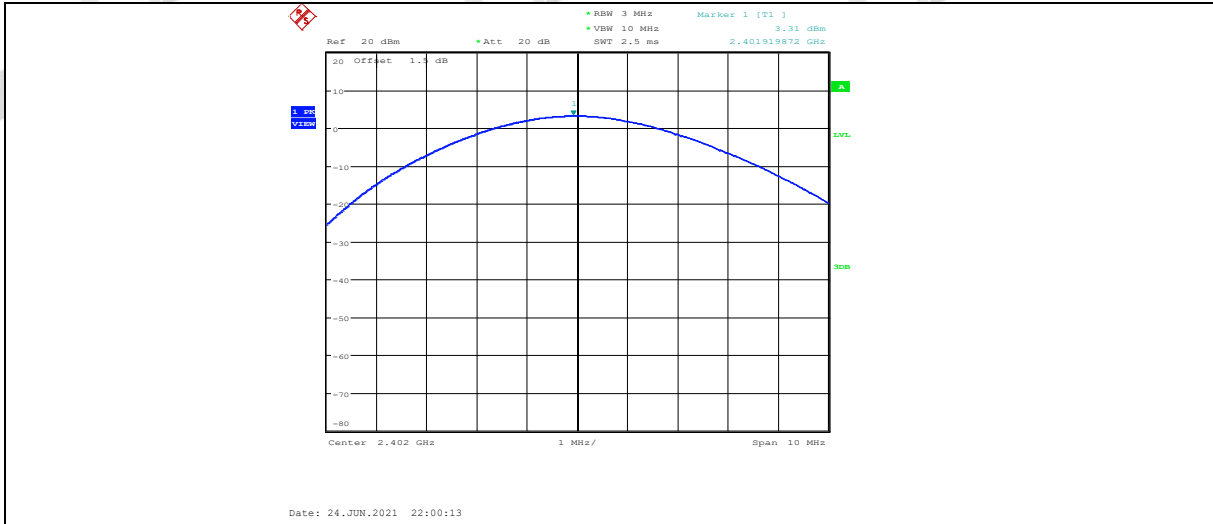
2DH5_ANT1_2441



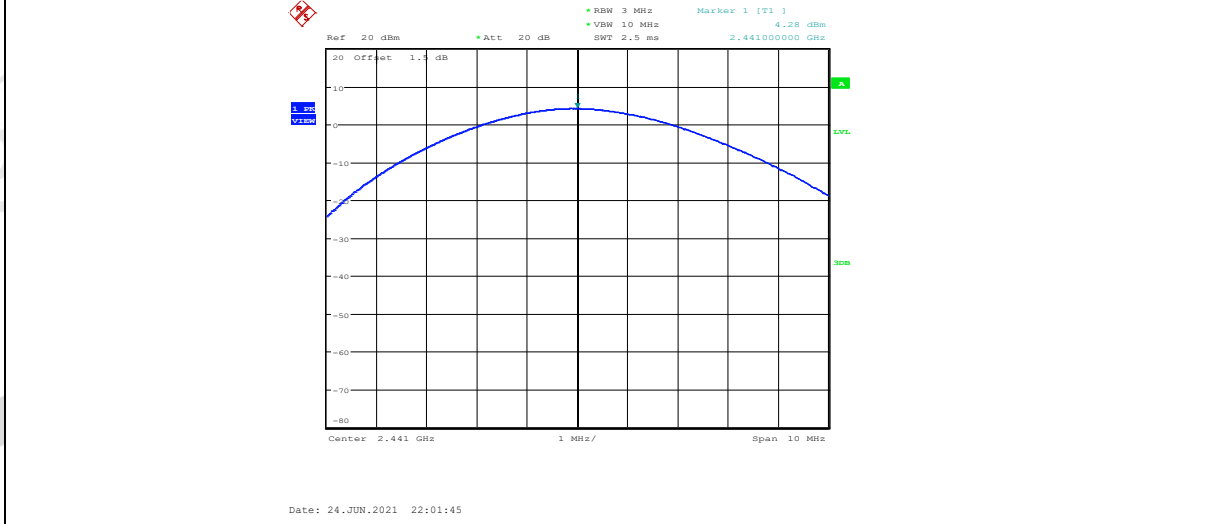
2DH5_ANT1_2480



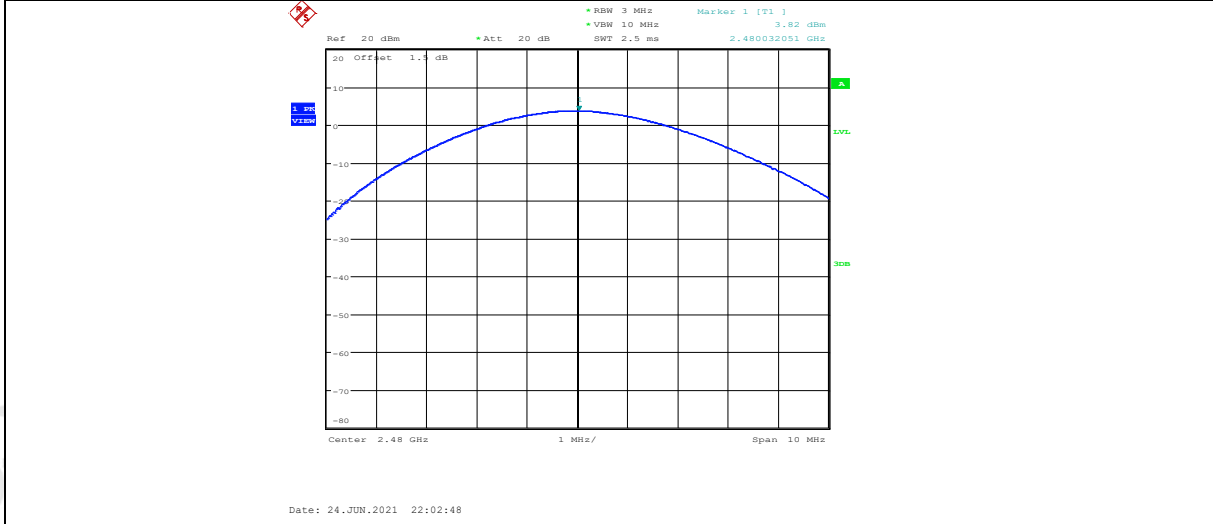
3DH5_ANT1_2402



3DH5_ANT1_2441



3DH5_ANT1_2480



5. 20 dB Bandwidth and 99% Bandwidth

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

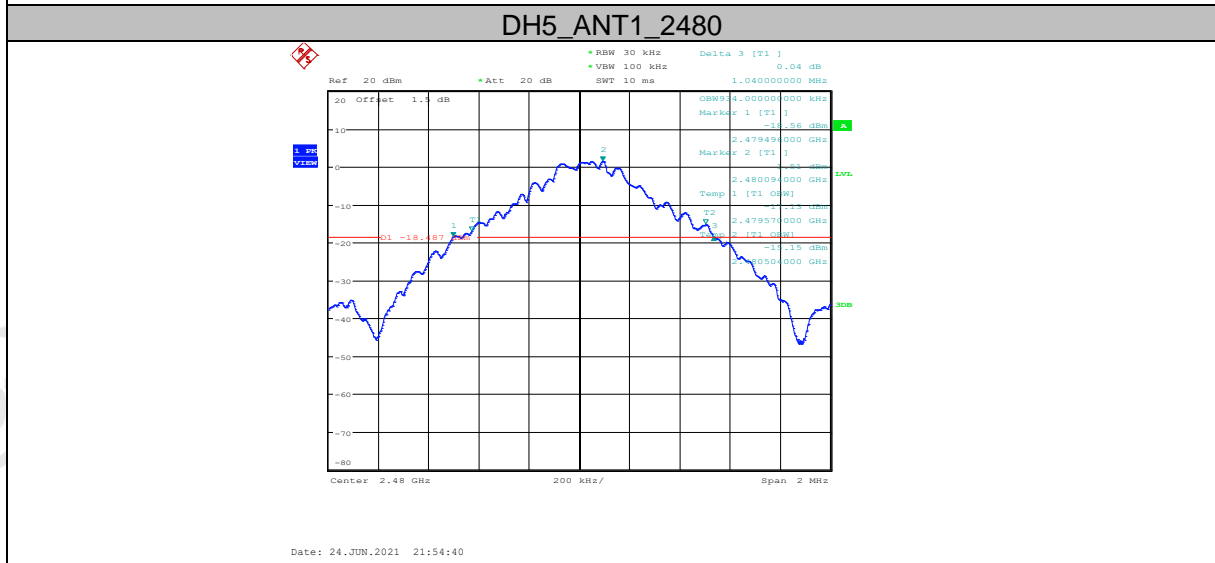
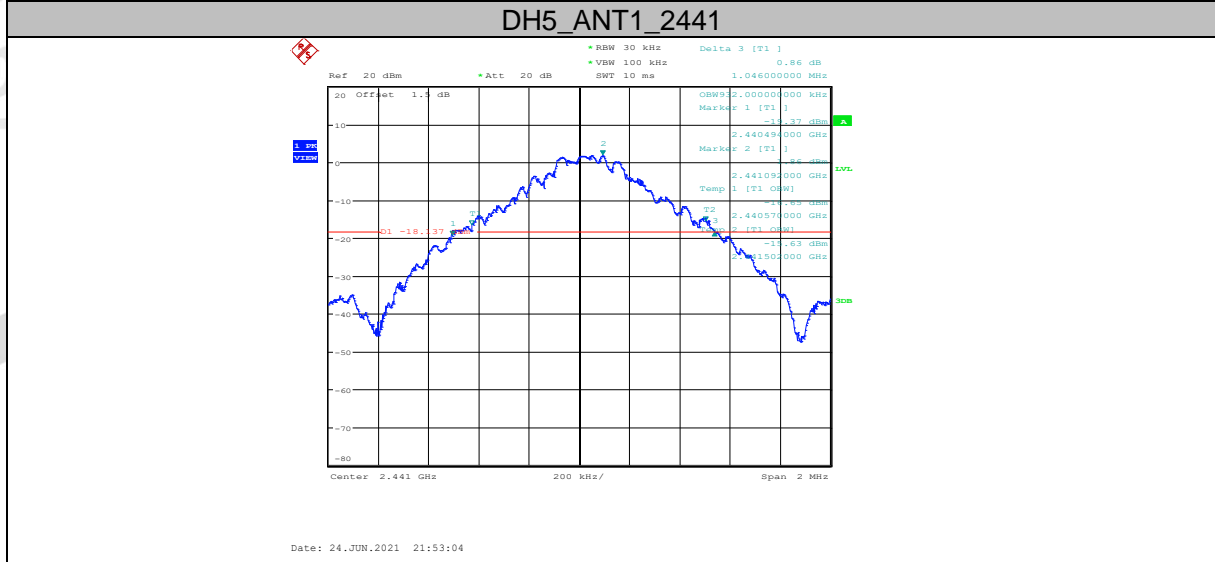
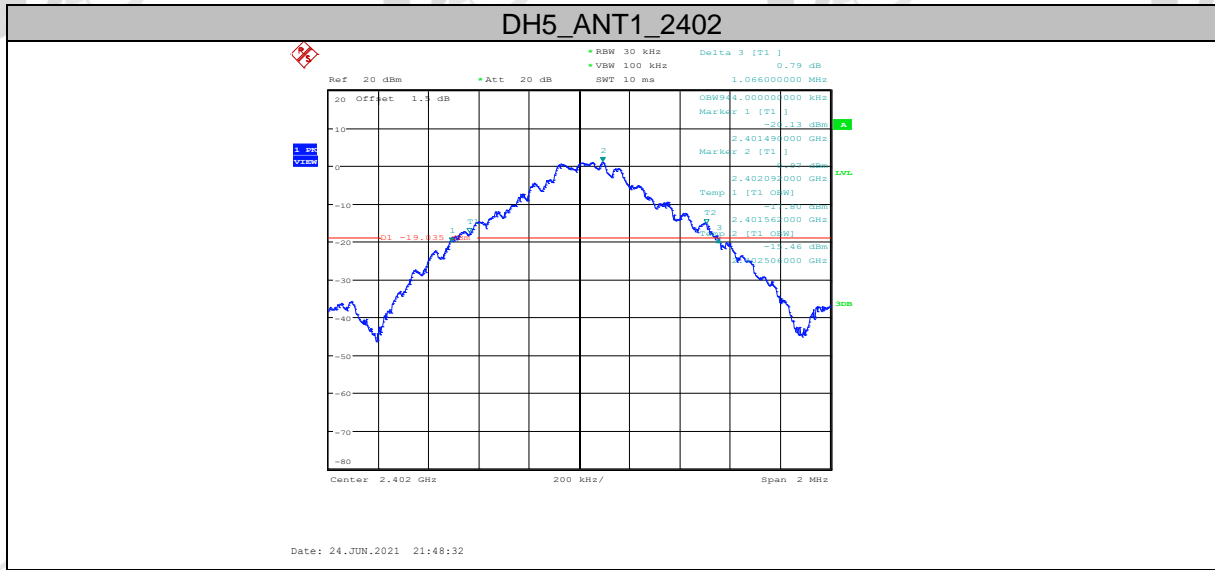
5.3. Test procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30 kHz RBW and 100 kHz VBW. The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

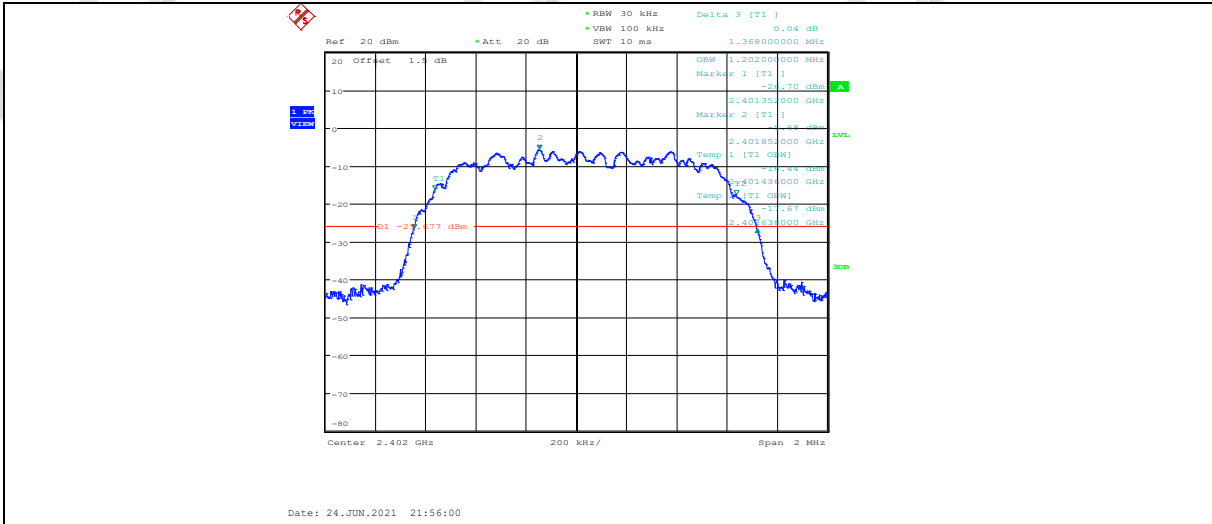
5.4. Test result

| Mode | Freq. (MHz) | 20 dB bandwidth Result (MHz) | 99% bandwidth Result (MHz) | Verdict |
|----------------|-------------|------------------------------|----------------------------|---------|
| GFSK | 2402 | 1.066 | 0.944 | Pass |
| | 2441 | 1.046 | 0.932 | Pass |
| | 2480 | 1.040 | 0.934 | Pass |
| $\pi/4$ -DQPSK | 2402 | 1.368 | 1.202 | Pass |
| | 2441 | 1.360 | 1.202 | Pass |
| | 2480 | 1.362 | 1.202 | Pass |
| 8DPSK | 2402 | 1.346 | 1.204 | Pass |
| | 2441 | 1.348 | 1.204 | Pass |
| | 2480 | 1.348 | 1.204 | Pass |

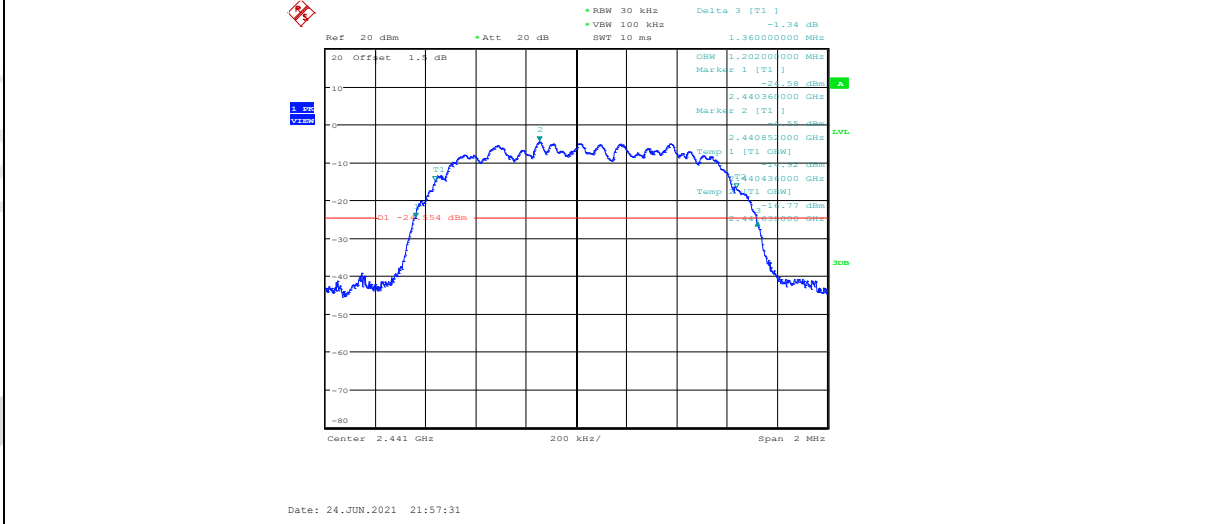
5.5. Original test data



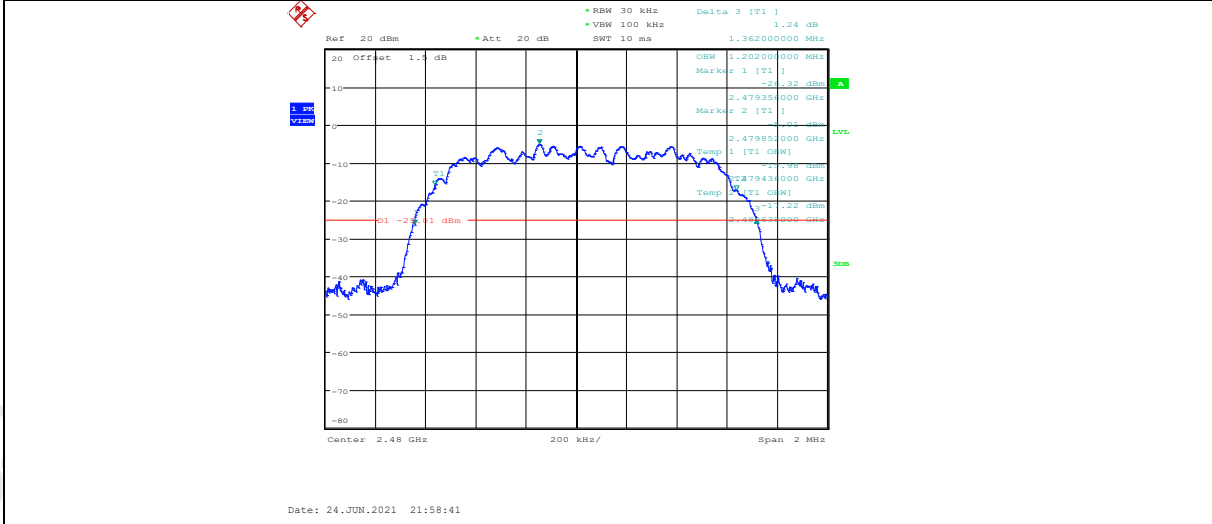
2DH5_ANT1_2402



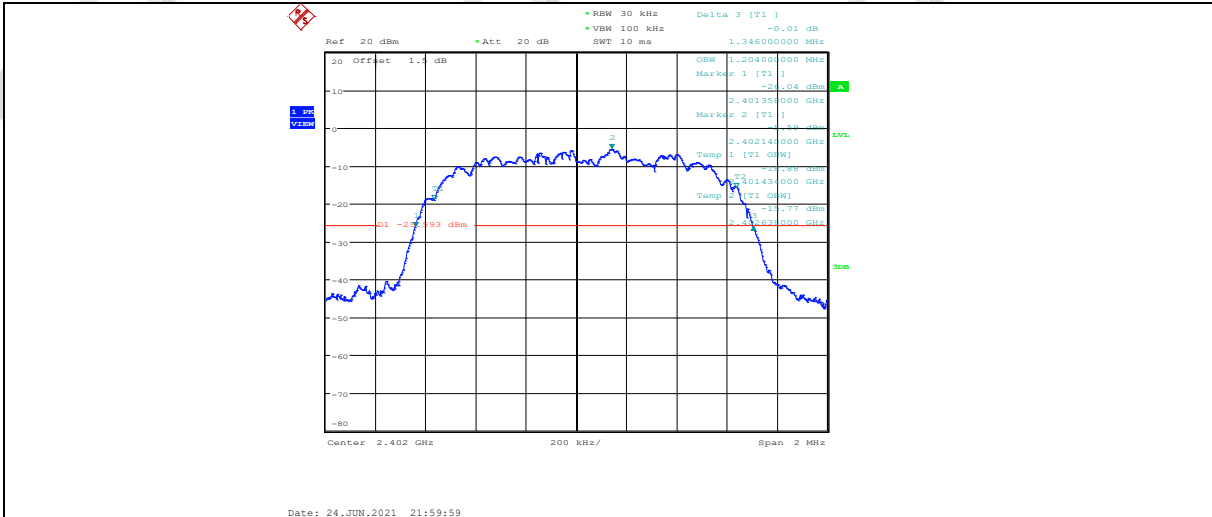
2DH5_ANT1_2441



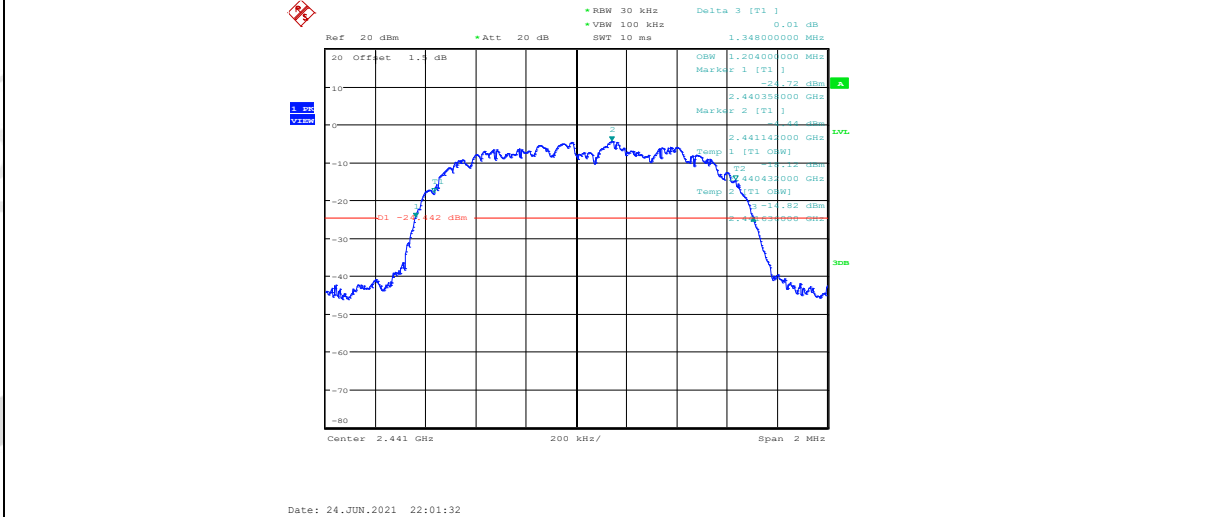
2DH5_ANT1_2480



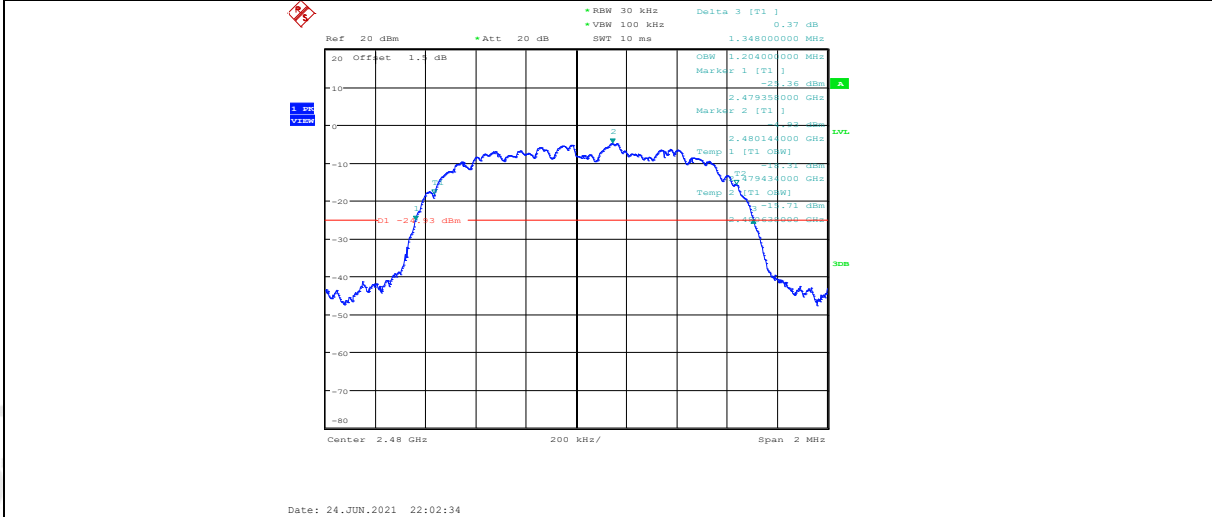
3DH5_ANT1_2402



3DH5_ANT1_2441



3DH5_ANT1_2480



6. Carrier Frequency Separation

6.1. Block diagram of test setup

Same as section 4.1

6.2. Limits

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

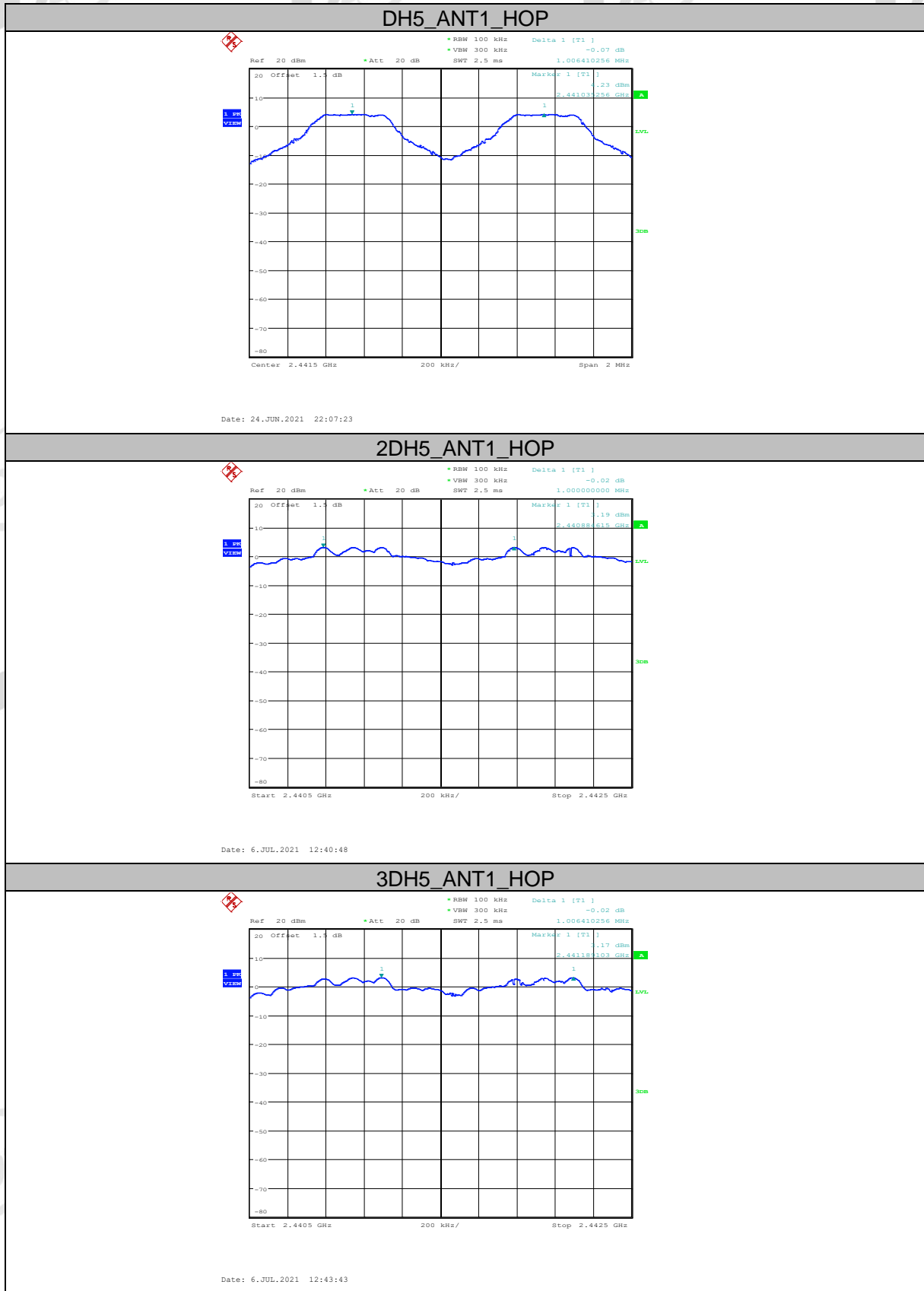
6.3. Test procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) The carrier frequency was measured by spectrum analyzer with 100 kHz RBW and 300 kHz VBW.

6.4. Test result

| Mode | Channel separation (MHz) | 20 dB bandwidth (MHz) (worse case) | Limit (MHz) 2/3 of 20 dB bandwidth | Verdict |
|----------------|--------------------------|------------------------------------|------------------------------------|---------|
| GFSK | 1.006 | 1.066 | ≥0.711 | Pass |
| $\pi/4$ -DQPSK | 1.000 | 1.368 | ≥0.912 | Pass |
| 8DPSK | 1.006 | 1.348 | ≥0.899 | Pass |

6.5. Original test data



7. Number of Hopping Channel

7.1. Block diagram of test setup

Same as section 4.1

7.2. Limits

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

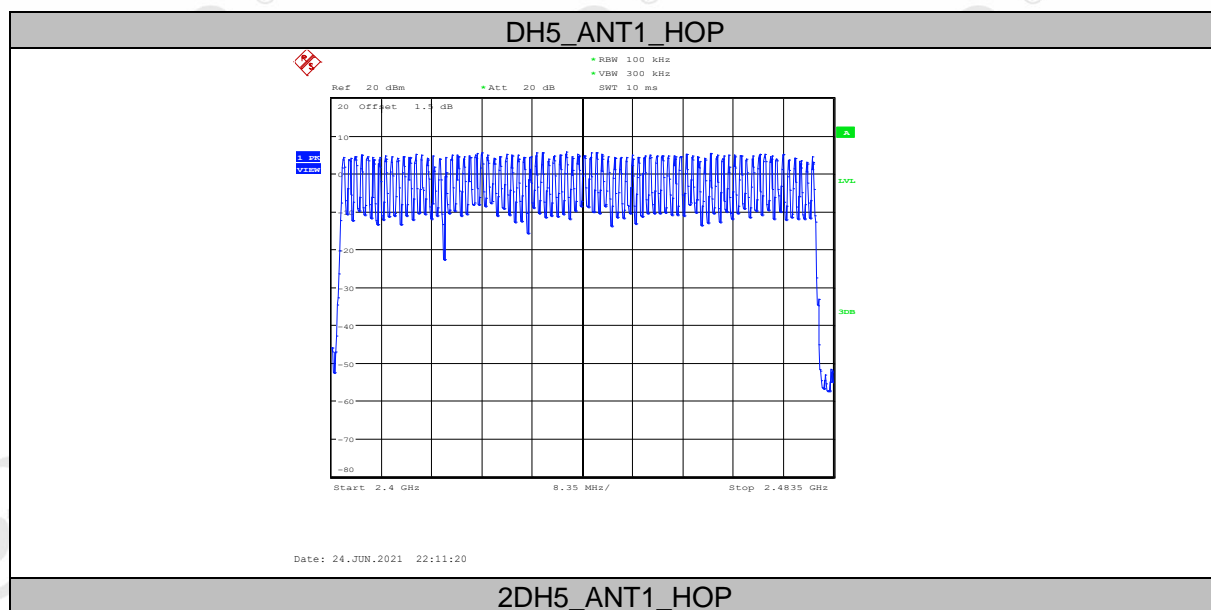
7.3. Test procedure

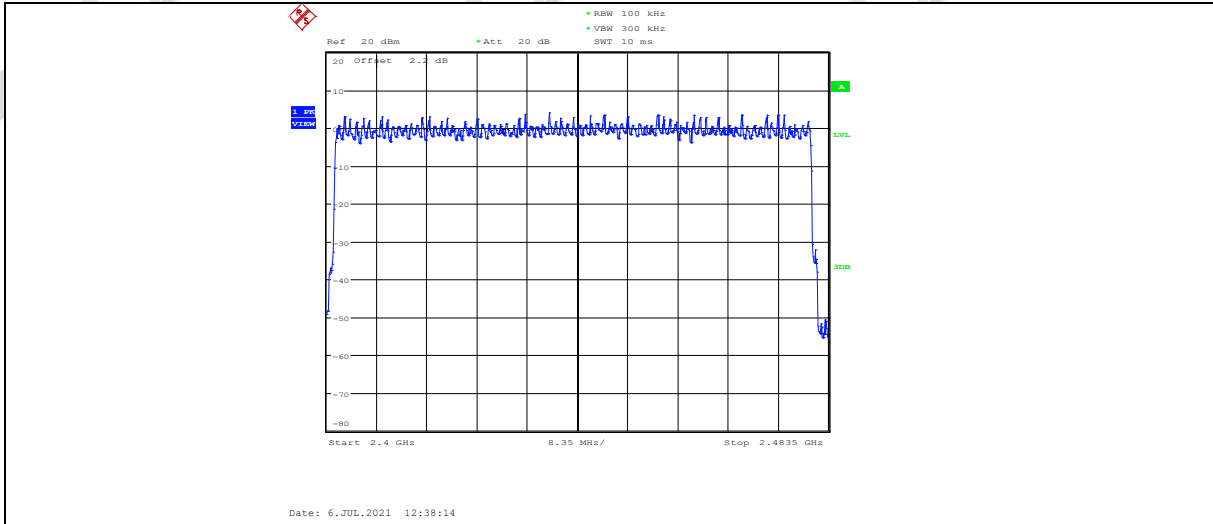
- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) The number of hopping channel was measured by spectrum analyzer with 100 kHz RBW and 300 kHz VBW.

7.4. Test result

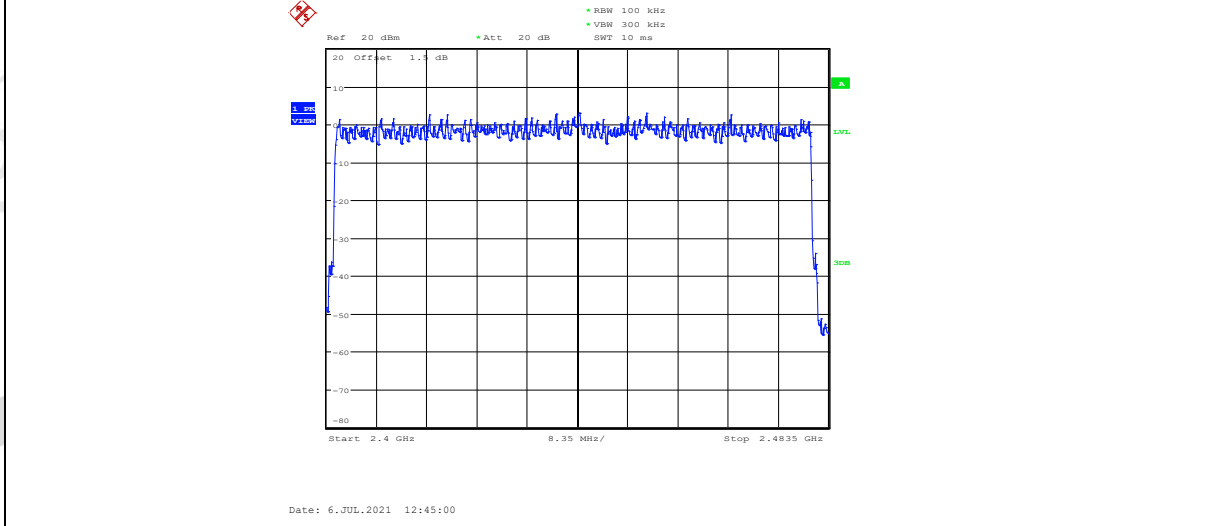
| Mode | Number of hopping channels | Limit | Verdict |
|----------------|----------------------------|-------|---------|
| GFSK | 79 | >15 | Pass |
| $\pi/4$ -DQPSK | 79 | >15 | Pass |
| 8DPSK | 79 | >15 | Pass |

7.5. Original test data





3DH5 ANT1_HOP



8. Dwell Time

8.1. Block diagram of test setup

Same as section 4.1

8.2. Limits

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

8.3. Test procedure

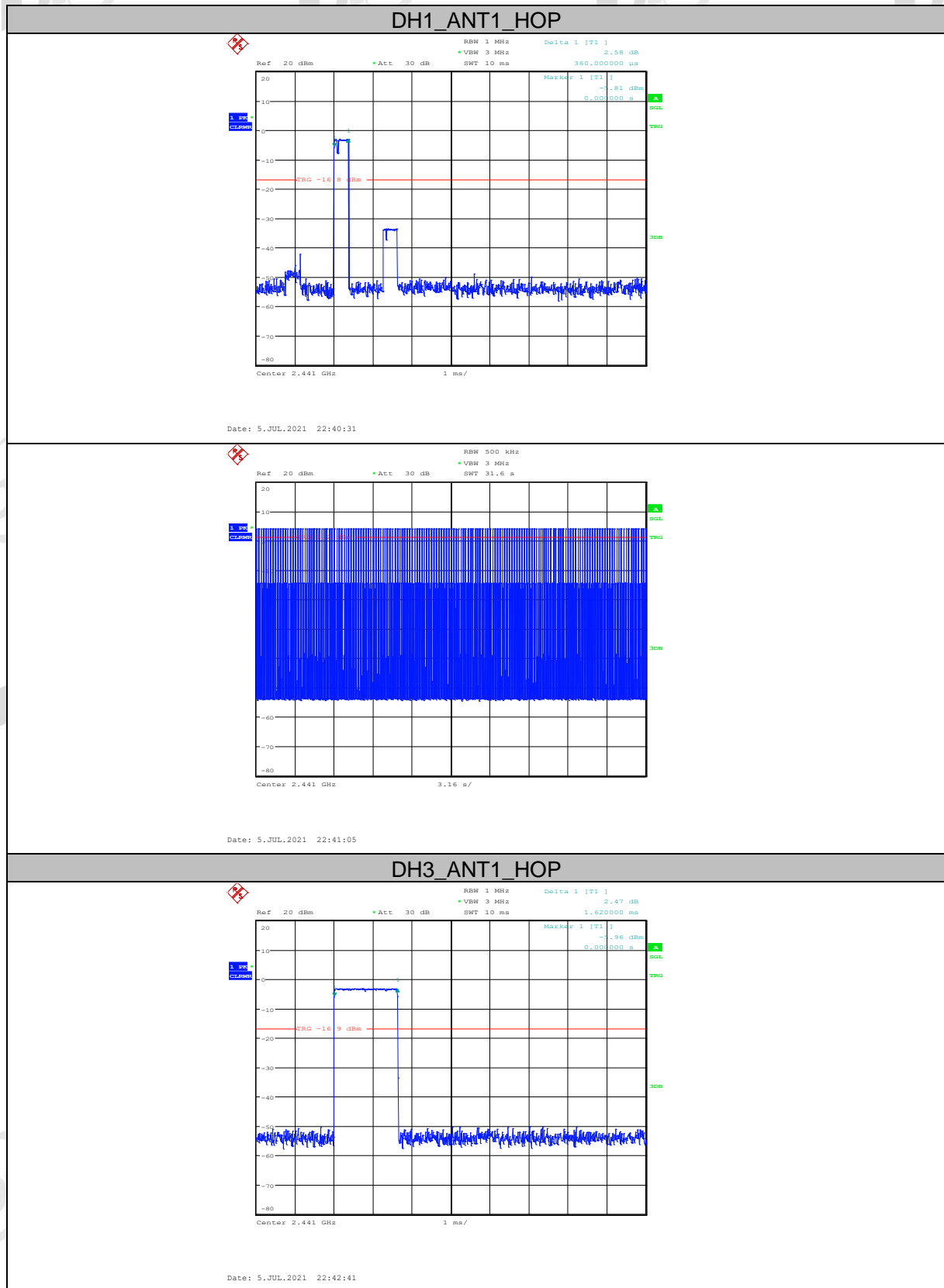
- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) The test period: $T = 0.4 \text{ Second/Channel} \times 79 \text{ Channel} = 31.6 \text{ s}$
- (3) Measure the hopping number and on time of each pulse with spectrum analyzer in zero span set, and calculate dwell time with formula $\text{Dwell time} = \text{total hops} \times \text{pulse's on time}$.

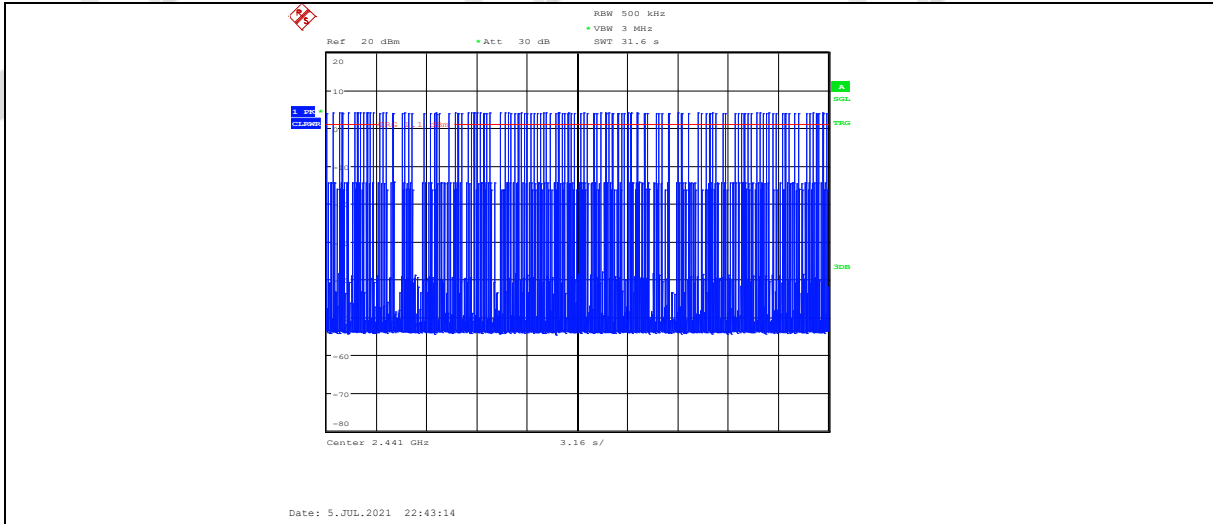
8.4. Test result

| Mode | Dwell time (s) | Pulse's on time (ms) | Total hops | Limit | Verdict |
|------|----------------|----------------------|------------|--------|---------|
| DH1 | 0.112 | 0.36 | 312 | <400ms | Pass |
| DH3 | 0.241 | 1.62 | 149 | <400ms | Pass |
| DH5 | 0.307 | 2.87 | 107 | <400ms | Pass |
| 2DH1 | 0.116 | 0.37 | 314 | <400ms | Pass |
| 2DH3 | 0.253 | 1.62 | 156 | <400ms | Pass |
| 2DH5 | 0.294 | 2.88 | 102 | <400ms | Pass |
| 3DH1 | 0.117 | 0.37 | 316 | <400ms | Pass |
| 3DH3 | 0.233 | 1.63 | 143 | <400ms | Pass |
| 3DH5 | 0.334 | 2.88 | 116 | <400ms | Pass |

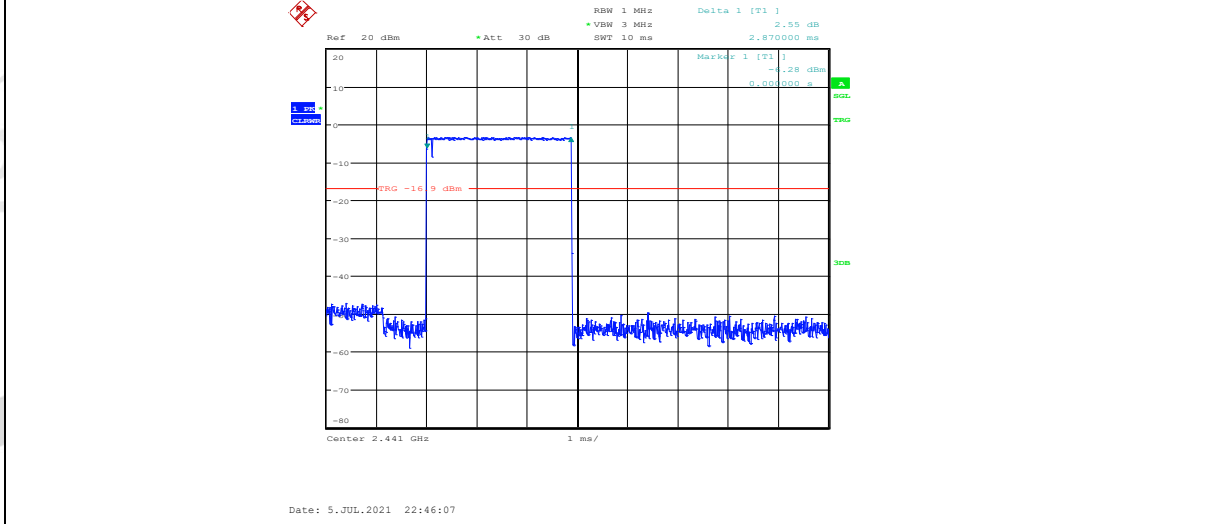
Note: $\text{Dwell time} = \text{total hops} \times \text{pulse's on time}$.

8.5. Original test data

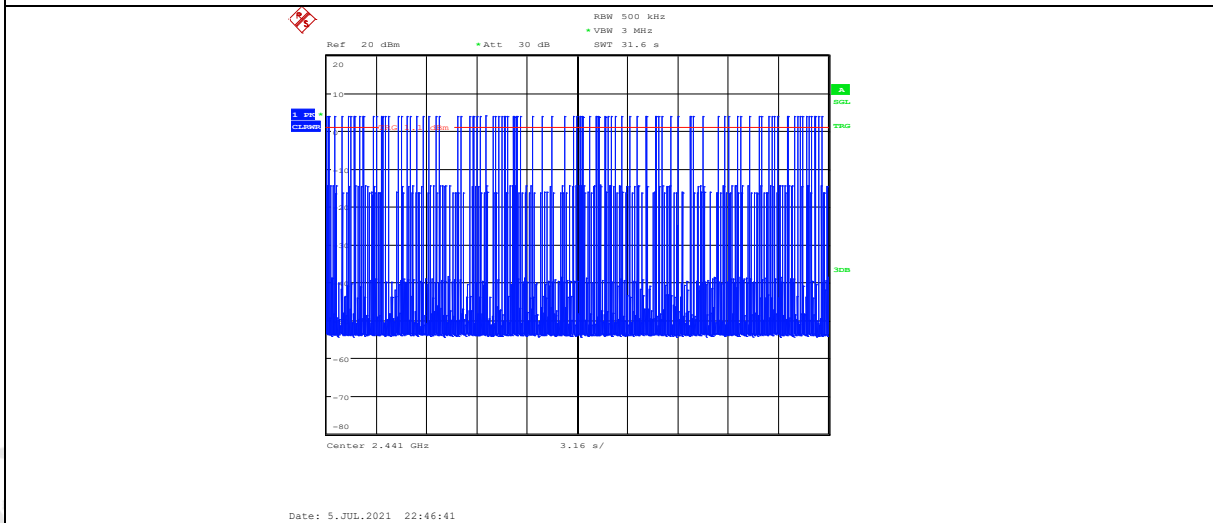


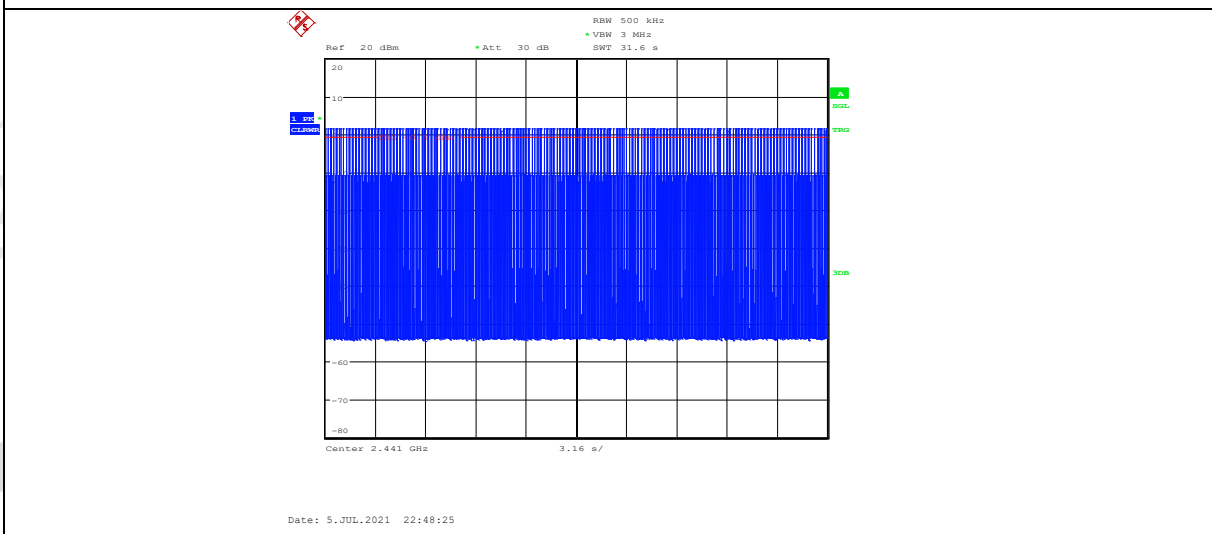
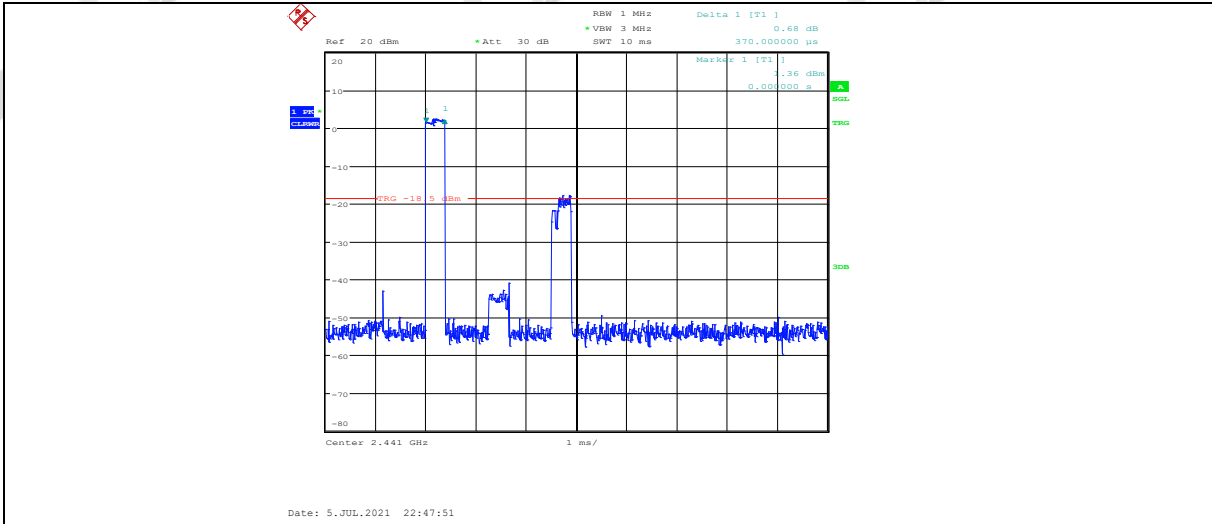


DH5_ANT1_HOP

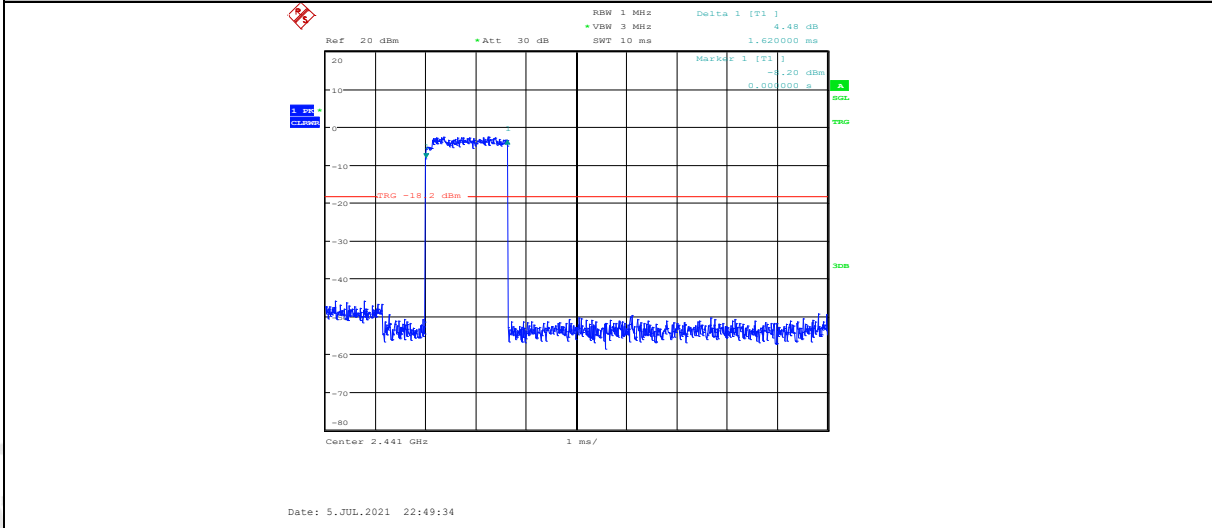


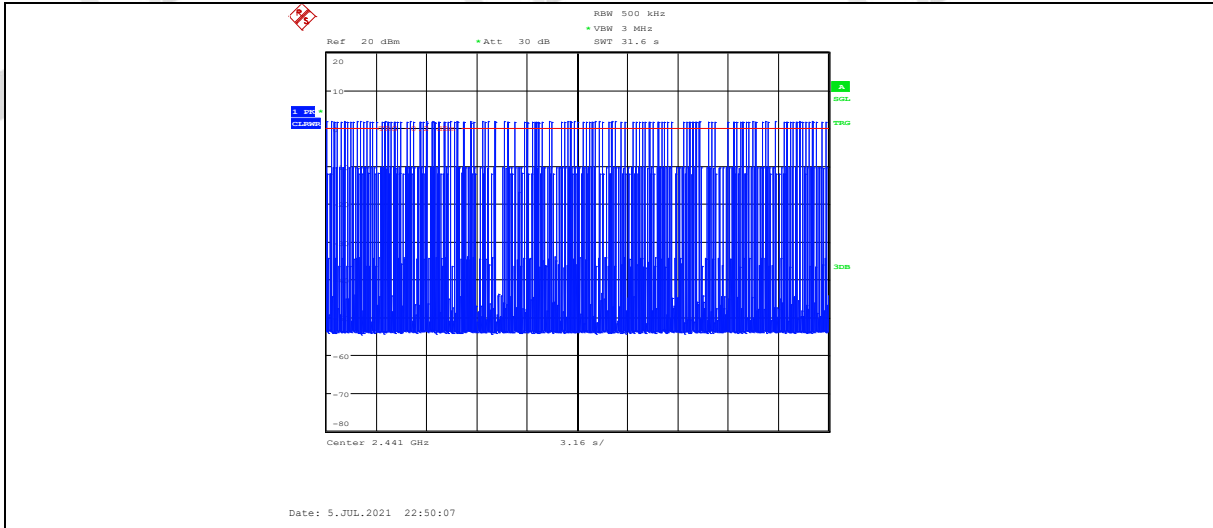
2DH1_ANT1_HOP



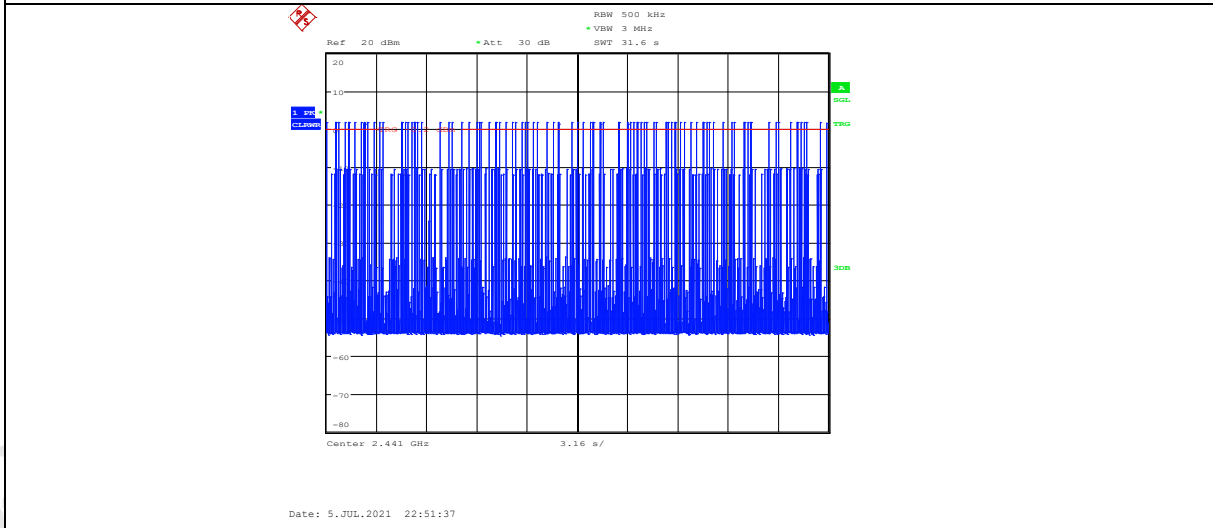
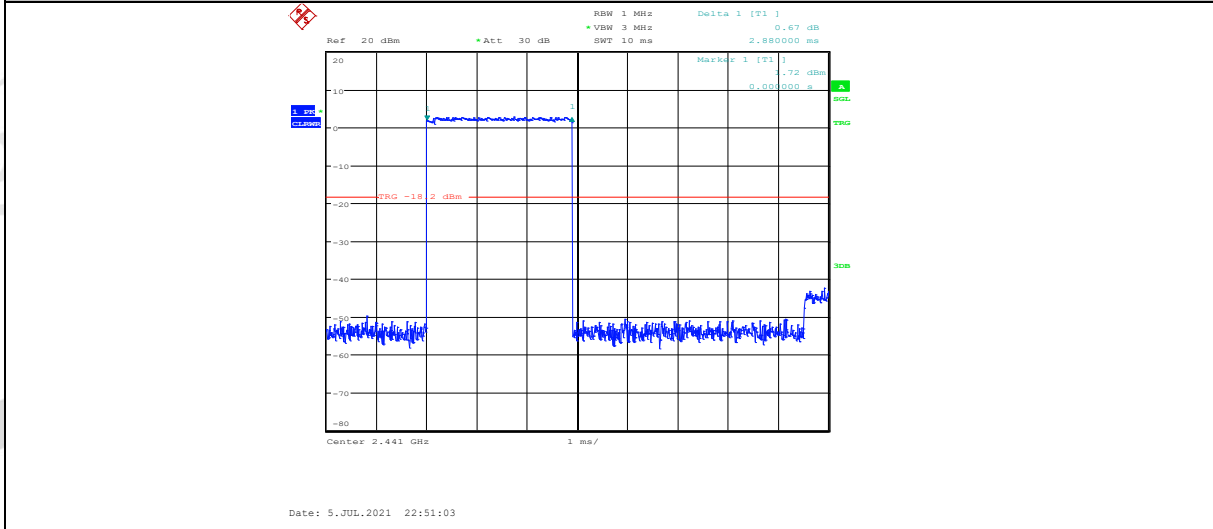


2DH3_ANT1_HOP

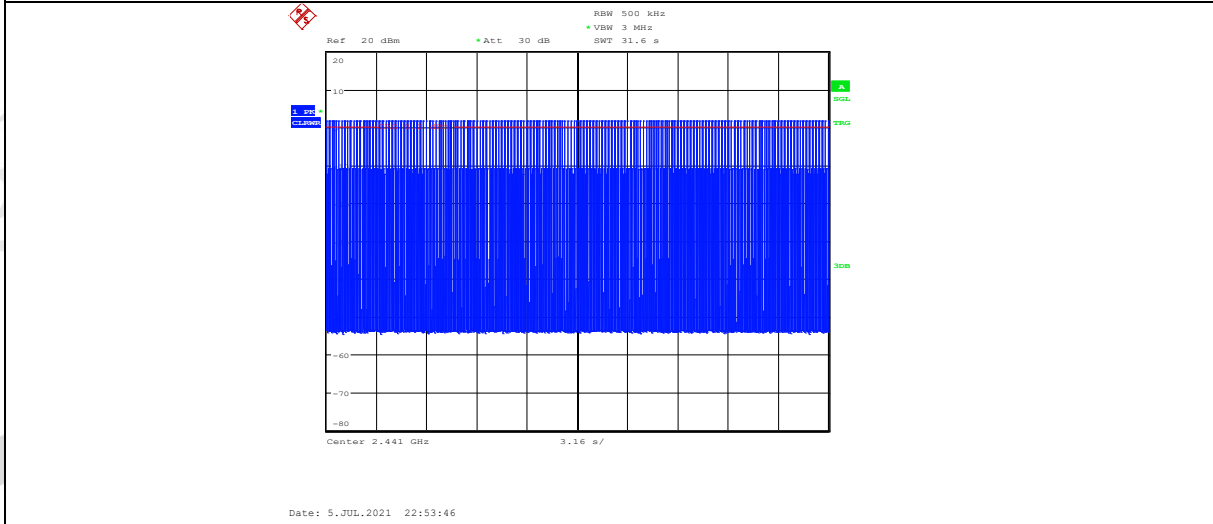
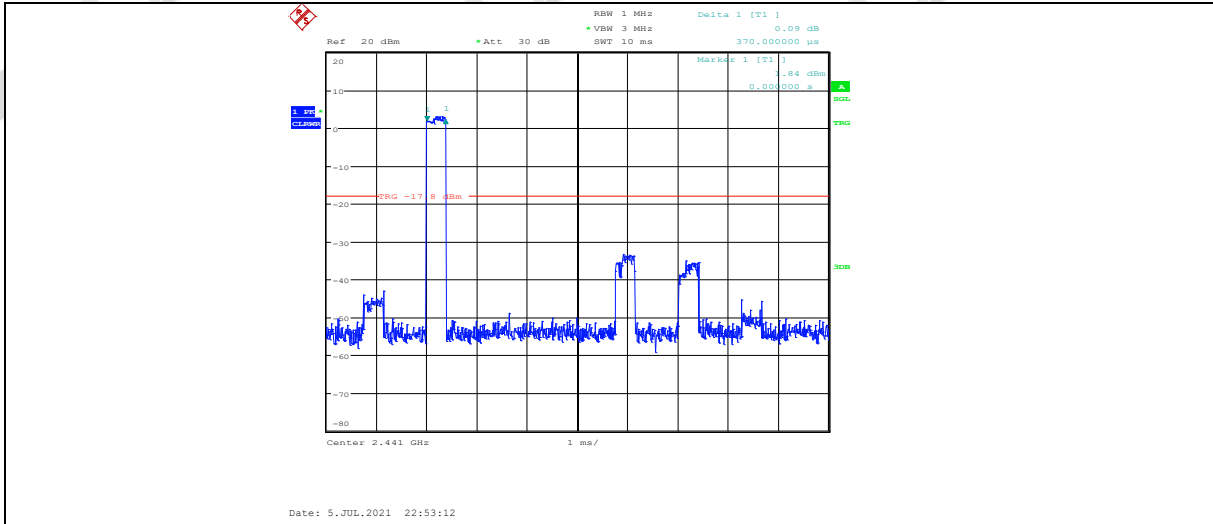




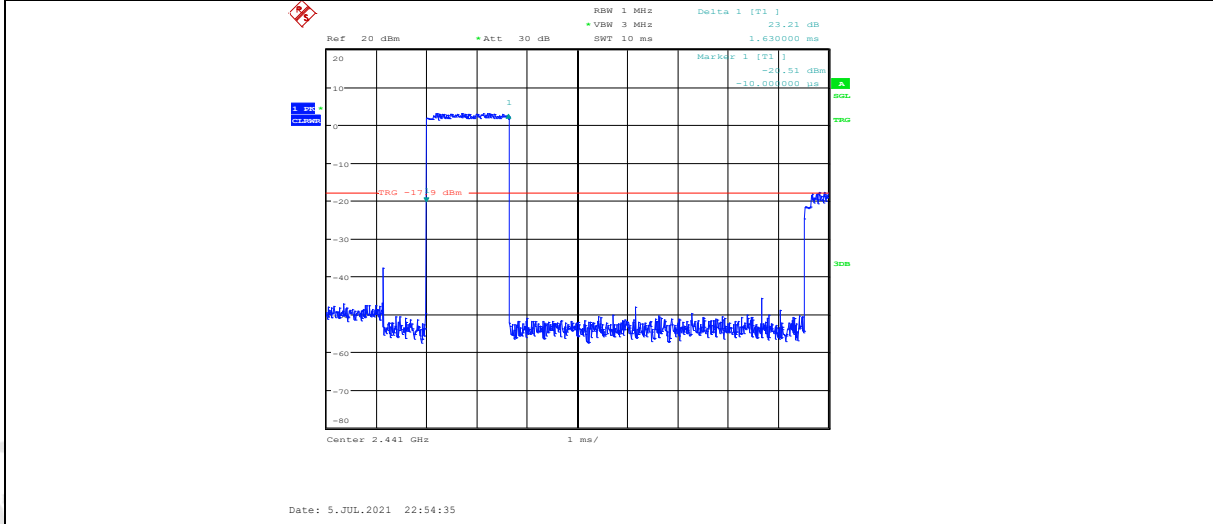
2DH5_ANT1_HOP

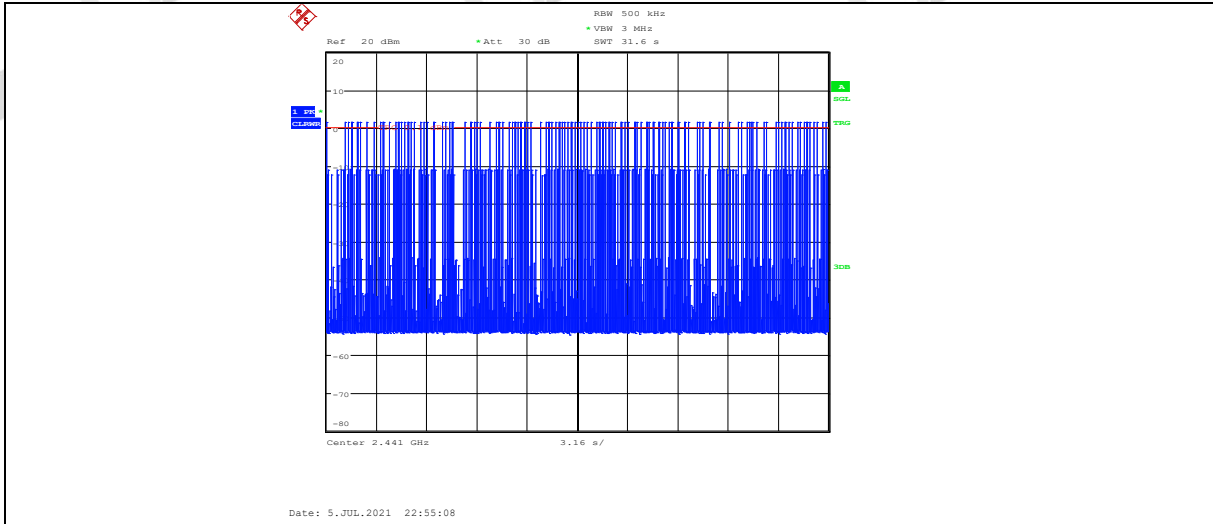


3DH1_ANT1_HOP

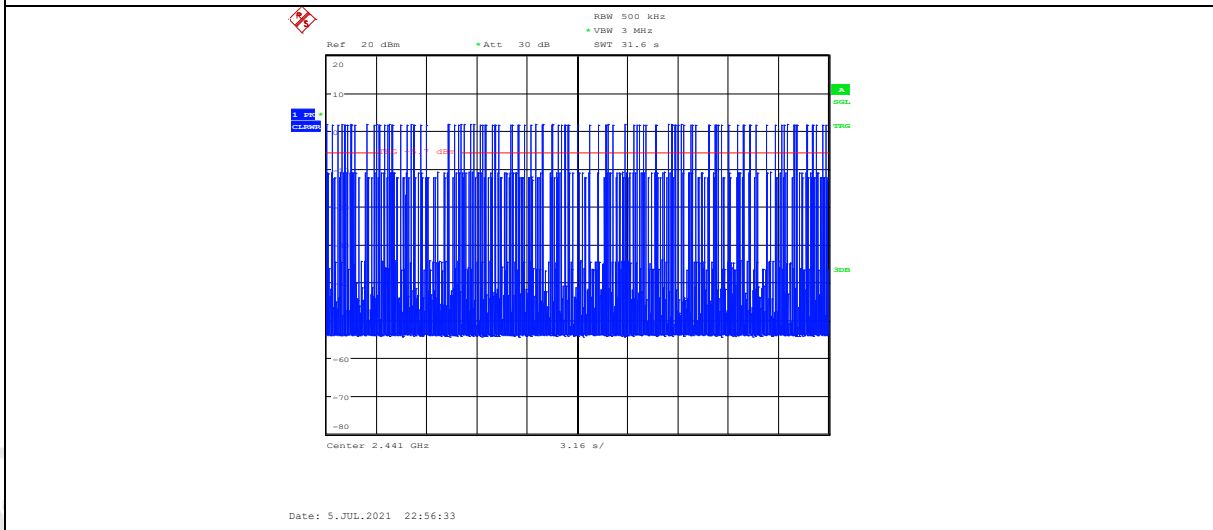
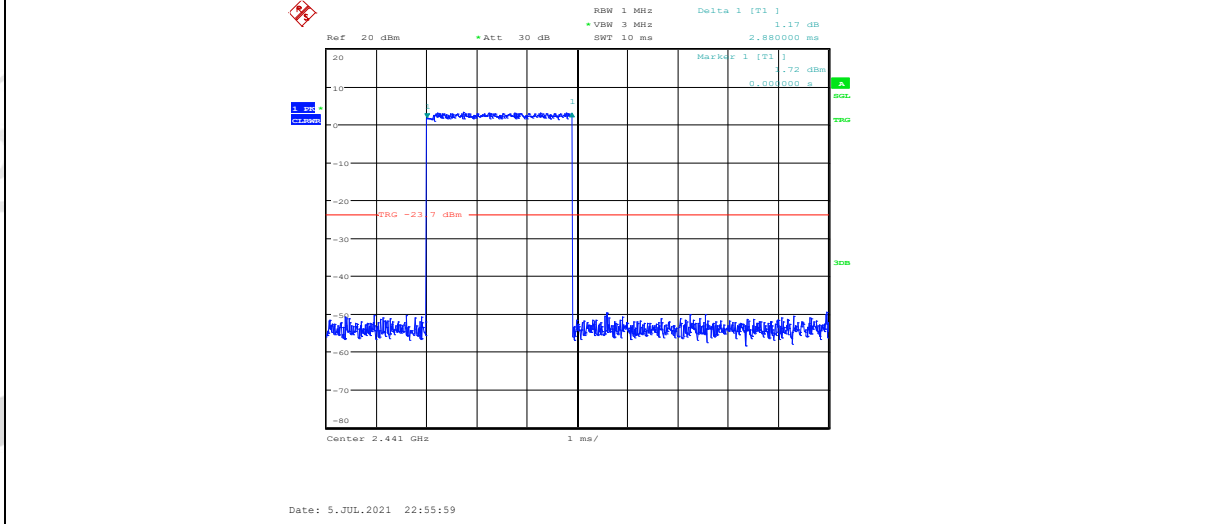


3DH3_ANT1_HOP





3DH5_ANT1_HOP



9. Band Edge Compliance (Conducted Method)

9.1. Block diagram of test setup

Same as section 4.1

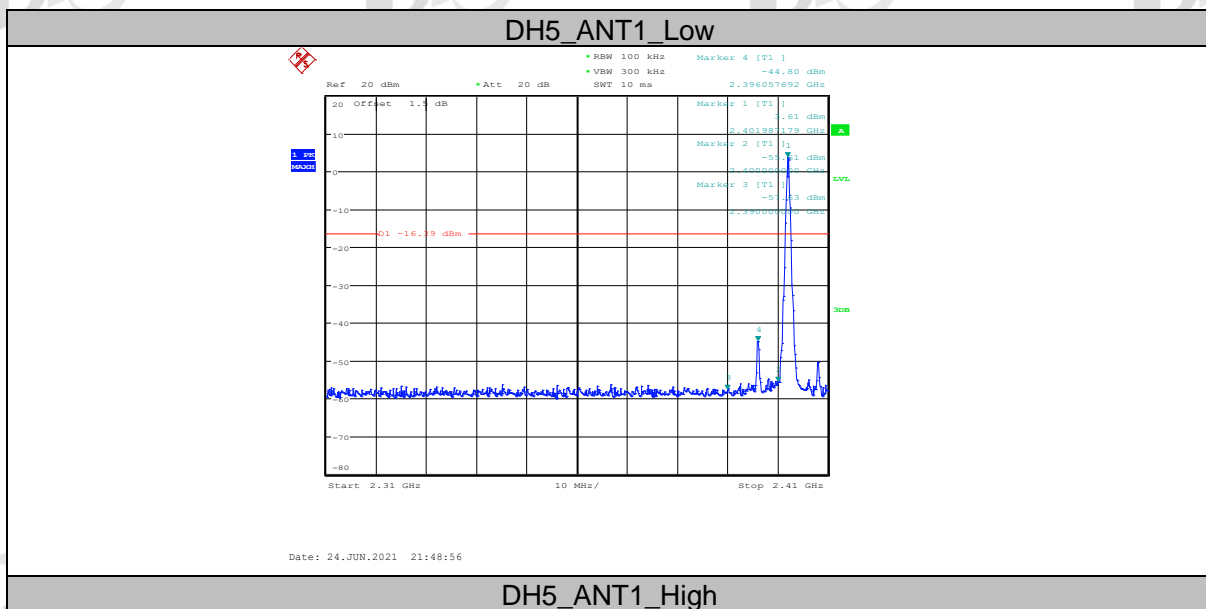
9.2. Limit

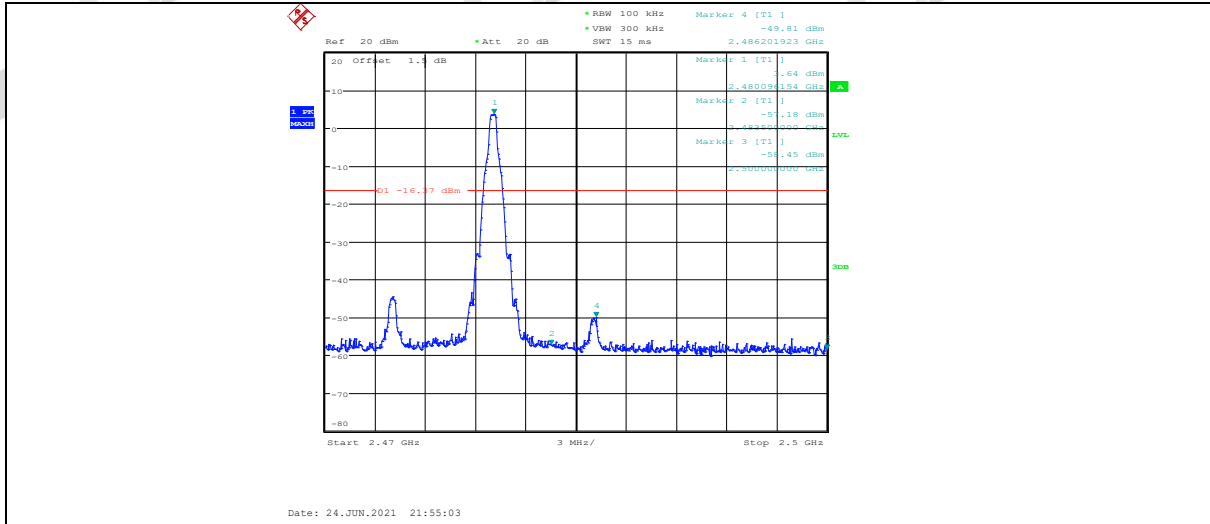
All restriction band should comply with 15.209, other emission should be at least 20 dB below the fundamental.

9.3. Test result

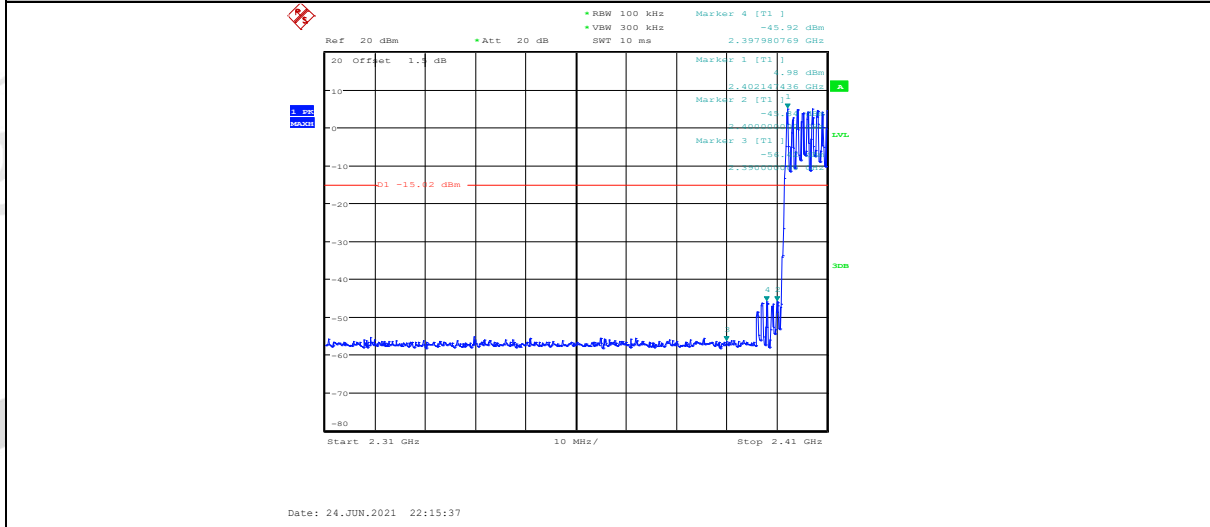
| Mode | Freq. (MHz) | Conclusion |
|----------------|------------------|------------|
| GFSK | Hopping off 2402 | Pass |
| | Hopping off 2480 | Pass |
| | Hopping on | Pass |
| $\pi/4$ -DQPSK | Hopping off 2402 | Pass |
| | Hopping off 2480 | Pass |
| | Hopping on | Pass |
| 8DPSK | Hopping off 2402 | Pass |
| | Hopping off 2480 | Pass |
| | Hopping on | Pass |

9.4. Original test data

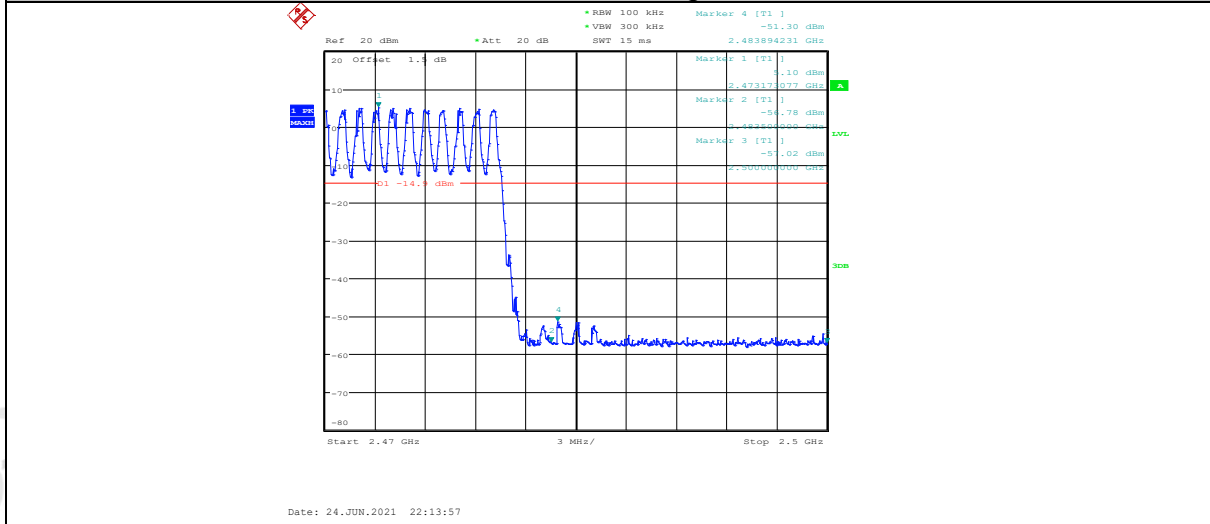




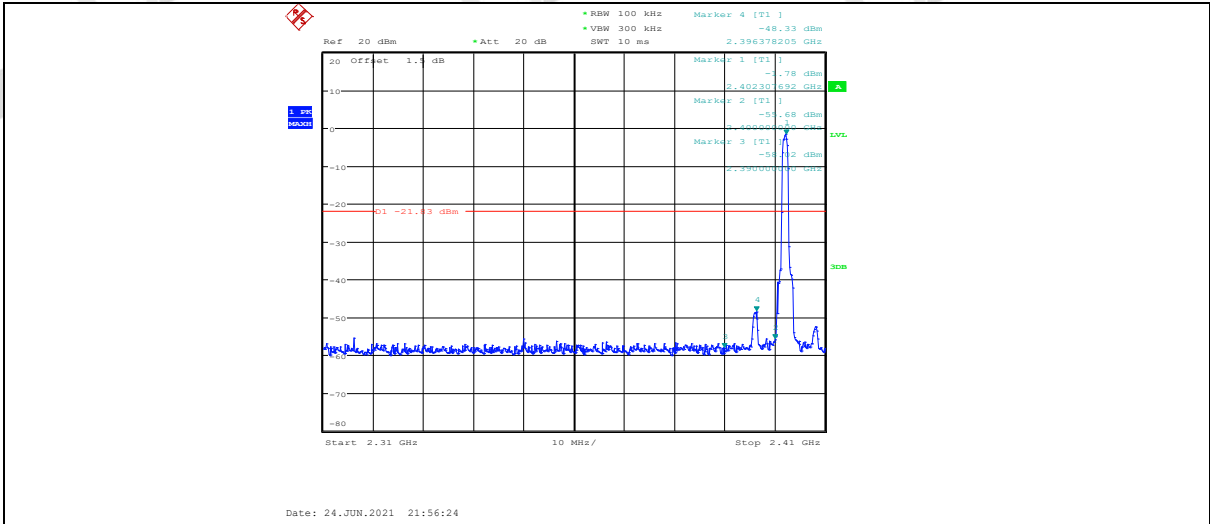
DH5_ANT1_Low



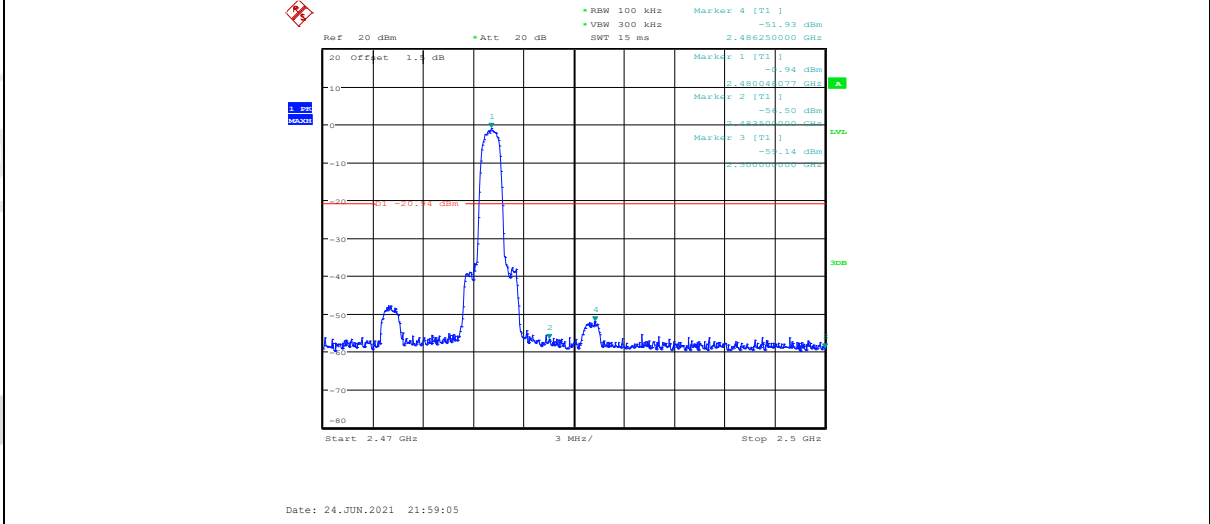
DH5_ANT1_High



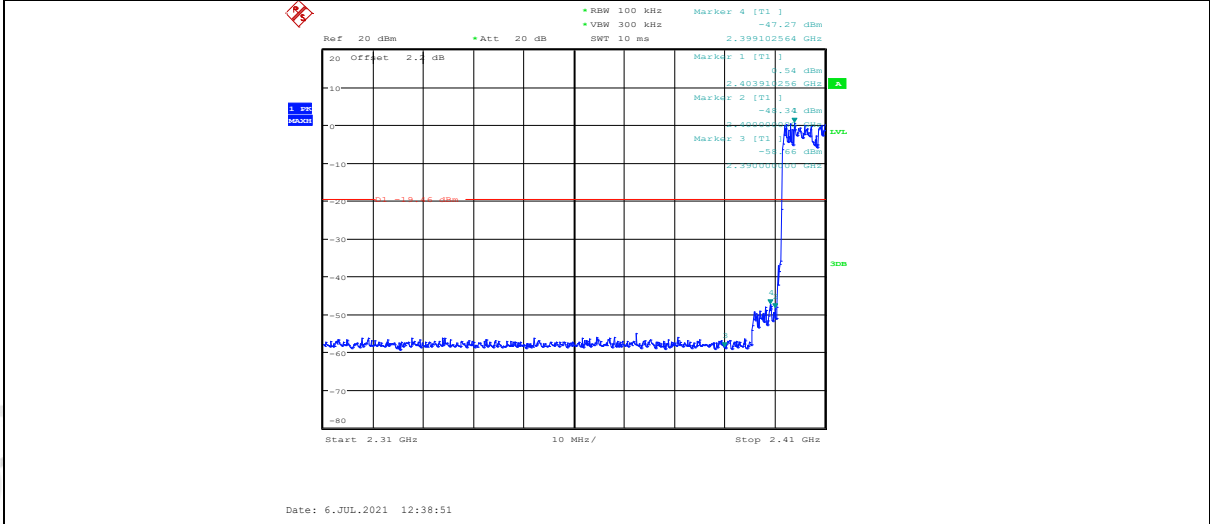
2DH5_ANT1_Low



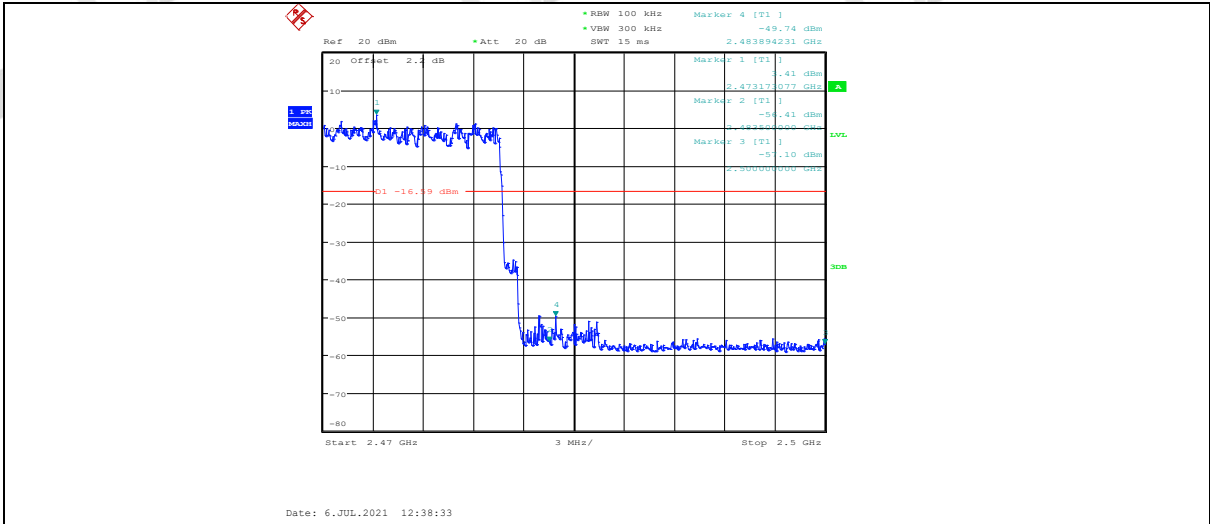
2DH5_ANT1_High



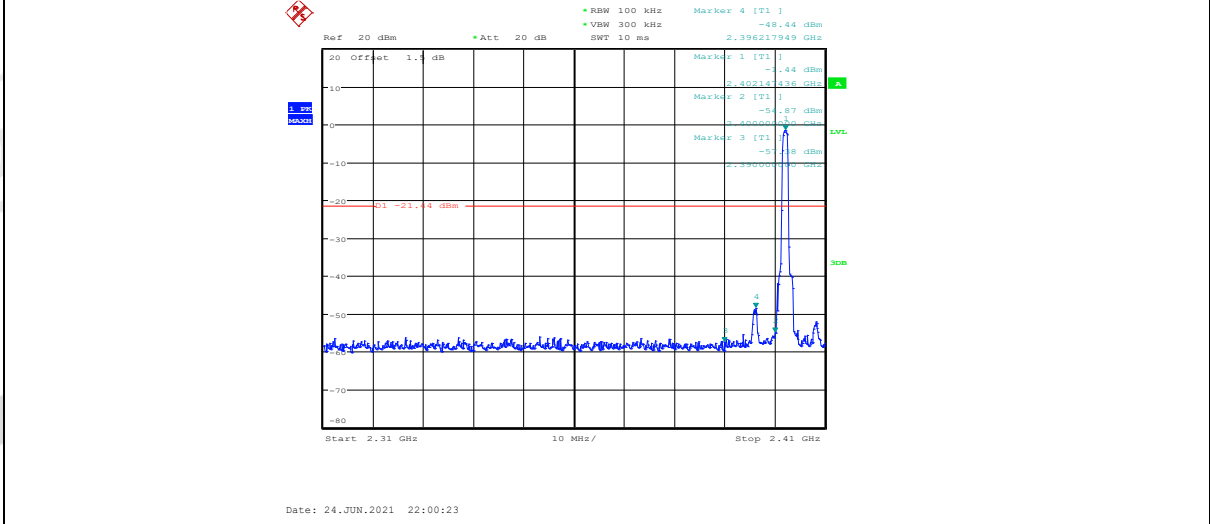
2DH5_ANT1_Low



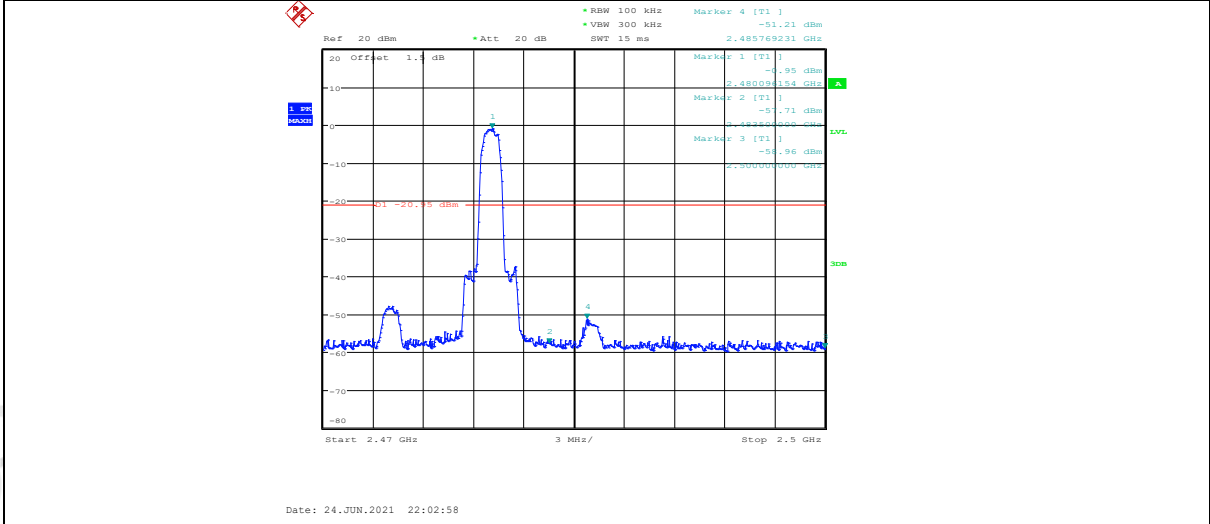
2DH5_ANT1_High



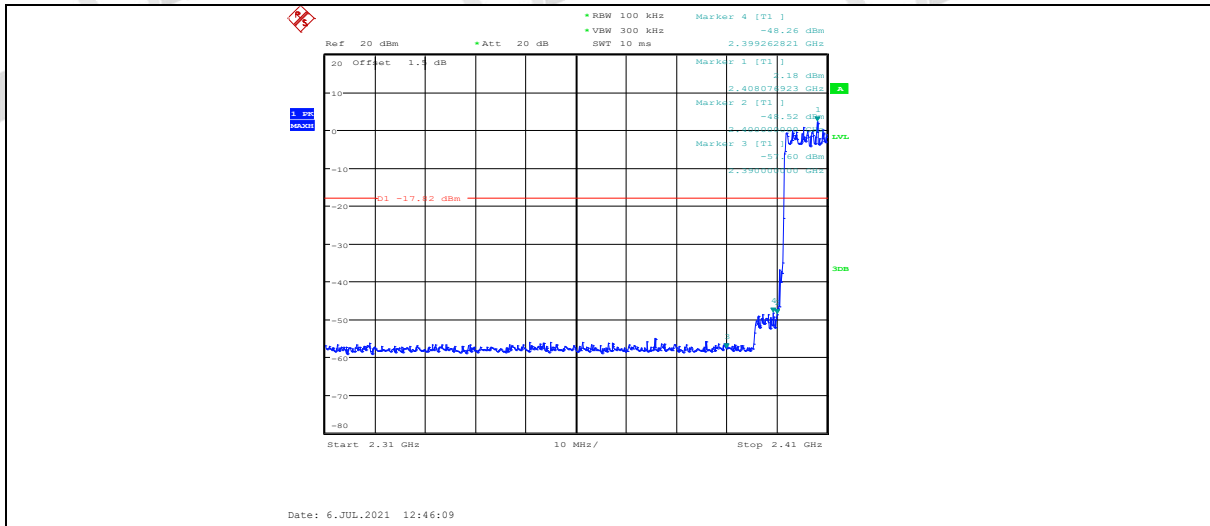
3DH5_ANT1_Low



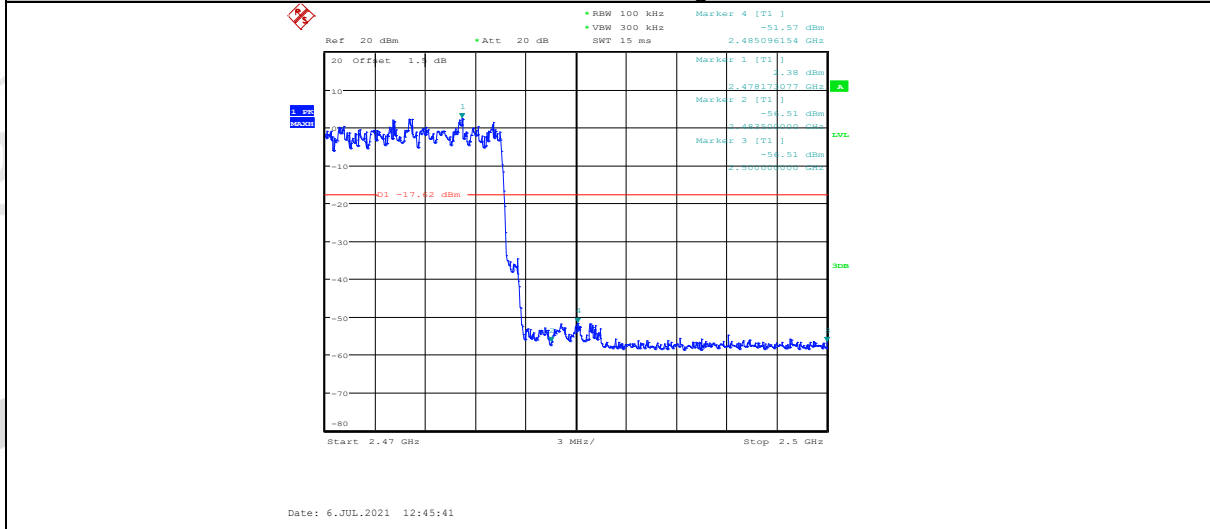
3DH5_ANT1_High



3DH5_ANT1_Low



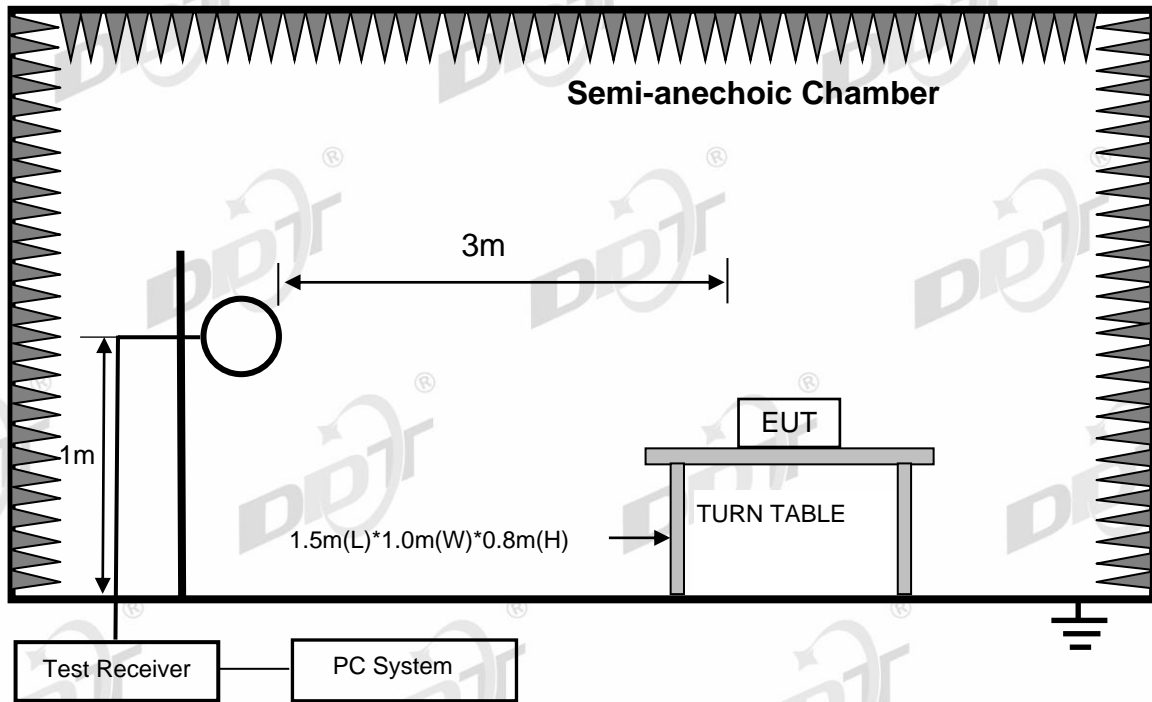
3DH5 ANT1_High



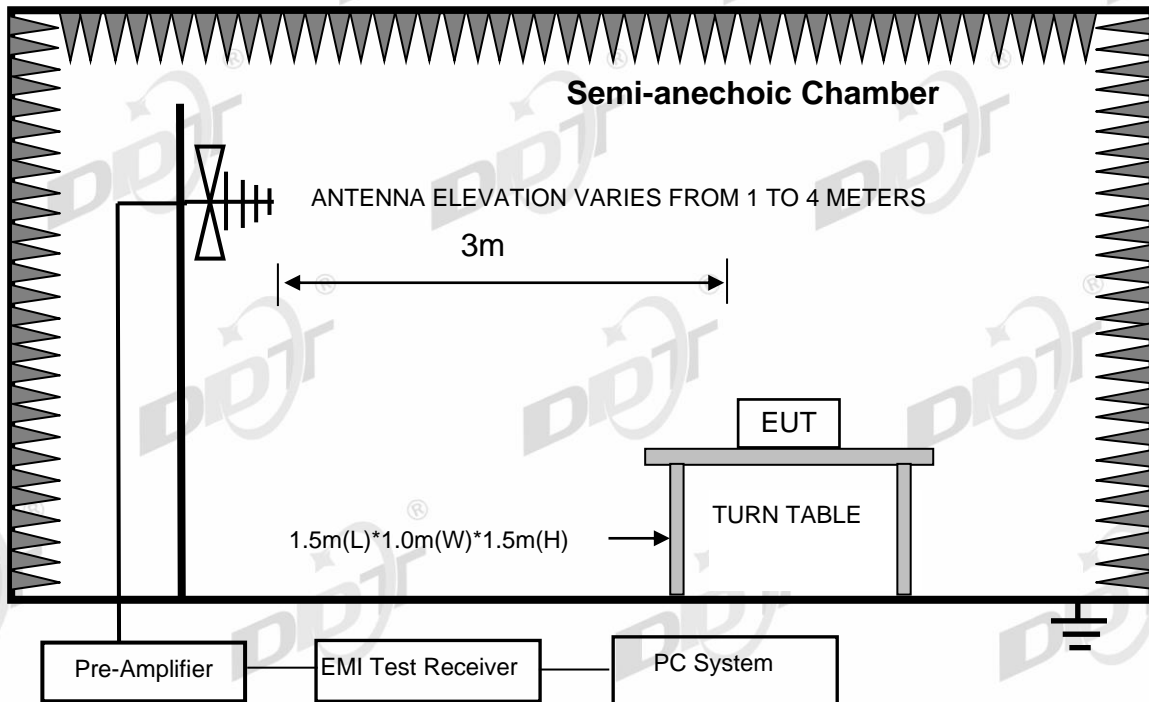
10. Radiated Emission

10.1. Block diagram of test setup

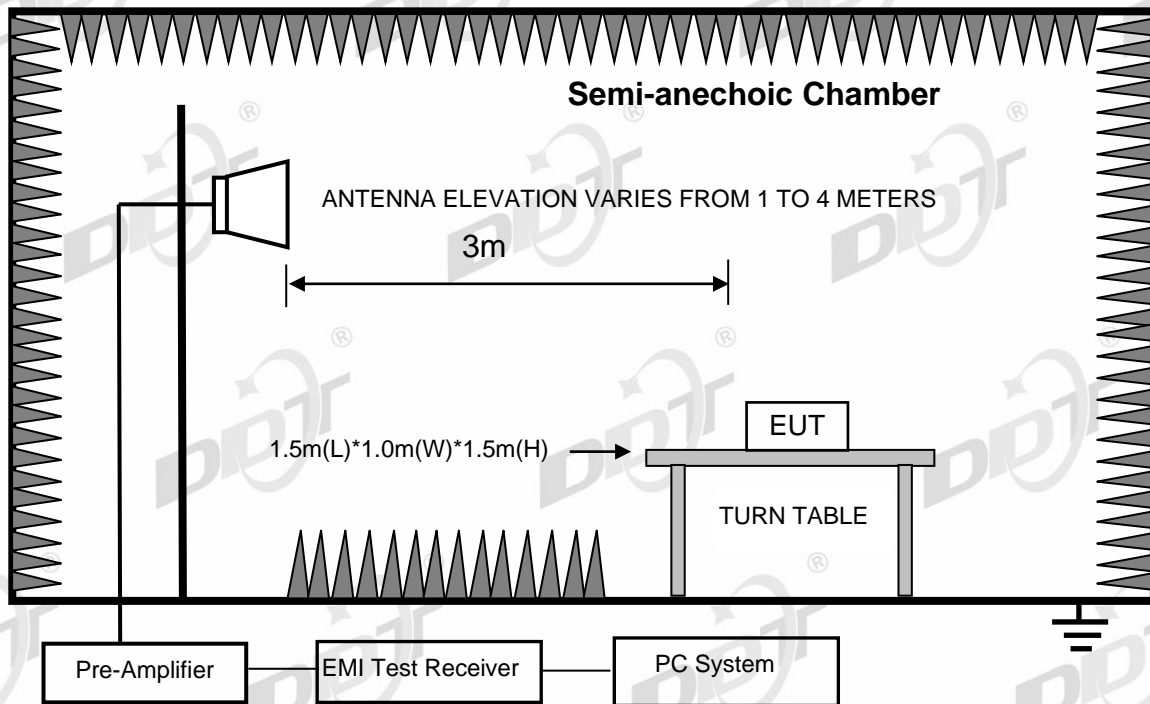
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

10.2. Limit

(1) FCC 15.205 Restricted frequency band

| MHz | MHz | MHz | GHz |
|-------------------|---------------------|---------------|------------------|
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| 10.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.1772&4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.2072&4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | (²) |
| 13.36-13.41 | | | |

¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6

(2) FCC 15.209 Limit.

| FREQUENCY MHz | DISTANCE Meters | FIELD STRENGTHS LIMIT | |
|------------------|--------------------|---|-----------------------------------|
| | | $\mu\text{V}/\text{m}$ | $\text{dB}(\mu\text{V})/\text{m}$ |
| 0.009 ~ 0.490 | 300 | 2400/F(kHz) | 67.6-20log(F) |
| 0.490 ~ 1.705 | 30 | 24000/F(kHz) | 87.6-20log(F) |
| 1.705 ~ 30.0 | 30 | 30 | 29.54 |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| 960 ~ 1000 | 3 | 500 | 54.0 |
| Above 1000 | 3 | 74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average) | |

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz, radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3\text{m}}(\text{dB}\mu\text{V}/\text{m}) = \text{Limit}_{30\text{m}}(\text{dB}\mu\text{V}/\text{m}) + 40\text{Log}(30\text{m}/3\text{m})$$

(3) Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions or comply with 15.209 limits.

10.3. Test procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for below 1G and 150 cm above the ground plane inside a fully-anechoic chamber for above 1G.
- (2) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

| Test frequency range | Test antenna used | Test antenna distance |
|----------------------|--|-----------------------|
| 9 kHz - 30 MHz | Active Loop antenna | 3 m |
| 30 MHz - 1 GHz | Trilog Broadband Antenna | 3 m |
| 1GHz - 18 GHz | Double Ridged Horn Antenna (1 GHz - 18 GHz) | 3 m |
| 18 GHz - 40 GHz | Horn Antenna (18 GHz - 40 GHz) | 1 m |

According ANSI C63.10:2013 clause 6.4.4.2 and 6.5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also

is positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. For measurement above 30 MHz, the trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 25 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18 GHz to 25 GHz, so below final test was performed with frequency range from 9 kHz to 18 GHz.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission.

Measurements in both horizontal and vertical polarities were made and the data was recorded.

In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW.

| Frequency band | RBW |
|------------------|---------|
| 9 kHz - 150 kHz | 200 Hz |
| 150 kHz - 30 MHz | 9 kHz |
| 30 MHz - 1 GHz | 120 kHz |

(7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; According ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.

10.4. Test result

Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: For emissions below 1GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for Non-simultaneous transmission operation, the final test was only performed with EUT working in GFSK, Tx 2441 MHz mode.

Note3: For simultaneous transmission of multiple channels in the 2.4GHz BT and WLAN bands, or 2.4GHz BT and 5.8G RLAN bands, all possible configurations have been tested, the worst case is shown in the table below and recorded in the report.

Worst Case Simultaneous Transmission Configuration:

| Description | Bluetooth | 2.4G WLAN/5.8G RLAN |
|---------------------------|-----------|-----------------------------|
| Antenna | Antenna 1 | Antenna 2 |
| Channel | 39 | 1/165 |
| Operation Frequency (MHz) | 2441 | 2412/5825 |
| Mode/Modulation | GFSK | 802.11g: OFDM/802.11a: OFDM |

Note4: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

Radiated Emission test (below 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2021 RE 1# Report data\Q21060707-2E\FCC BELOW 1G.EM6

Test Date : 2021-06-30

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

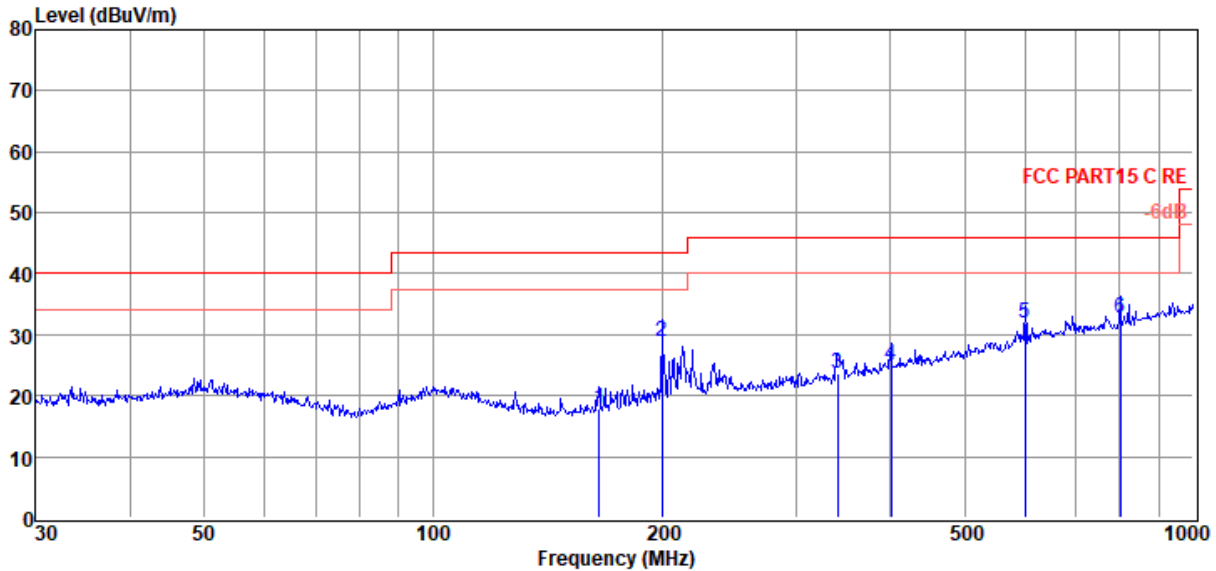
Power Supply : DC 12V

Test Mode : TX mode

Condition : Temp:24.2°C,Humi:53.4%,Press:101.1kPa

Antenna/Distance : 2020 VULB 9163
1#/3m/HORIZONTAL

Memo : GFSK 2441 ANT1



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 165.49 | 4.13 | 9.52 | 4.19 | 17.84 | 43.50 | -25.66 | QP | HORIZONTAL |
| 2 | 199.99 | 13.21 | 11.20 | 4.33 | 28.74 | 43.50 | -14.76 | QP | HORIZONTAL |
| 3 | 340.78 | 4.42 | 14.41 | 4.83 | 23.66 | 46.00 | -22.34 | QP | HORIZONTAL |
| 4 | 400.43 | 4.22 | 15.81 | 5.01 | 25.04 | 46.00 | -20.96 | QP | HORIZONTAL |
| 5 | 601.43 | 7.55 | 18.81 | 5.56 | 31.92 | 46.00 | -14.08 | QP | HORIZONTAL |
| 6 | 801.79 | 6.02 | 20.82 | 6.01 | 32.85 | 46.00 | -13.15 | QP | HORIZONTAL |

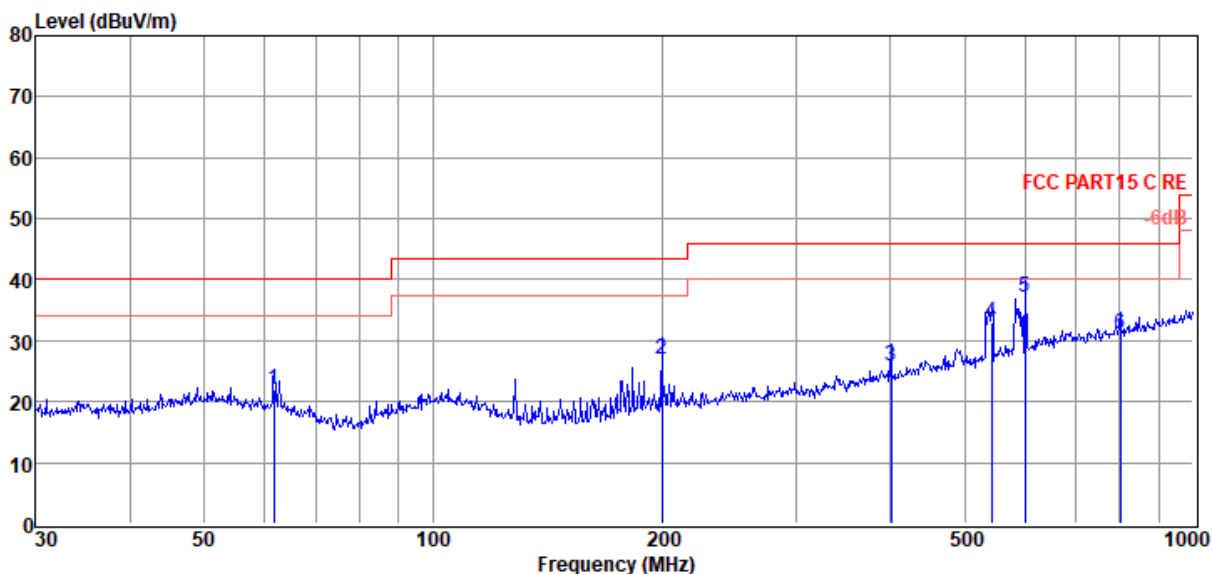
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# D:\2021 RE 1# Report data\Q21060707-2E\FCC BELOW 1G.EM6
Test Date : 2021-06-30 **Tested By** : Ziqin
EUT : Equipo de Audio y Video para Vehiculo **Model Number** : MTXMO500ASU2i
Power Supply : DC 12V **Test Mode** : TX mode
Condition : Temp:24.2°C,Humi:53.4%,Press:101.1kPa **Antenna/Distance** : 2020 VULB 9163
1#/3m/VERTICAL
Memo : GFSK 2441 ANT1



| Item (Mark) | Freq. (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Result Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 61.78 | 6.41 | 12.02 | 3.65 | 22.08 | 40.00 | -17.92 | QP | VERTICAL |
| 2 | 199.99 | 11.47 | 11.20 | 4.33 | 27.00 | 43.50 | -16.50 | QP | VERTICAL |
| 3 | 400.43 | 5.01 | 15.81 | 5.01 | 25.83 | 46.00 | -20.17 | QP | VERTICAL |
| 4 | 543.27 | 9.67 | 17.98 | 5.41 | 33.06 | 46.00 | -12.94 | QP | VERTICAL |
| 5 | 601.43 | 12.63 | 18.81 | 5.56 | 37.00 | 46.00 | -9.00 | QP | VERTICAL |
| 6 | 801.79 | 4.12 | 20.82 | 6.01 | 30.95 | 46.00 | -15.05 | QP | VERTICAL |

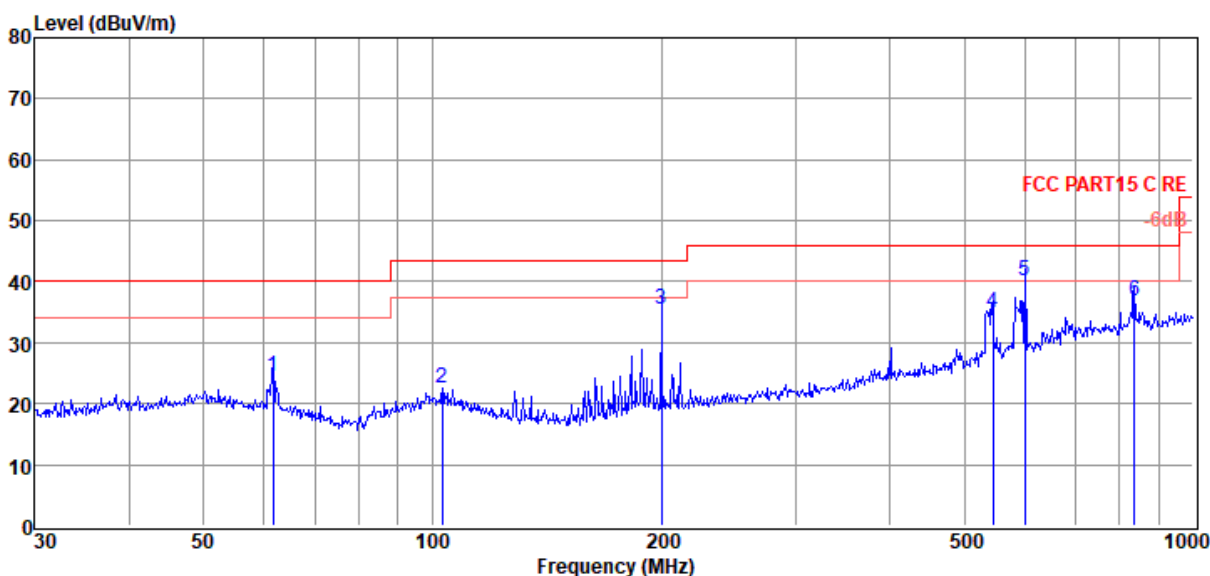
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# D:\2021 RE 1# Report data\Q21060707-2E\FCC BELOW 1G.EM6
Test Date : 2021-06-30 **Tested By** : Ziqin
EUT : Equipo de Audio y Video para Vehiculo **Model Number** : MTXMO500ASU2i
Power Supply : DC 12V **Test Mode** : TX mode
Condition : Temp:24.2°C,Humi:53.4%,Press:101.1kPa **Antenna/Distance** : 2020 VULB 9163
1#/3m/VERTICAL
Memo : simultaneous transmission 2.4G WIFI+BT



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 61.78 | 8.66 | 12.02 | 3.65 | 24.33 | 40.00 | -15.67 | QP | VERTICAL |
| 2 | 103.08 | 5.83 | 12.88 | 3.90 | 22.61 | 43.50 | -20.89 | QP | VERTICAL |
| 3 | 199.99 | 19.94 | 11.20 | 4.33 | 35.47 | 43.50 | -8.03 | QP | VERTICAL |
| 4 | 545.18 | 11.40 | 18.01 | 5.42 | 34.83 | 46.00 | -11.17 | QP | VERTICAL |
| 5 | 601.43 | 15.66 | 18.81 | 5.56 | 40.03 | 46.00 | -5.97 | QP | VERTICAL |
| 6 | 836.24 | 9.55 | 21.25 | 6.10 | 36.90 | 46.00 | -9.10 | QP | VERTICAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

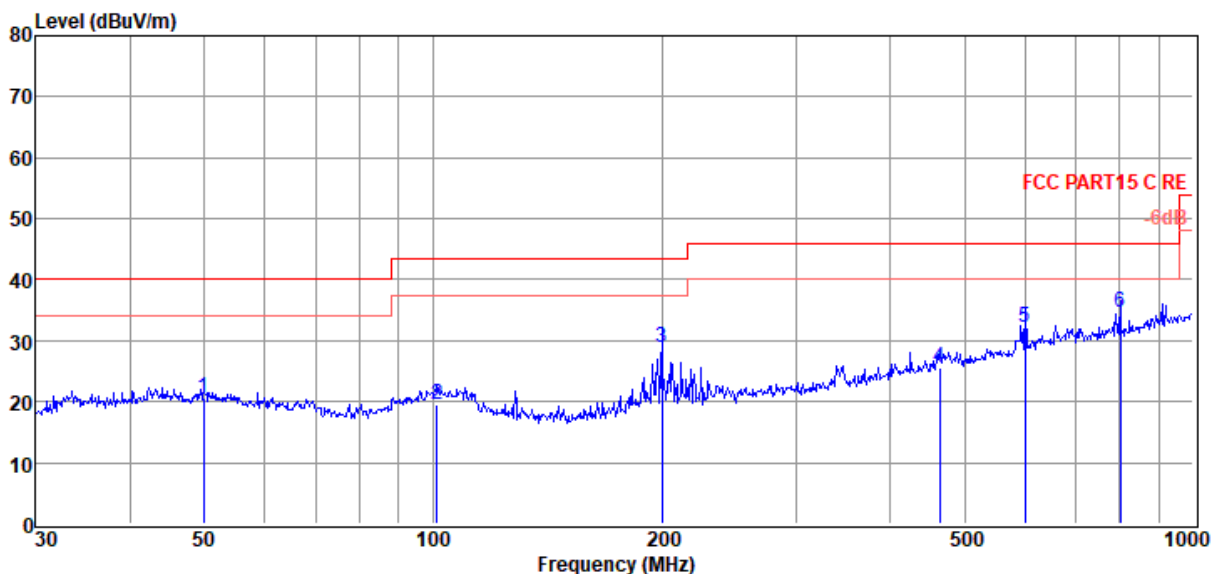
TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#
Test Date : 2021-06-30
EUT : Equipo de Audio y Video para Vehiculo
Power Supply : DC 12V
Condition : Temp:24.2°C,Humi:53.4%,Press:101.1kPa
Memo : simultaneous transmission 2.4G WIFI+BT

Antenna/Distance : 2020 VULB 9163
 1#/3m/HORIZONTAL

Tested By : Ziqin
Model Number : MTXMO500ASU2i
Test Mode : TX mode

D:\2021 RE 1# Report data\Q21060707-2E\FCC
 BELOW 1G.EM6



| Item (Mark) | Freq. (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Result Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 49.88 | 3.35 | 13.68 | 3.57 | 20.60 | 40.00 | -19.40 | QP | HORIZONTAL |
| 2 | 101.29 | 2.52 | 13.01 | 3.89 | 19.42 | 43.50 | -24.08 | QP | HORIZONTAL |
| 3 | 199.99 | 13.36 | 11.20 | 4.33 | 28.89 | 43.50 | -14.61 | QP | HORIZONTAL |
| 4 | 463.97 | 3.64 | 16.80 | 5.19 | 25.63 | 46.00 | -20.37 | QP | HORIZONTAL |
| 5 | 601.43 | 7.77 | 18.81 | 5.56 | 32.14 | 46.00 | -13.86 | QP | HORIZONTAL |
| 6 | 801.79 | 7.76 | 20.82 | 6.01 | 34.59 | 46.00 | -11.41 | QP | HORIZONTAL |

- Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2021 RE 1# Report data\Q21060707-2E\FCC BELOW 1G.EM6

Test Date : 2021-06-30

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

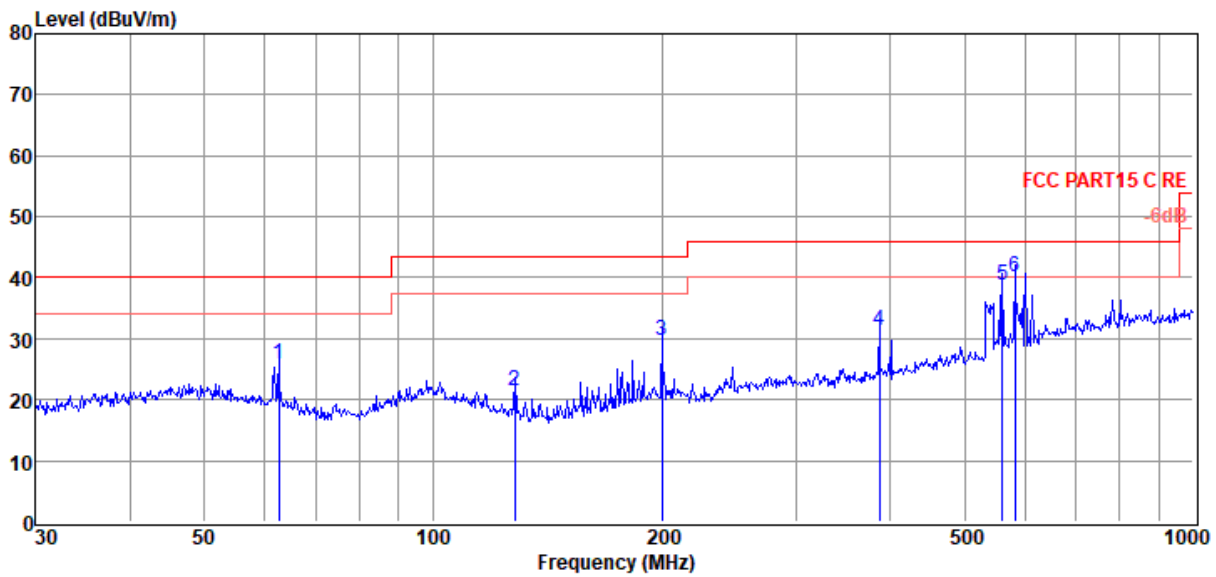
Power Supply : DC 12V

Test Mode : TX mode

Condition : Temp:24.2°C,Humi:53.4%,Press:101.1kPa

Antenna/Distance : 2020 VULB 9163
1#/3m/VERTICAL

Memo : simultaneous transmission 5.8G WIFI+BT



| Item (Mark) | Freq. (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Result Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 62.65 | 10.47 | 11.84 | 3.66 | 25.97 | 40.00 | -14.03 | QP | VERTICAL |
| 2 | 128.11 | 7.61 | 9.90 | 4.03 | 21.54 | 43.50 | -21.96 | QP | VERTICAL |
| 3 | 199.99 | 14.19 | 11.20 | 4.33 | 29.72 | 43.50 | -13.78 | QP | VERTICAL |
| 4 | 386.63 | 10.92 | 15.50 | 4.97 | 31.39 | 46.00 | -14.61 | QP | VERTICAL |
| 5 | 560.69 | 15.06 | 18.24 | 5.46 | 38.76 | 46.00 | -7.24 | QP | VERTICAL |
| 6 | 582.74 | 15.95 | 18.56 | 5.52 | 40.03 | 46.00 | -5.97 | QP | VERTICAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1#

D:\2021 RE 1# Report data\Q21060707-2E\FCC BELOW 1G.EM6

Test Date : 2021-06-30

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

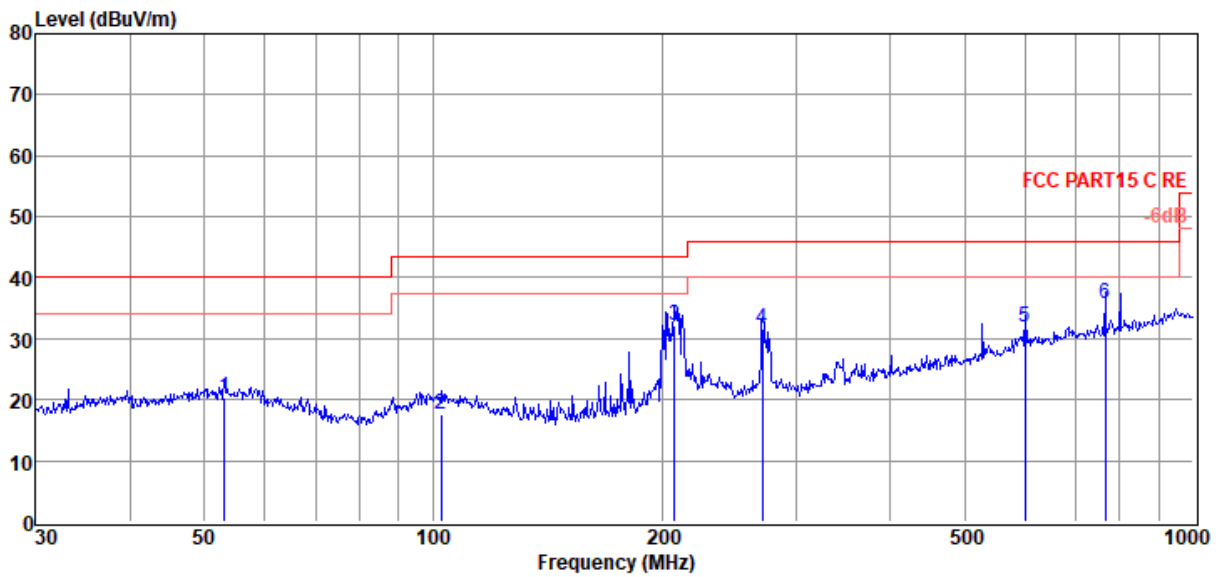
Power Supply : DC 12V

Test Mode : TX mode

Condition : Temp:24.2°C,Humi:53.4%,Press:101.1kPa

Antenna/Distance : 2020 VULB 9163
1#/3m/HORIZONTAL

Memo : simultaneous transmission 5.8G WIFI+BT



| Item (Mark) | Freq. (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Result Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 53.13 | 3.46 | 13.27 | 3.59 | 20.32 | 40.00 | -19.68 | QP | HORIZONTAL |
| 2 | 102.36 | 0.71 | 12.93 | 3.89 | 17.53 | 43.50 | -25.97 | QP | HORIZONTAL |
| 3 | 207.85 | 16.34 | 11.40 | 4.36 | 32.10 | 43.50 | -11.40 | QP | HORIZONTAL |
| 4 | 271.33 | 14.17 | 12.78 | 4.60 | 31.55 | 46.00 | -14.45 | QP | HORIZONTAL |
| 5 | 601.43 | 7.51 | 18.81 | 5.56 | 31.88 | 46.00 | -14.12 | QP | HORIZONTAL |
| 6 | 766.06 | 9.25 | 20.44 | 5.94 | 35.63 | 46.00 | -10.37 | QP | HORIZONTAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Radiated Emission test (above 1GHz)

| Freq. (MHz) | Read level (dB μ V) | Antenna Factor (dB/m) | PRM Factor (dB) | Cable Loss (dB) | Result Level (dB μ V/m) | Limit (dB μ V/ m) | Margin (dB) | Detector type | Polarization |
|--|-------------------------------|-----------------------------|-----------------------|-----------------------|-----------------------------------|-----------------------------|----------------|------------------|--------------|
| Tx mode 2402 MHz | | | | | | | | | |
| 4804.00 | 46.69 | 32.31 | 43.34 | 6.80 | 42.46 | 74.00 | -31.54 | Peak | HORIZONTAL |
| 7460.00 | 45.91 | 37.04 | 42.67 | 8.77 | 49.05 | 74.00 | -24.95 | Peak | HORIZONTAL |
| 9670.00 | 45.70 | 38.80 | 42.07 | 9.87 | 52.30 | 74.00 | -21.70 | Peak | HORIZONTAL |
| 11166.00 | 43.95 | 39.80 | 42.64 | 10.76 | 51.87 | 74.00 | -22.13 | Peak | HORIZONTAL |
| 13155.00 | 44.57 | 40.04 | 42.92 | 11.29 | 52.98 | 74.00 | -21.02 | Peak | HORIZONTAL |
| 16215.00 | 42.74 | 39.90 | 42.28 | 12.88 | 53.24 | 74.00 | -20.76 | Peak | HORIZONTAL |
| 4804.00 | 46.24 | 32.31 | 43.34 | 6.80 | 42.01 | 74.00 | -31.99 | Peak | VERTICAL |
| 7375.00 | 46.40 | 36.90 | 42.73 | 8.63 | 49.20 | 74.00 | -24.80 | Peak | VERTICAL |
| 9415.00 | 45.45 | 38.72 | 41.97 | 9.64 | 51.84 | 74.00 | -22.16 | Peak | VERTICAL |
| 11336.00 | 45.58 | 39.80 | 42.38 | 10.94 | 53.94 | 74.00 | -20.06 | Peak | VERTICAL |
| 13750.00 | 42.67 | 41.15 | 42.62 | 11.93 | 53.13 | 74.00 | -20.87 | Peak | VERTICAL |
| 16300.00 | 42.26 | 40.26 | 42.27 | 12.96 | 53.21 | 74.00 | -20.79 | Peak | VERTICAL |
| Tx mode 2441 MHz | | | | | | | | | |
| 4882.00 | 47.09 | 32.46 | 43.29 | 6.89 | 43.15 | 74.00 | -30.85 | Peak | HORIZONTAL |
| 6916.00 | 46.20 | 36.10 | 43.04 | 7.94 | 47.20 | 74.00 | -26.80 | Peak | HORIZONTAL |
| 8956.00 | 46.15 | 38.27 | 41.82 | 9.46 | 52.06 | 74.00 | -21.94 | Peak | HORIZONTAL |
| 11234.00 | 45.48 | 39.80 | 42.54 | 10.83 | 53.57 | 74.00 | -20.43 | Peak | HORIZONTAL |
| 13155.00 | 44.57 | 40.04 | 42.92 | 11.29 | 52.98 | 74.00 | -21.02 | Peak | HORIZONTAL |
| 16215.00 | 42.78 | 39.90 | 42.28 | 12.88 | 53.28 | 74.00 | -20.72 | Peak | HORIZONTAL |
| 4882.00 | 46.77 | 32.46 | 43.29 | 6.89 | 42.83 | 74.00 | -31.17 | Peak | VERTICAL |
| 7239.00 | 45.97 | 36.68 | 42.82 | 8.39 | 48.22 | 74.00 | -25.78 | Peak | VERTICAL |
| 9840.00 | 45.07 | 38.80 | 42.14 | 10.09 | 51.82 | 74.00 | -22.18 | Peak | VERTICAL |
| 11081.00 | 44.33 | 39.80 | 42.77 | 10.66 | 52.02 | 74.00 | -21.98 | Peak | VERTICAL |
| 13172.00 | 44.09 | 40.08 | 42.91 | 11.30 | 52.56 | 74.00 | -21.44 | Peak | VERTICAL |
| 16283.00 | 42.11 | 40.19 | 42.27 | 12.95 | 52.98 | 74.00 | -21.02 | Peak | VERTICAL |
| Tx mode 2480 MHz | | | | | | | | | |
| 4960.00 | 46.96 | 32.62 | 43.23 | 6.99 | 43.34 | 74.00 | -30.66 | Peak | HORIZONTAL |
| 7205.00 | 45.86 | 36.63 | 42.85 | 8.33 | 47.97 | 74.00 | -26.03 | Peak | HORIZONTAL |
| 8956.00 | 46.15 | 38.27 | 41.82 | 9.46 | 52.06 | 74.00 | -21.94 | Peak | HORIZONTAL |
| 10724.00 | 44.69 | 39.69 | 42.71 | 10.46 | 52.13 | 74.00 | -21.87 | Peak | HORIZONTAL |
| 12849.00 | 45.75 | 39.46 | 42.77 | 11.44 | 53.88 | 74.00 | -20.12 | Peak | HORIZONTAL |
| 16215.00 | 42.78 | 39.90 | 42.28 | 12.88 | 53.28 | 74.00 | -20.72 | Peak | HORIZONTAL |
| 4960.00 | 46.43 | 32.62 | 43.23 | 6.99 | 42.81 | 74.00 | -31.19 | Peak | VERTICAL |
| 7375.00 | 46.40 | 36.90 | 42.73 | 8.63 | 49.20 | 74.00 | -24.80 | Peak | VERTICAL |
| 10129.00 | 45.32 | 39.01 | 42.29 | 10.30 | 52.34 | 74.00 | -21.66 | Peak | VERTICAL |
| 12934.00 | 44.96 | 39.59 | 42.90 | 11.28 | 52.93 | 74.00 | -21.07 | Peak | VERTICAL |
| 15297.00 | 42.16 | 39.92 | 41.88 | 12.67 | 52.87 | 74.00 | -21.13 | Peak | VERTICAL |
| 16300.00 | 42.26 | 40.26 | 42.27 | 12.96 | 53.21 | 74.00 | -20.79 | Peak | VERTICAL |
| simultaneous transmission Tx mode BT+2.4G WLAN | | | | | | | | | |
| 8089.00 | 47.16 | 37.92 | 42.25 | 8.66 | 51.49 | 74.00 | -22.51 | Peak | HORIZONTAL |
| 9789.00 | 45.75 | 38.80 | 42.12 | 10.02 | 52.45 | 74.00 | -21.55 | Peak | HORIZONTAL |
| 11778.00 | 45.82 | 39.69 | 41.72 | 11.09 | 54.88 | 74.00 | -19.12 | Peak | HORIZONTAL |
| 11778.00 | 36.88 | 39.69 | 41.72 | 11.09 | 45.94 | 54.00 | -8.06 | Average | HORIZONTAL |

| | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|--------|---------|------------|
| 14090.00 | 43.46 | 41.46 | 42.43 | 12.24 | 54.73 | 74.00 | -19.27 | Peak | HORIZONTAL |
| 14090.00 | 35.89 | 41.46 | 42.43 | 12.24 | 47.16 | 54.00 | -6.84 | Average | HORIZONTAL |
| 16844.00 | 42.70 | 41.79 | 42.22 | 13.67 | 55.94 | 74.00 | -18.06 | Peak | HORIZONTAL |
| 16844.00 | 36.18 | 41.79 | 42.22 | 13.67 | 49.42 | 54.00 | -4.58 | Average | HORIZONTAL |
| 17711.00 | 42.60 | 46.79 | 42.42 | 13.94 | 60.91 | 74.00 | -13.09 | Peak | HORIZONTAL |
| 17711.00 | 32.42 | 46.79 | 42.42 | 13.94 | 50.73 | 54.00 | -3.27 | Average | HORIZONTAL |
| 7783.00 | 47.25 | 37.55 | 42.44 | 8.72 | 51.08 | 74.00 | -22.92 | Peak | VERTICAL |
| 9925.00 | 45.41 | 38.80 | 42.17 | 10.19 | 52.23 | 74.00 | -21.77 | Peak | VERTICAL |
| 11540.00 | 45.92 | 39.78 | 42.07 | 11.12 | 54.75 | 74.00 | -19.25 | Peak | VERTICAL |
| 11540.00 | 37.68 | 39.78 | 42.07 | 11.12 | 46.51 | 54.00 | -7.49 | Average | VERTICAL |
| 13801.00 | 44.24 | 41.22 | 42.60 | 12.01 | 54.87 | 74.00 | -19.13 | Peak | VERTICAL |
| 13801.00 | 36.88 | 41.22 | 42.60 | 12.01 | 47.51 | 54.00 | -6.49 | Average | VERTICAL |
| 16470.00 | 43.91 | 40.97 | 42.25 | 13.14 | 55.77 | 74.00 | -18.23 | Peak | VERTICAL |
| 16470.00 | 37.44 | 40.97 | 42.25 | 13.14 | 49.30 | 54.00 | -4.70 | Average | VERTICAL |
| 17898.00 | 41.54 | 47.57 | 42.47 | 14.39 | 61.03 | 74.00 | -12.97 | Peak | VERTICAL |
| 17898.00 | 31.11 | 47.57 | 42.47 | 14.39 | 50.60 | 54.00 | -3.40 | Average | VERTICAL |
| simultaneous transmission Tx mode BT+5.8G RLAN | | | | | | | | | |
| 7885.00 | 45.93 | 37.72 | 42.38 | 8.68 | 49.95 | 74.00 | -24.05 | Peak | HORIZONTAL |
| 10129.00 | 46.02 | 39.01 | 42.29 | 10.30 | 53.04 | 74.00 | -20.96 | Peak | HORIZONTAL |
| 12135.00 | 45.86 | 39.41 | 41.62 | 11.35 | 55.00 | 74.00 | -19.00 | Peak | HORIZONTAL |
| 12135.00 | 36.44 | 39.41 | 41.62 | 11.35 | 45.58 | 54.00 | -8.42 | Average | HORIZONTAL |
| 13886.00 | 44.56 | 41.34 | 42.56 | 12.13 | 55.47 | 74.00 | -18.53 | Peak | HORIZONTAL |
| 13886.00 | 36.74 | 41.34 | 42.56 | 12.13 | 47.65 | 54.00 | -6.35 | Average | HORIZONTAL |
| 16521.00 | 43.70 | 41.14 | 42.25 | 13.20 | 55.79 | 74.00 | -18.21 | Peak | HORIZONTAL |
| 16521.00 | 36.69 | 41.14 | 42.25 | 13.20 | 48.78 | 54.00 | -5.22 | Average | HORIZONTAL |
| 17949.00 | 41.44 | 47.79 | 42.49 | 14.51 | 61.25 | 74.00 | -12.75 | Peak | HORIZONTAL |
| 17949.00 | 30.99 | 47.79 | 42.49 | 14.51 | 50.80 | 54.00 | -3.20 | Average | HORIZONTAL |
| 8021.00 | 46.68 | 37.90 | 42.29 | 8.64 | 50.93 | 74.00 | -23.07 | Peak | VERTICAL |
| 9636.00 | 46.38 | 38.80 | 42.06 | 9.83 | 52.95 | 74.00 | -21.05 | Peak | VERTICAL |
| 11744.00 | 46.66 | 39.70 | 41.77 | 11.10 | 55.69 | 74.00 | -18.31 | Peak | VERTICAL |
| 11744.00 | 36.88 | 39.70 | 41.77 | 11.10 | 45.91 | 54.00 | -8.09 | Average | VERTICAL |
| 14039.00 | 44.28 | 41.48 | 42.47 | 12.27 | 55.56 | 74.00 | -18.44 | Peak | VERTICAL |
| 14039.00 | 36.59 | 41.48 | 42.47 | 12.27 | 47.87 | 54.00 | -6.13 | Average | VERTICAL |
| 15705.00 | 44.36 | 39.35 | 42.13 | 12.49 | 54.07 | 74.00 | -19.93 | Peak | VERTICAL |
| 15705.00 | 36.89 | 39.35 | 42.13 | 12.49 | 46.60 | 54.00 | -7.40 | Average | VERTICAL |
| 17949.00 | 41.34 | 47.79 | 42.49 | 14.51 | 61.15 | 74.00 | -12.85 | Peak | VERTICAL |
| 17949.00 | 31.12 | 47.79 | 42.49 | 14.51 | 50.93 | 54.00 | -3.07 | Average | VERTICAL |
| Result: Pass | | | | | | | | | |

Note:

- 30MHz~25GHz: (For Non-simultaneous transmission Scan with GFSK, $\pi/4$ -DQPSK, 8DPSK, the worst case is GFSK Mode, for simultaneous transmission the worst is Bluetooth GFSK and 802.11b OFDM or Bluetooth GFSK and 802.11a OFDM.)
- Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
- For emissions above 1GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

11. RF Conducted Spurious Emissions

11.1. Block diagram of test setup

Same as section 4.1

11.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

11.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Establish a reference level by using the following procedure:

| | |
|------------------|---|
| Center frequency | Test frequency |
| RBW: | 100 kHz |
| VBW: | 300 kHz |
| Span | Wide enough to capture the peak level of the in-band emission |
| Detector Mode: | Peak |
| Sweep time: | auto |
| Trace mode | Max hold |

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(4) Set the spectrum analyzer as follows:

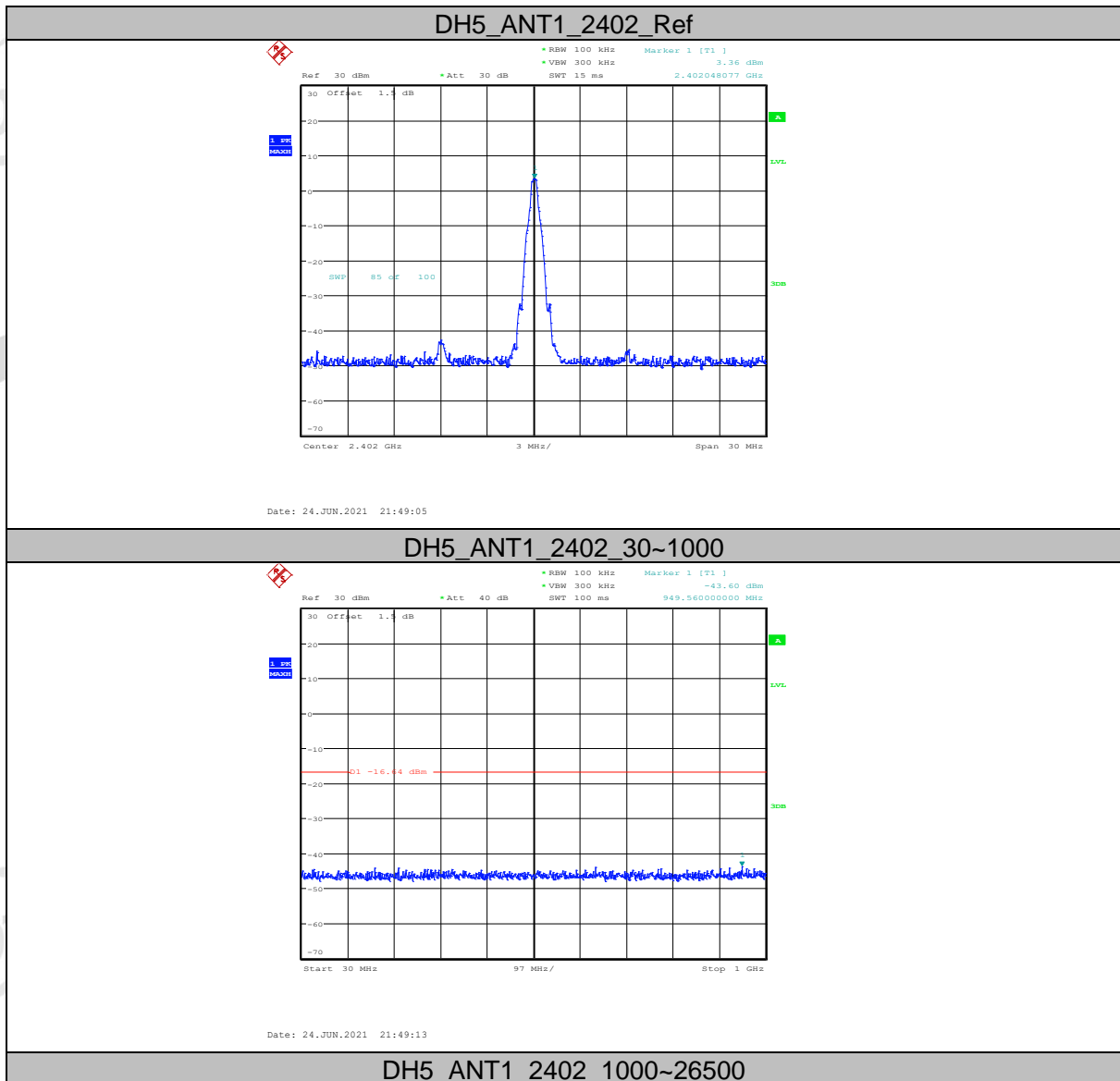
| | |
|------------------------------|--|
| RBW: | 100 kHz |
| VBW: | 300 kHz |
| Span | Encompass frequency range to be measured |
| Number of measurement points | $\geq \text{span}/\text{RBW}$ |
| Detector Mode: | Peak |
| Sweep time: | auto |
| Trace mode | Max hold |

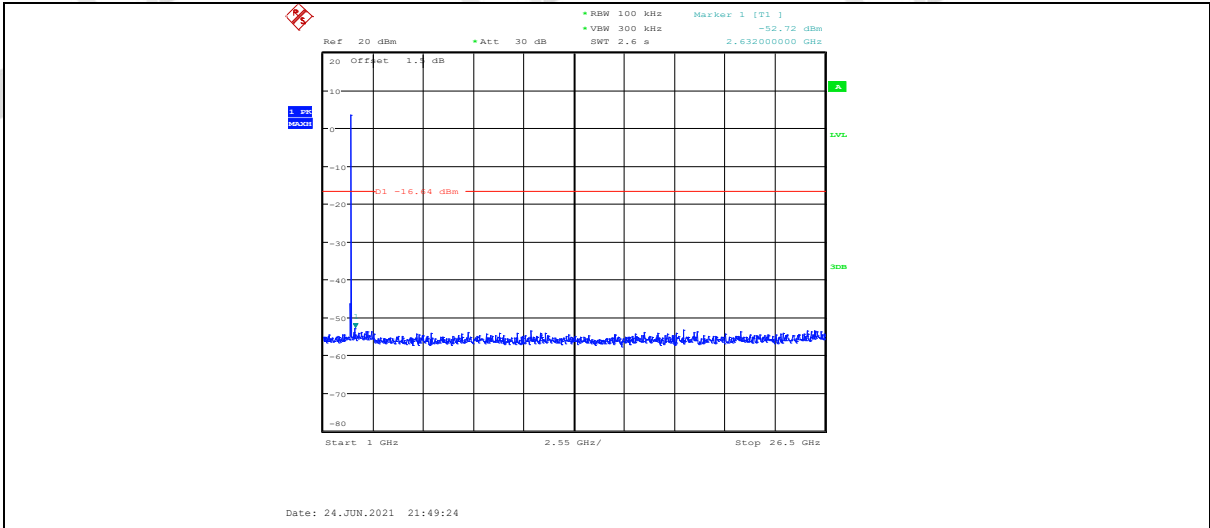
(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

11.4. Test Result

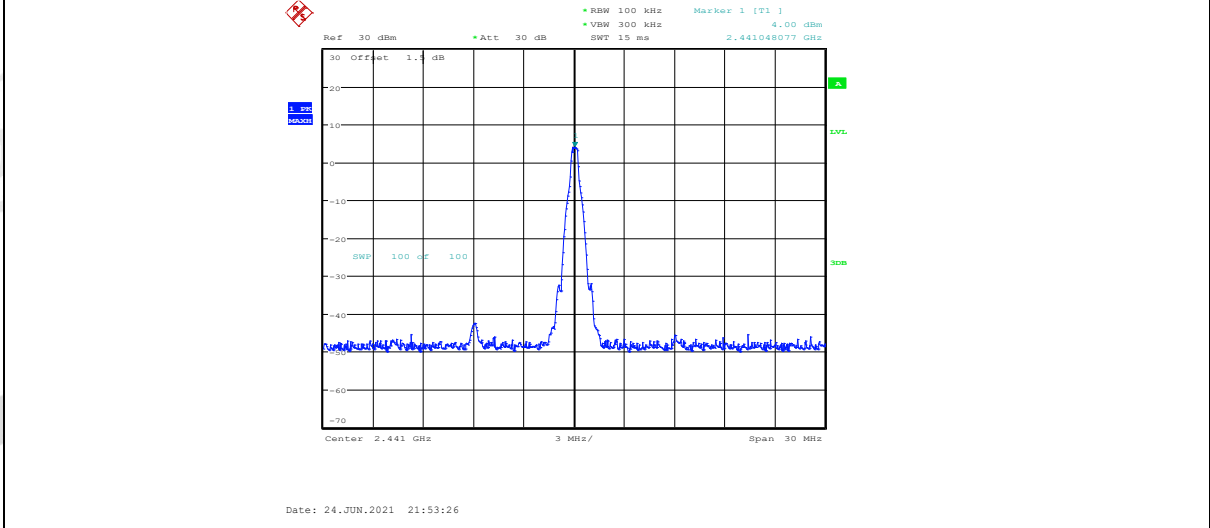
| Mode | Freq. (MHz) | Verdict |
|----------------|------------------|---------|
| GFSK | Hopping off 2402 | Pass |
| | Hopping off 2441 | Pass |
| | Hopping off 2480 | Pass |
| $\pi/4$ -DQPSK | Hopping off 2402 | Pass |
| | Hopping off 2441 | Pass |
| | Hopping off 2480 | Pass |
| 8DPSK | Hopping off 2402 | Pass |
| | Hopping off 2441 | Pass |
| | Hopping off 2480 | Pass |

11.5. Original test data

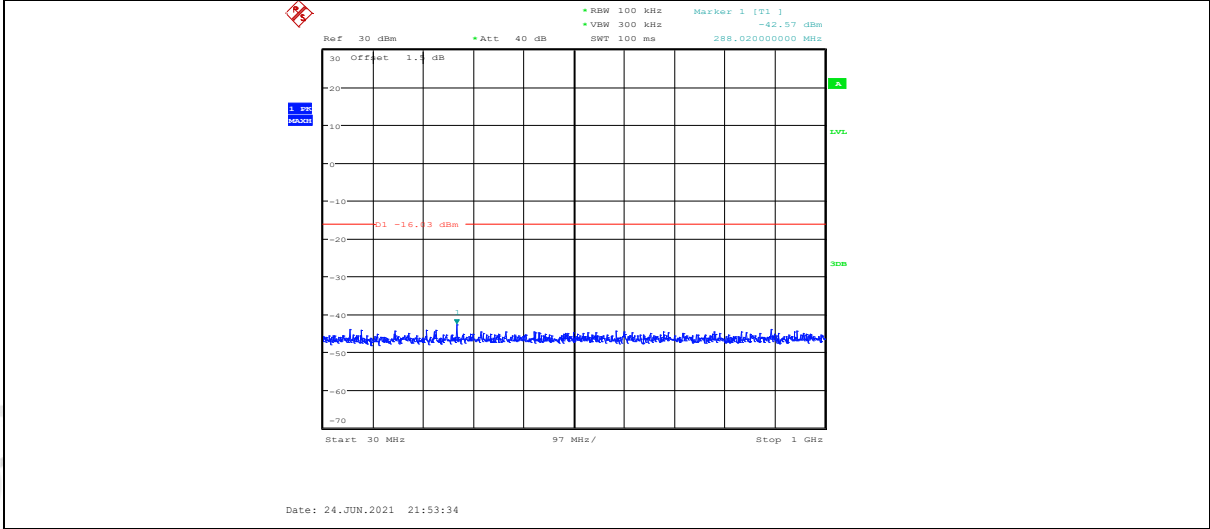




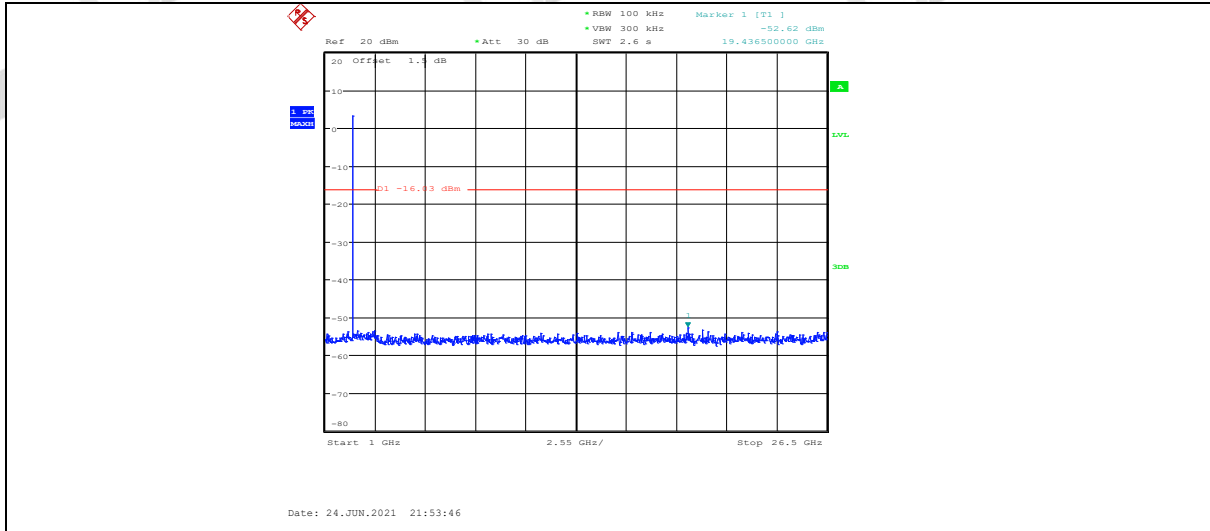
DH5_ANT1_2441_Ref



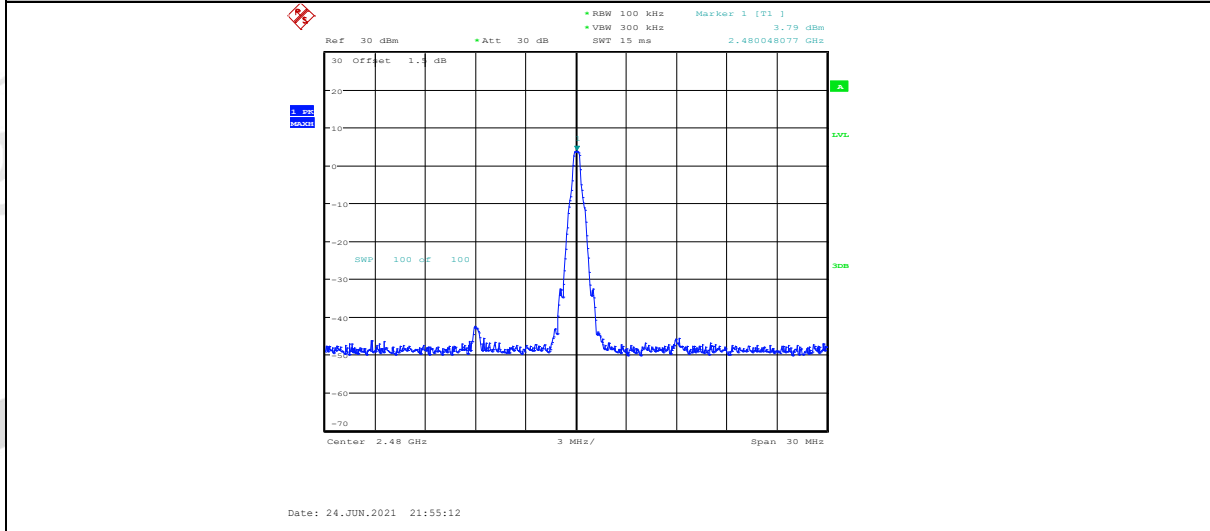
DH5_ANT1_2441_30~1000



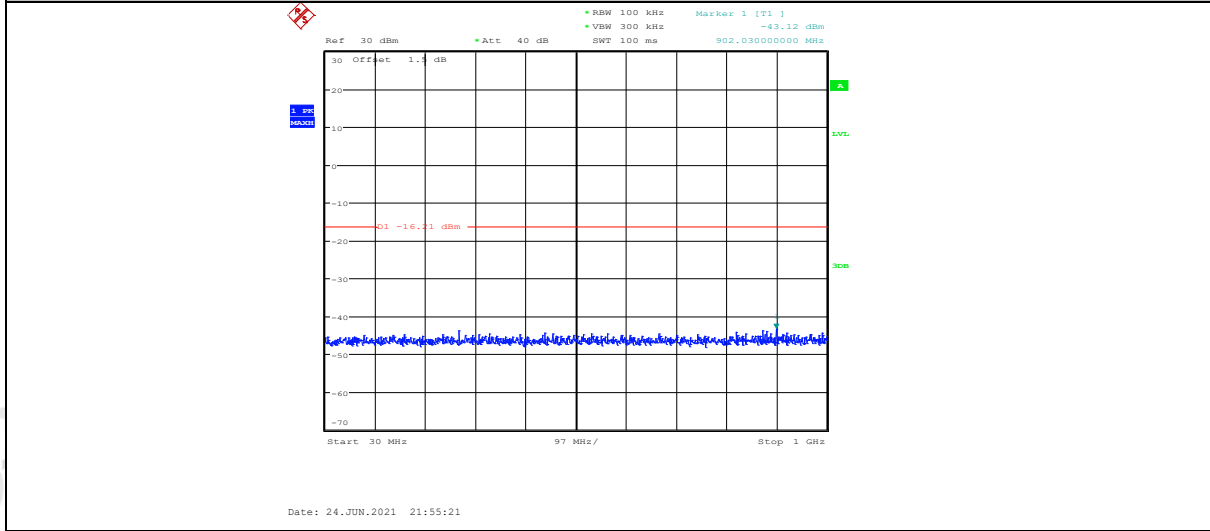
DH5_ANT1_2441_1000~26500



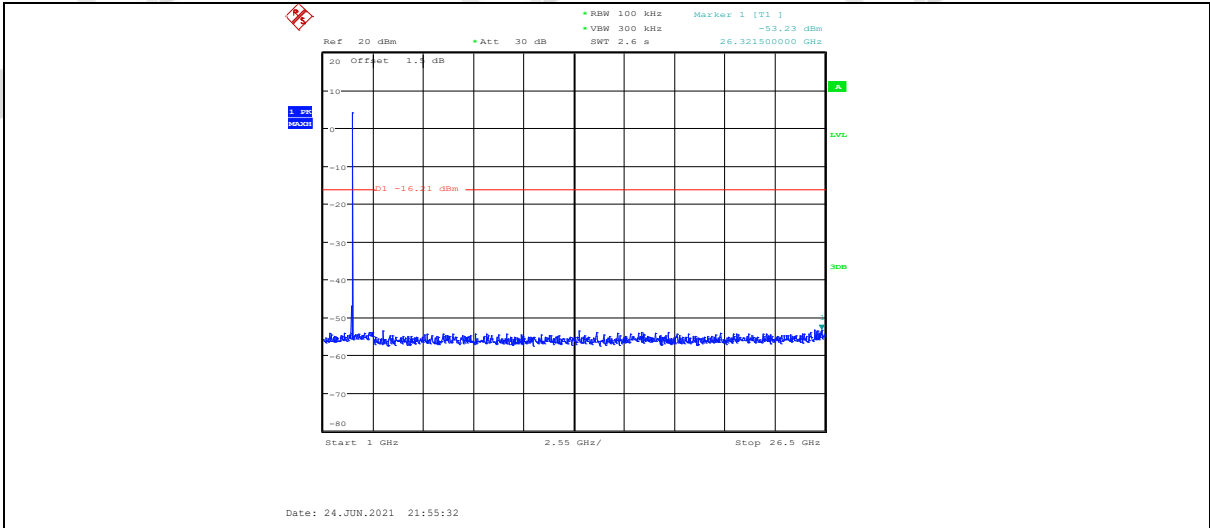
DH5_ANT1_2480 Ref



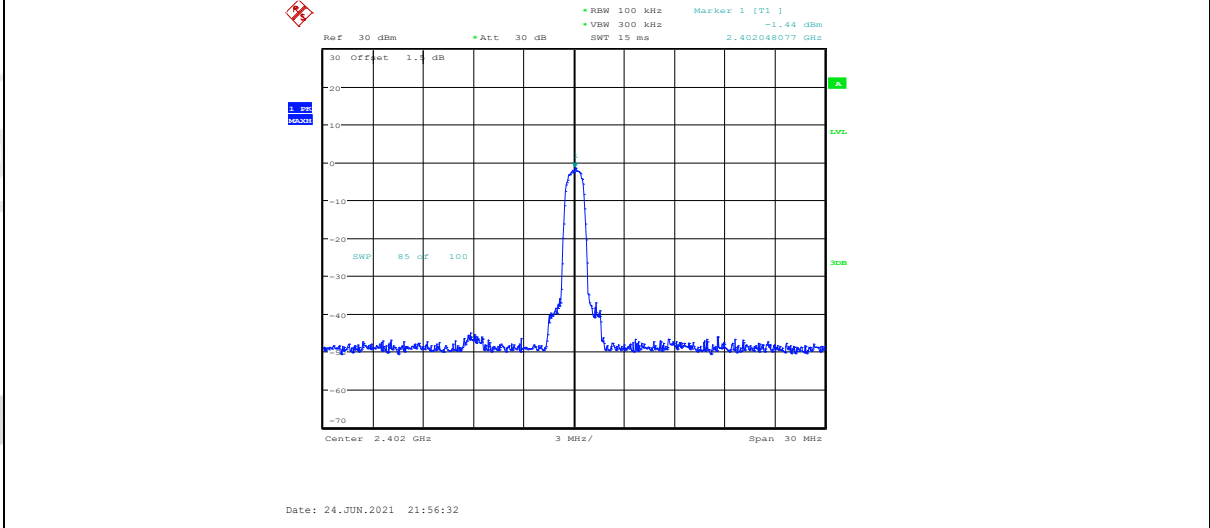
DH5_ANT1_2480_30~1000



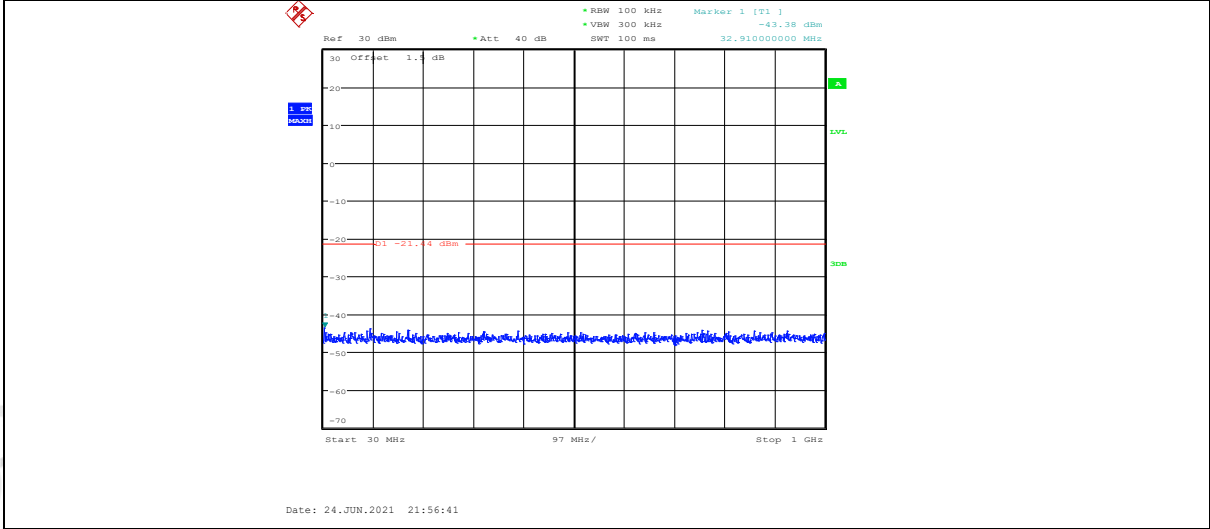
DH5_ANT1_2480_1000~26500



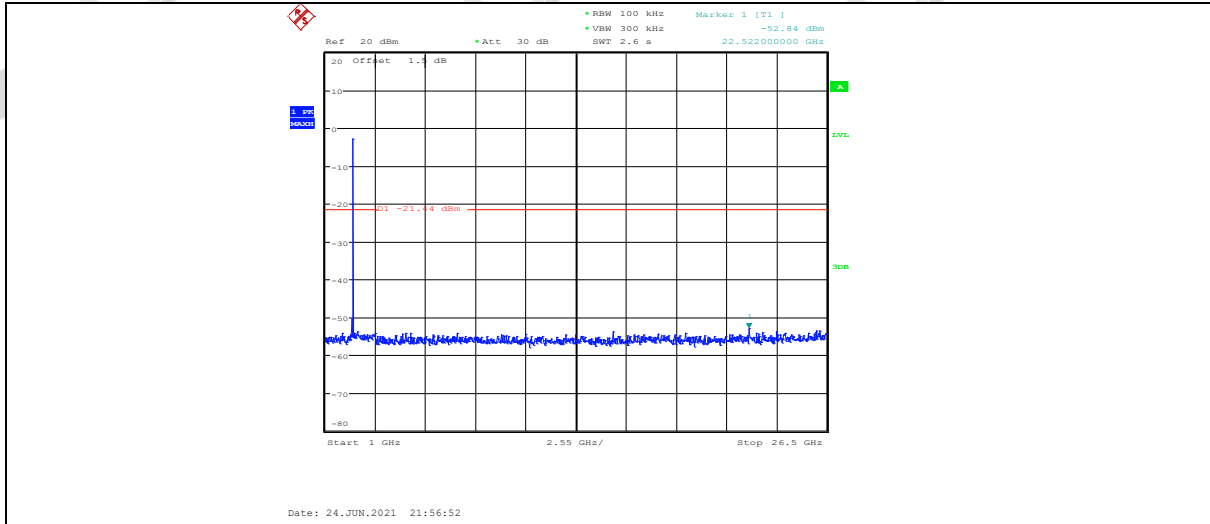
2DH5_ANT1_2402_Ref



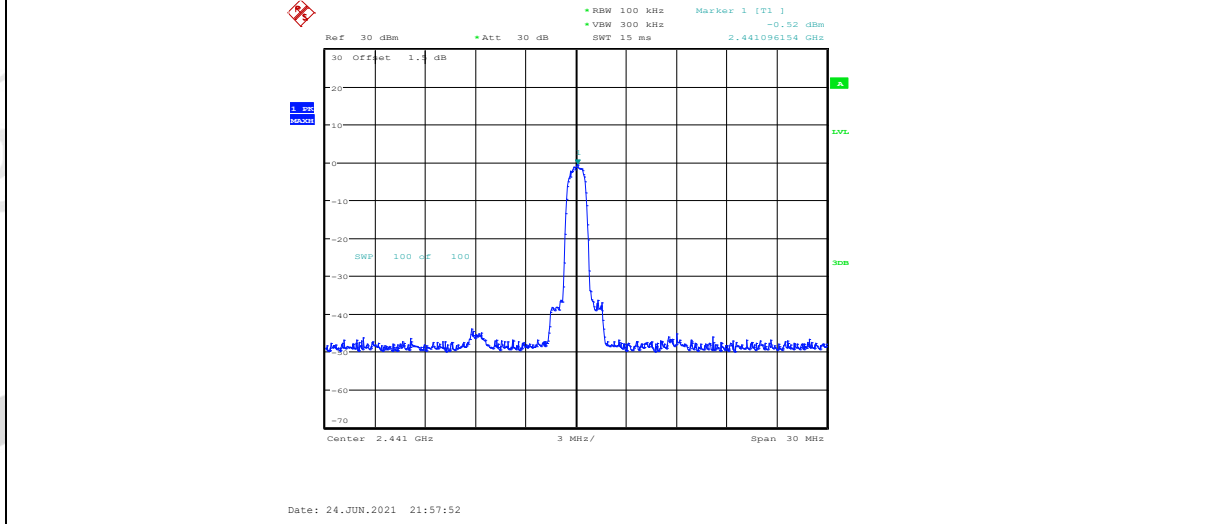
2DH5_ANT1_2402_30~1000



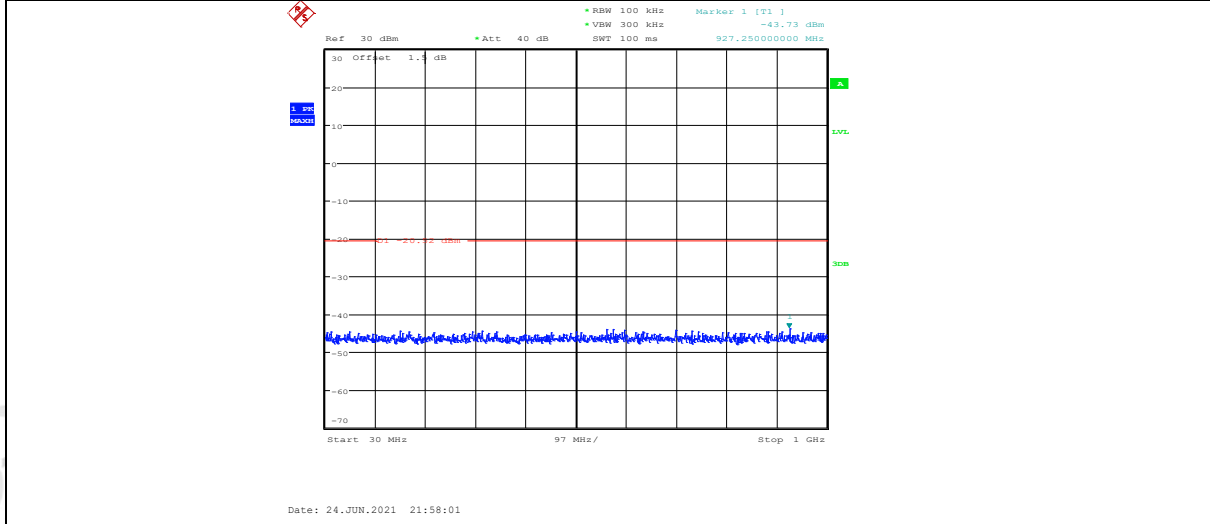
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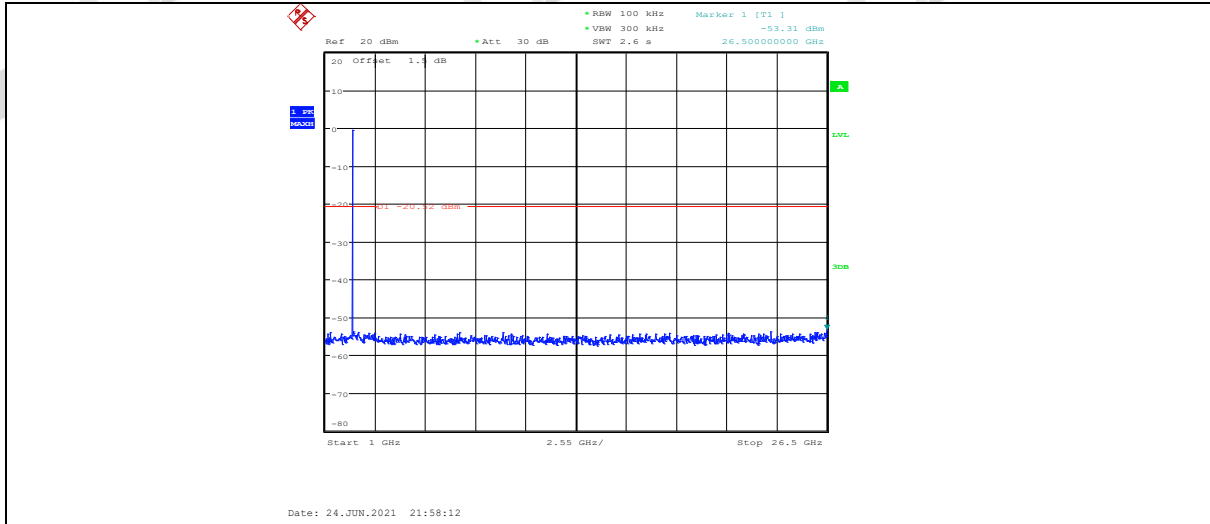
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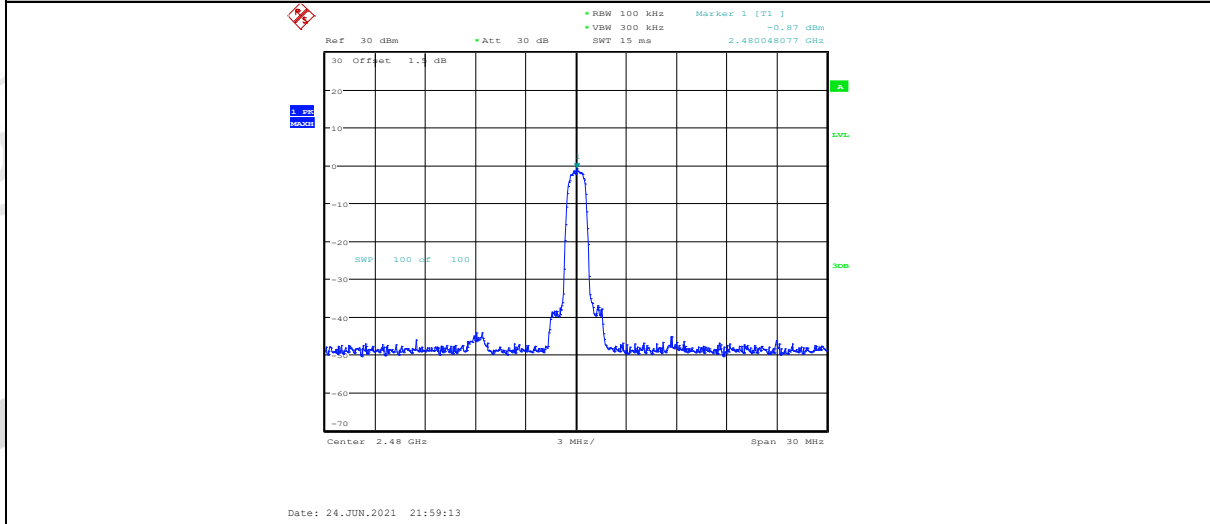
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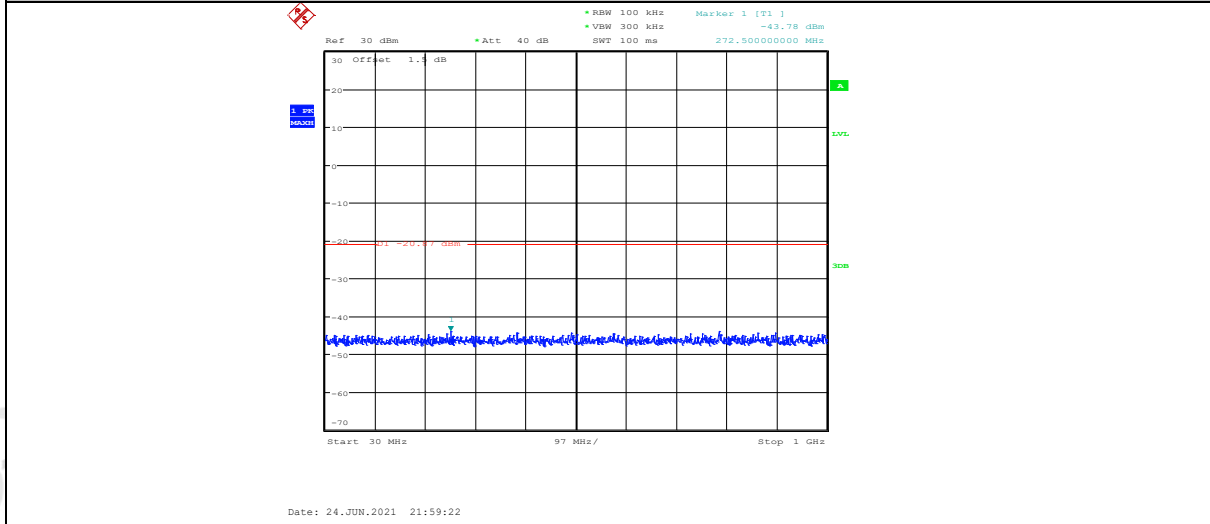
2DH5_ANT1_2441_1000~26500



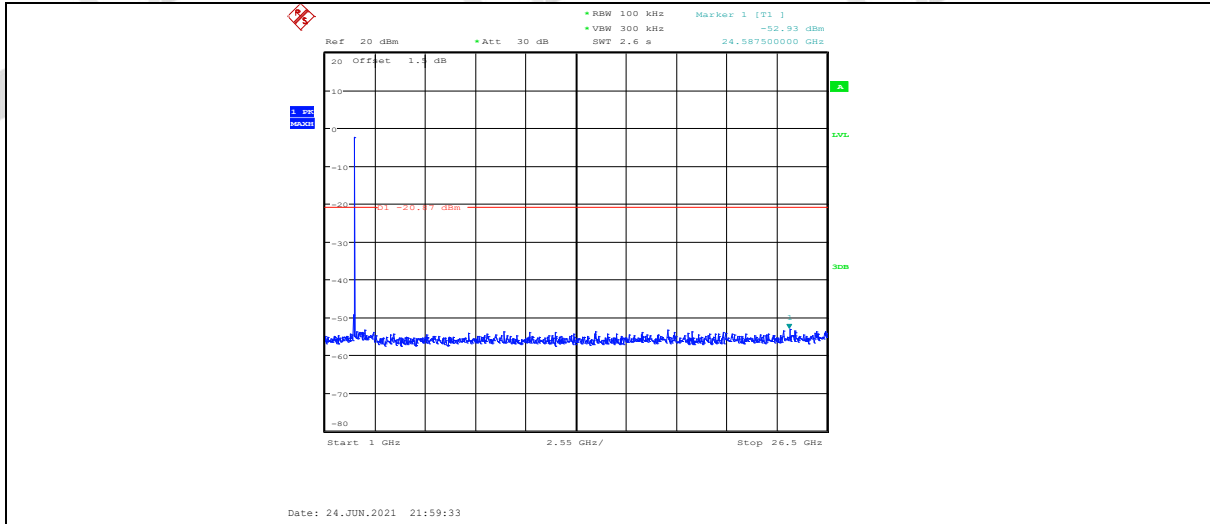
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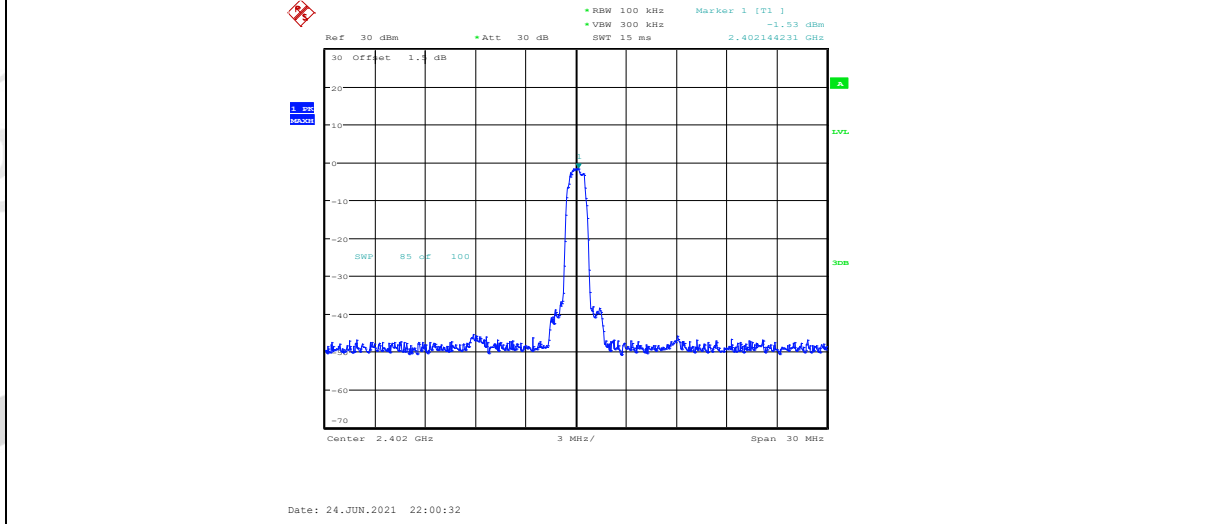
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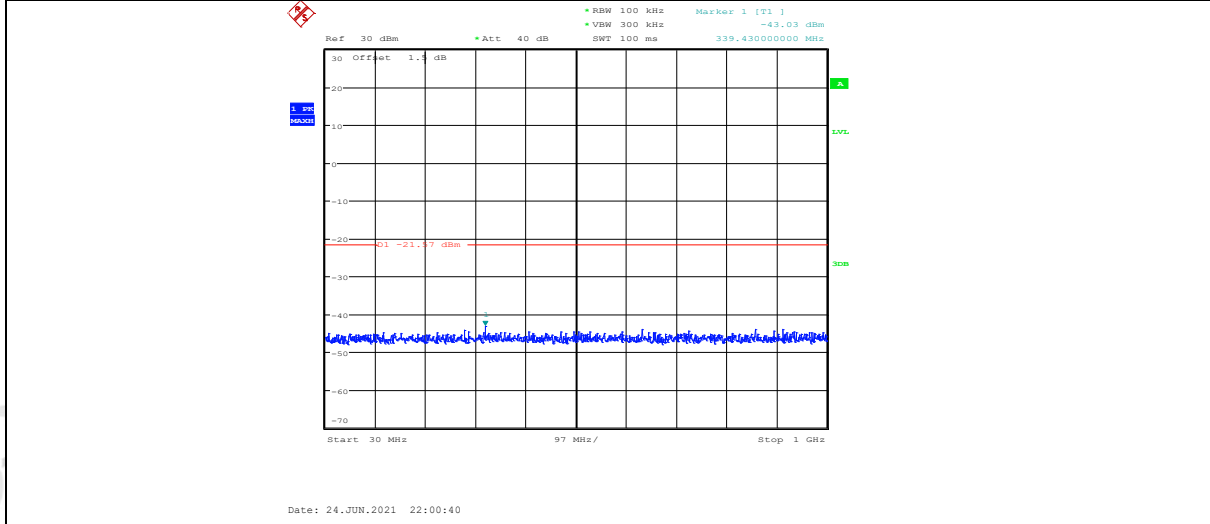
2DH5_ANT1_2480_1000~26500



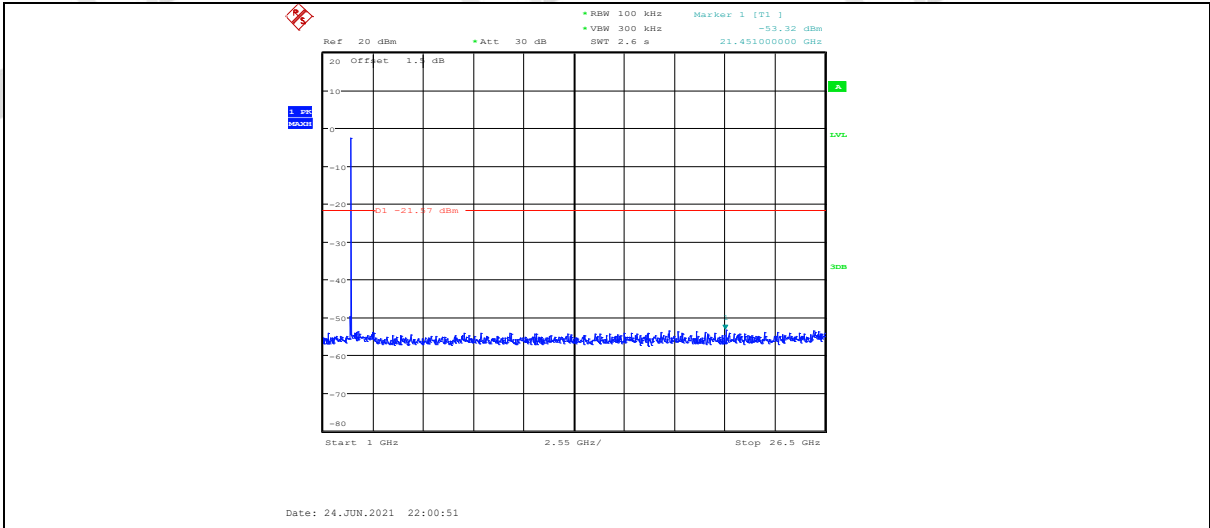
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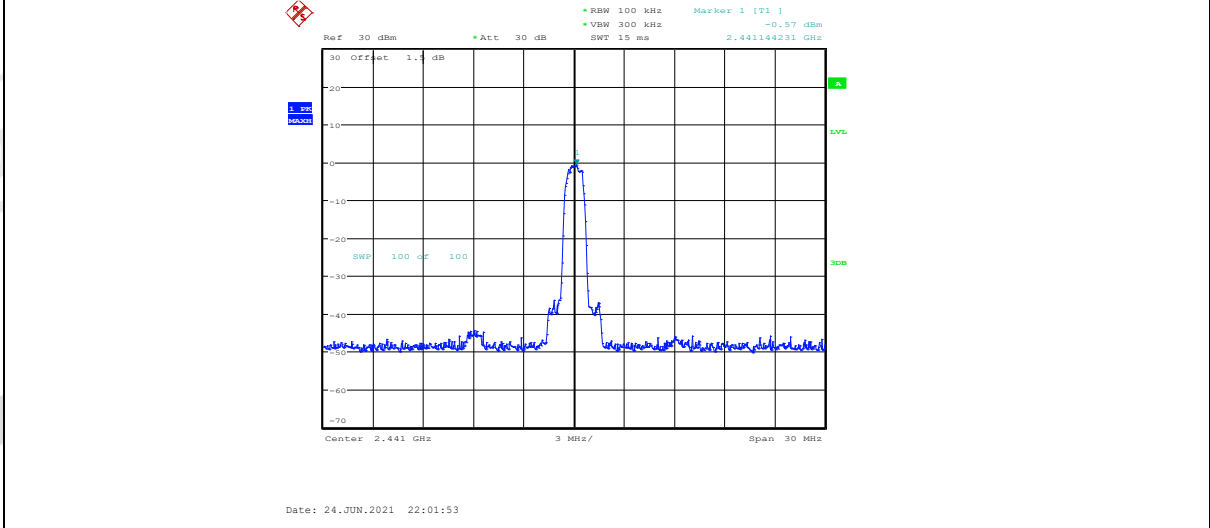
3DH5_ANT1_2402_30~1000



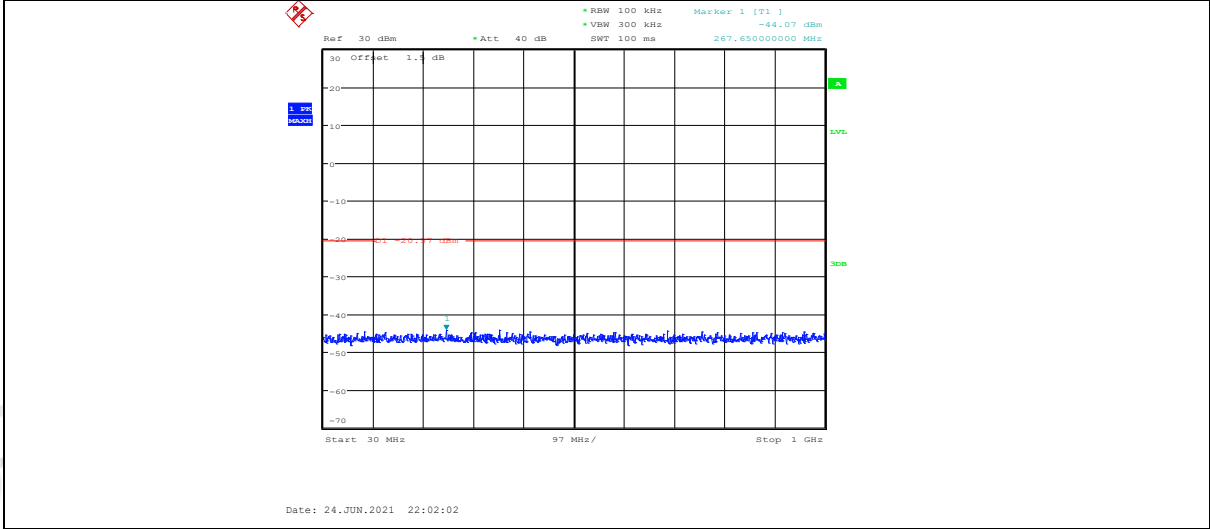
3DH5_ANT1_2402_1000~26500



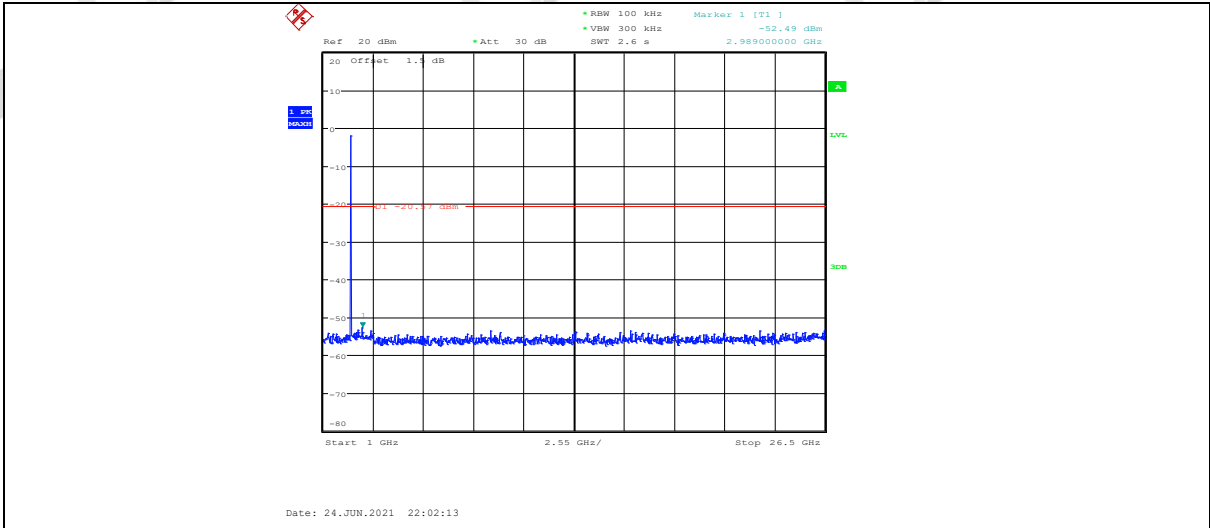
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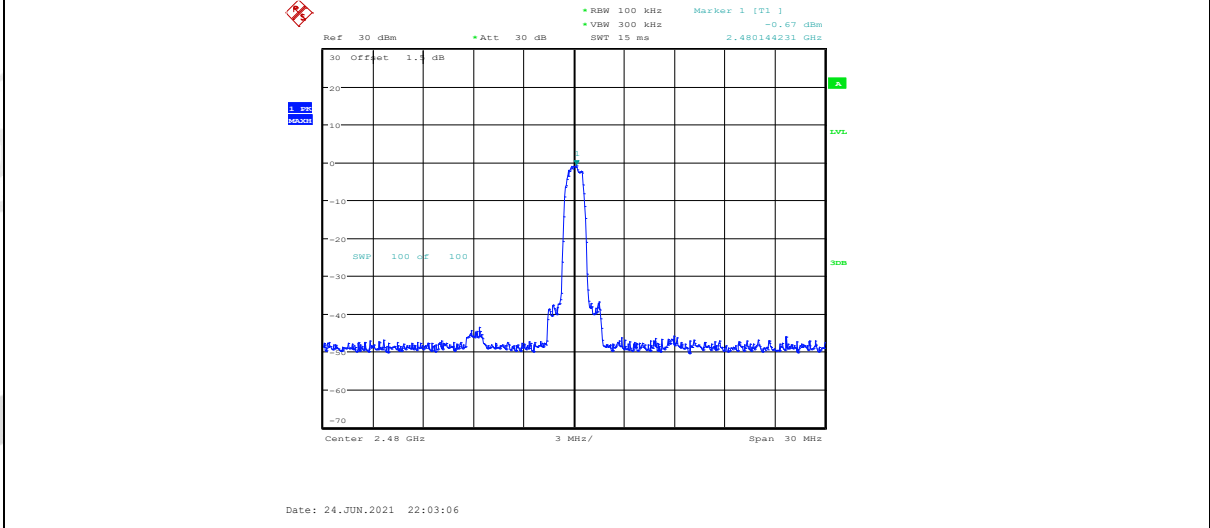
3DH5_ANT1_2441_30~1000



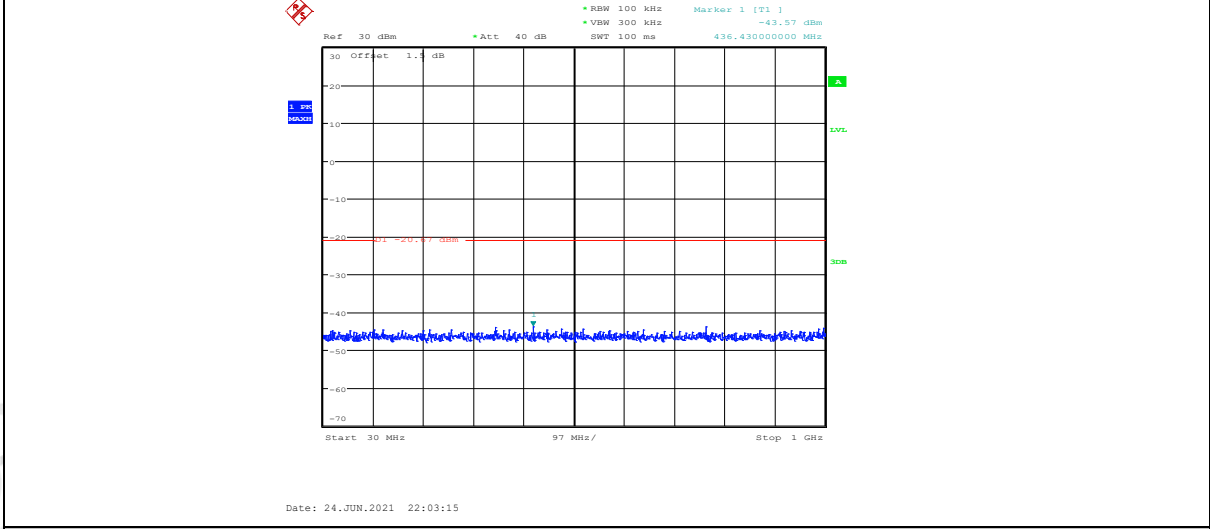
3DH5_ANT1_2441_1000~26500



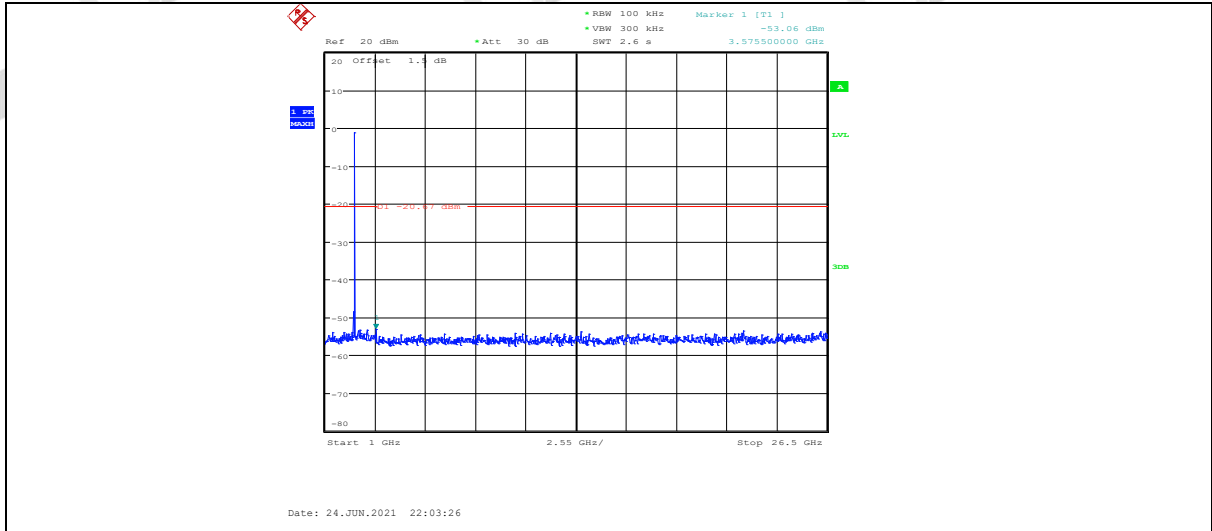
3DH5_ANT1_2480_Ref



3DH5_ANT1_2480_30~1000

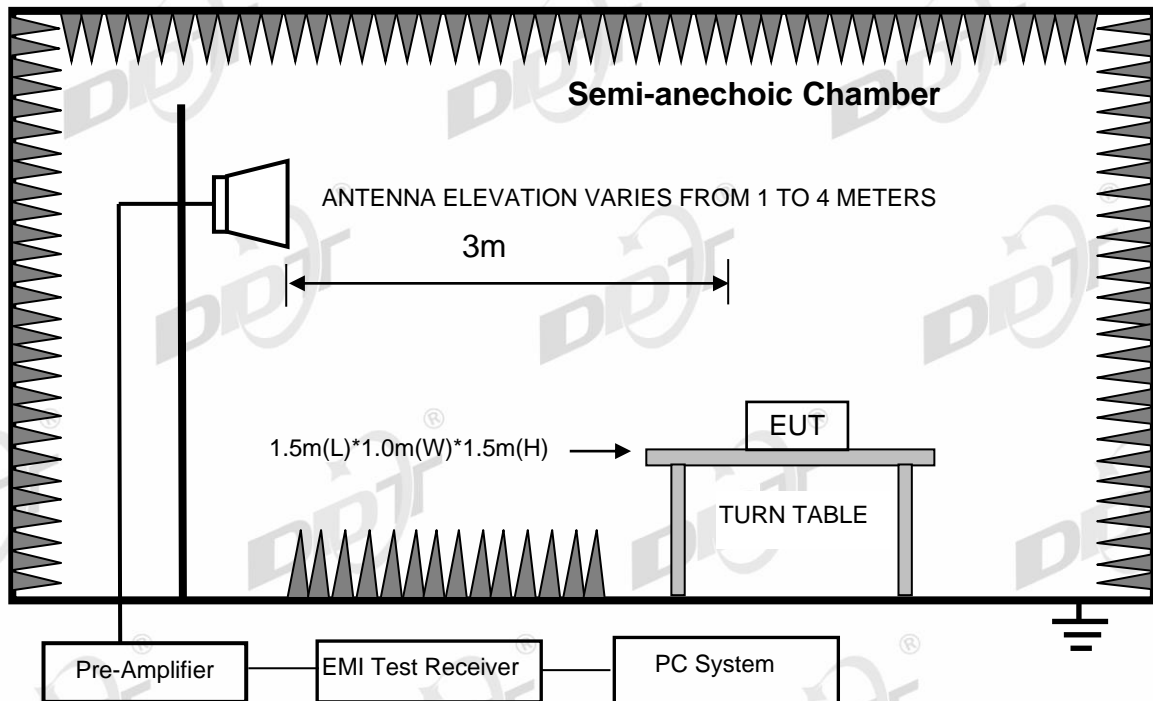


3DH5_ANT1_2480_1000~26500



12. Band Edge Compliance (Radiated Method)

12.1. Block diagram of test setup



12.2. Limit

All restriction band should comply with 15.209, other emission should be at least 20 dB below the fundamental.

12.3. Test procedure

Same with clause 10.3 except change investigated frequency range from 2310 MHz to 2410 MHz and 2475 MHz to 2500 MHz.

- Remark: All restriction band have been tested, and only the worst case is shown in report.

12.4. Test result

Pass. (See below detailed test result)

Remark: hopping on and hopping off mode all have been test, hopping off mode is worse and reported only, the worst case recorded in this report.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2#

D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6

Test Date : 2021-07-04

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

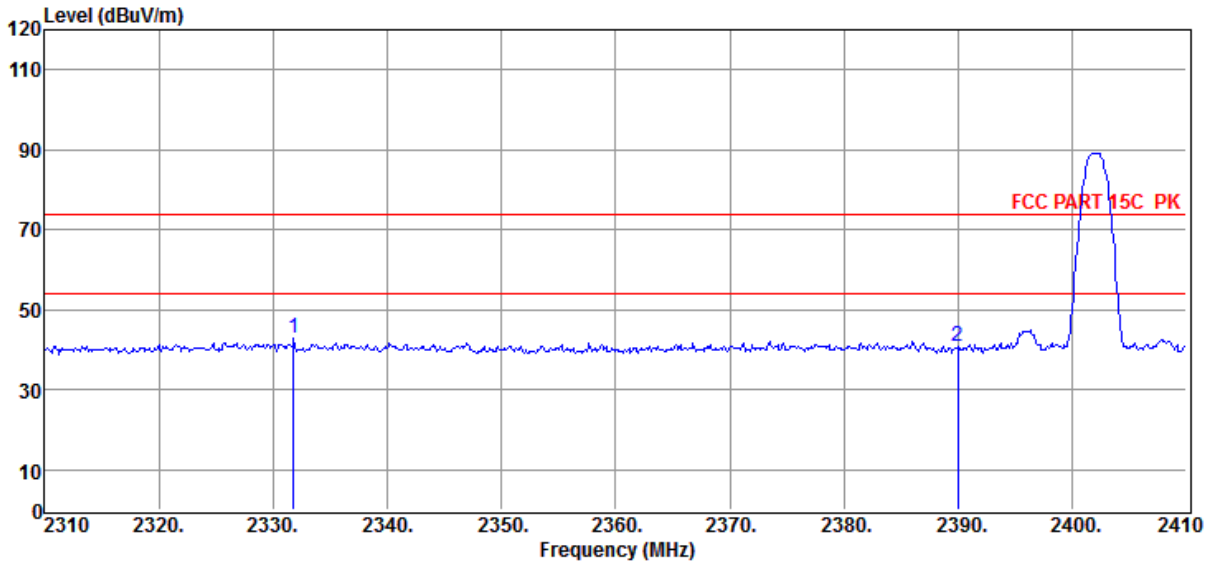
Power Supply : DC 12V

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2020 BBHA9120D/3m/VERTICAL

Memo : DH5 2402



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor (dB) | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 2331.80 | 53.35 | 27.83 | 43.08 | 4.73 | 42.83 | 74.00 | -31.17 | Peak | VERTICAL |
| 2 | 2390.00 | 51.22 | 27.89 | 43.14 | 4.80 | 40.77 | 74.00 | -33.23 | Peak | VERTICAL |

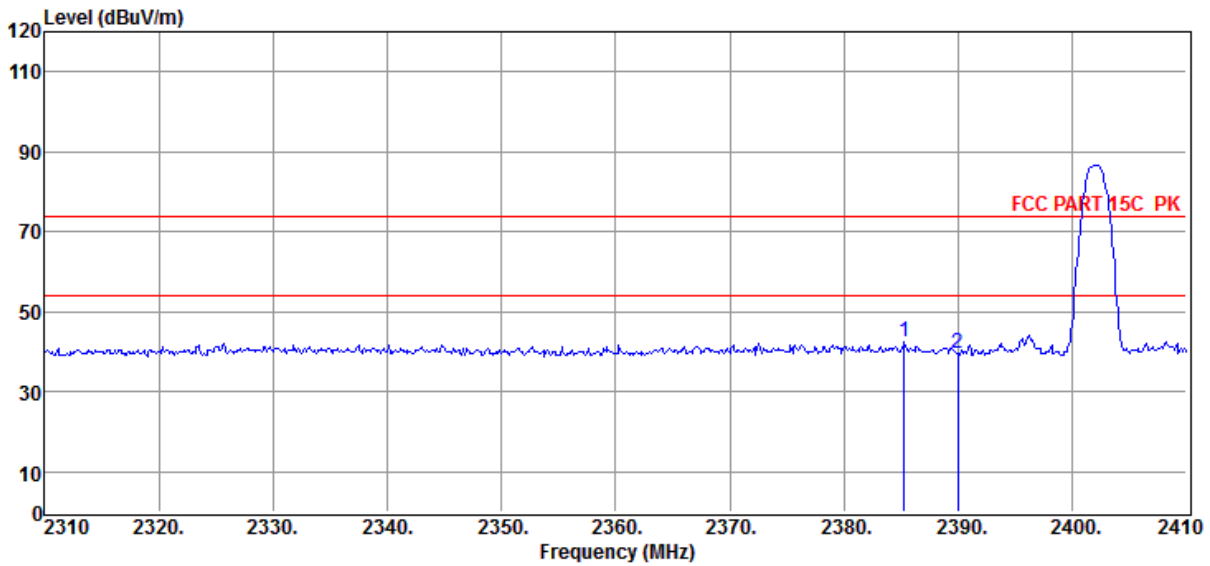
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6
Test Date : 2021-07-04 **Tested By** : Ziqin
EUT : Equipo de Audio y Video para Vehiculo **Model Number** : MTXMO500ASU2i
Power Supply : DC 12V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2020 BBHA9120D/3m/HORIZONTAL
Memo : DH5 2402



| Item (Mark) | Freq. (MHz) | Read Level (dBµV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss dB | Result Level (dBµV/m) | Limit Line (dBµV/m) | Over Limit (dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1 | 2385.30 | 52.88 | 27.89 | 43.13 | 4.79 | 42.43 | 74.00 | -31.57 | Peak | HORIZONTAL |
| 2 | 2390.00 | 50.11 | 27.89 | 43.14 | 4.80 | 39.66 | 74.00 | -34.34 | Peak | HORIZONTAL |

- Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2#

D:\2021 RE2# Report Data\Q21060707-2E

MTXMO500ASU2\FCC ABOVE 1G.EM6

Test Date : 2021-07-04

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

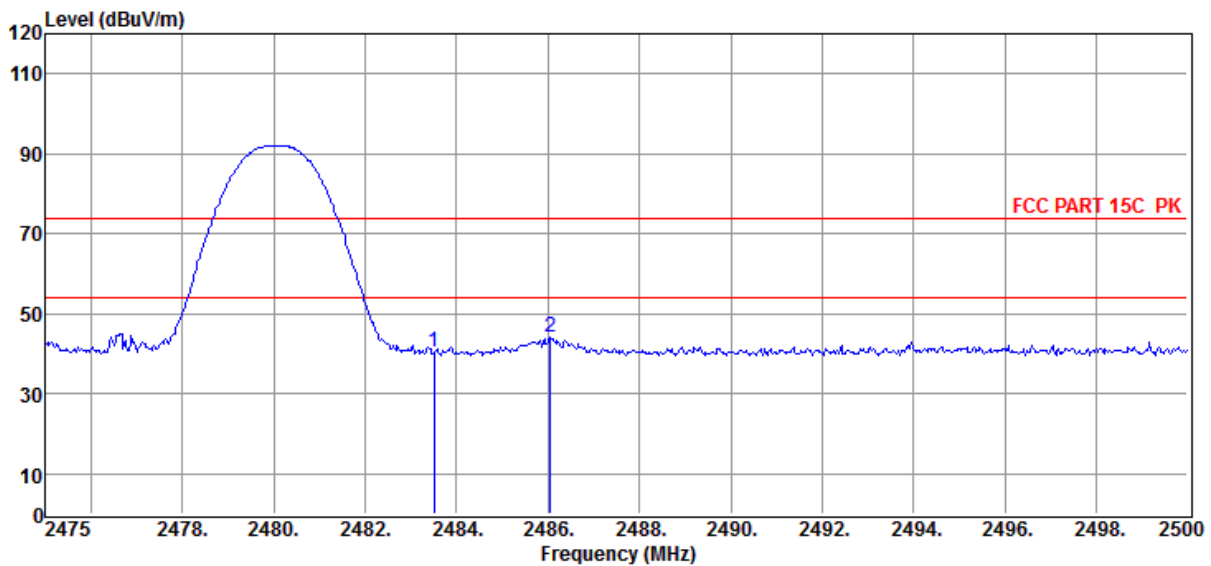
Power Supply : DC 12V

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2020 BBHA9120D/3m/VERTICAL

Memo : DH5 2480



| Item (Mark) | Freq. (MHz) | Read Level (dB μ V) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss dB | Result Level (dB μ V/m) | Limit Line (dB μ V/m) | Over Limit (dB) | Detector | Polarization |
|----------------|----------------|-------------------------------|-----------------------------|---------------------|---------------------|-----------------------------------|---------------------------------|-----------------------|----------|--------------|
| 1 | 2483.50 | 50.66 | 27.98 | 43.23 | 4.90 | 40.31 | 74.00 | -33.69 | Peak | VERTICAL |
| 2 | 2486.05 | 54.48 | 27.99 | 43.24 | 4.90 | 44.13 | 74.00 | -29.87 | Peak | VERTICAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2#

D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6

Test Date : 2021-07-04

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

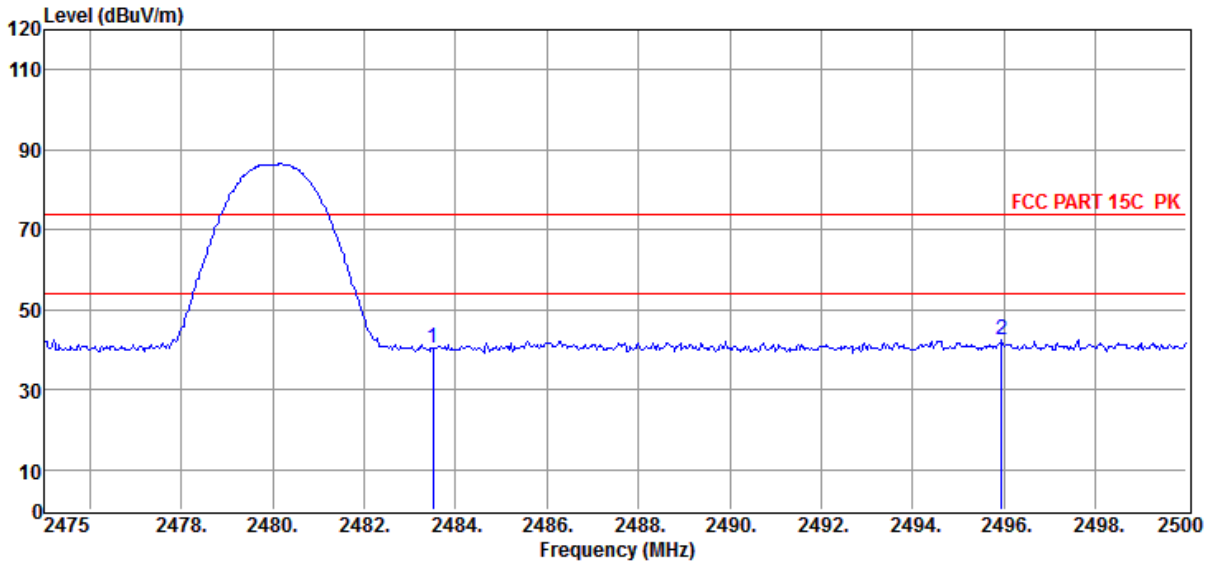
Power Supply : DC 12V

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2020 BBHA9120D/3m/HORIZONTAL

Memo : DH5 2480



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss dB | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1 | 2483.50 | 50.56 | 27.98 | 43.23 | 4.90 | 40.21 | 74.00 | -33.79 | Peak | HORIZONTAL |
| 2 | 2495.95 | 52.90 | 28.00 | 43.25 | 4.92 | 42.57 | 74.00 | -31.43 | Peak | HORIZONTAL |

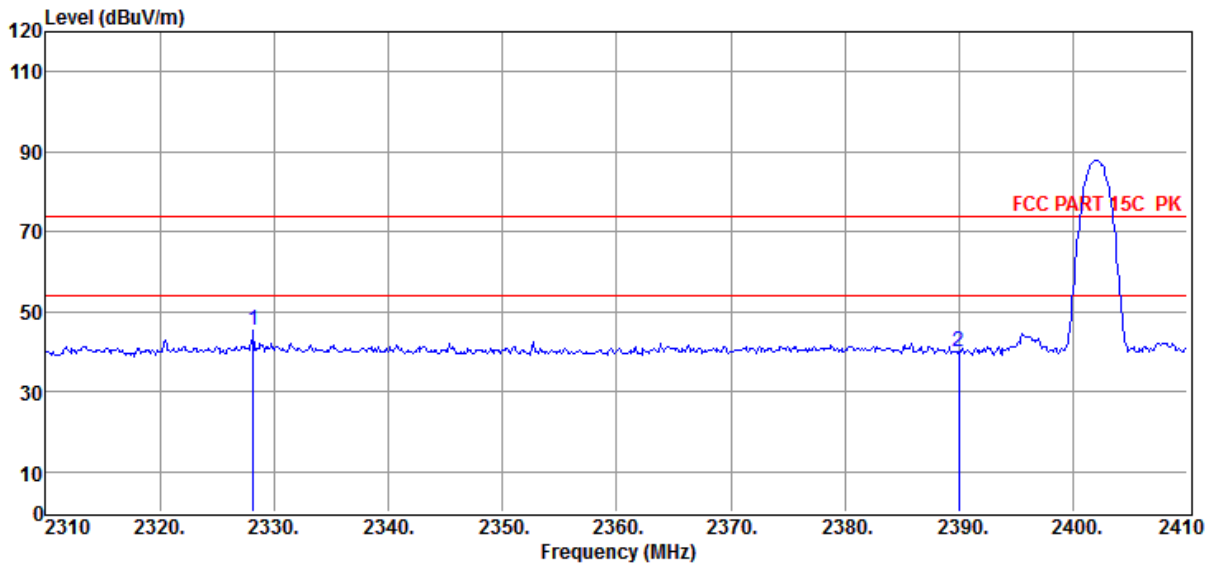
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6
Test Date : 2021-07-04 **Tested By** : Ziqin
EUT : Equipo de Audio y Video para Vehiculo **Model Number** : MTXMO500ASU2i
Power Supply : DC 12V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2020 BBHA9120D/3m/VERTICAL
Memo : 2DH5 2402

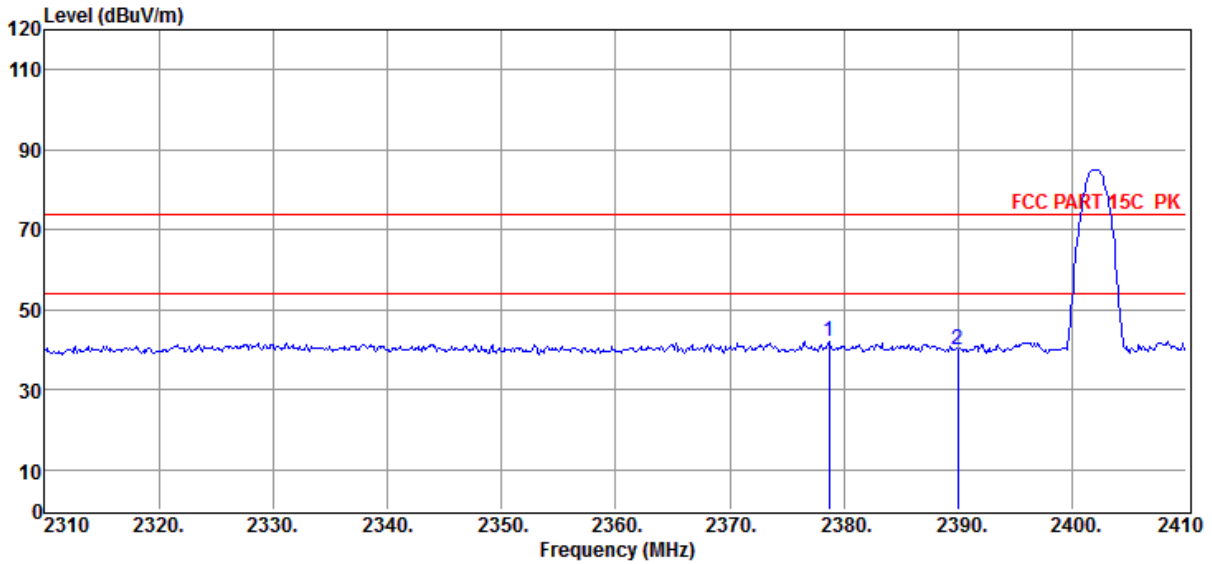


| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor (dB) | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 2328.20 | 55.69 | 27.83 | 43.07 | 4.73 | 45.18 | 74.00 | -28.82 | Peak | VERTICAL |
| 2 | 2390.00 | 50.61 | 27.89 | 43.14 | 4.80 | 40.16 | 74.00 | -33.84 | Peak | VERTICAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6
Test Date : 2021-07-04 **Tested By** : Ziqin
EUT : Equipo de Audio y Video para Vehiculo **Model Number** : MTXMO500ASU2i
Power Supply : DC 12V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2020 BBHA9120D/3m/HORIZONTAL
Memo : 2DH5 2402



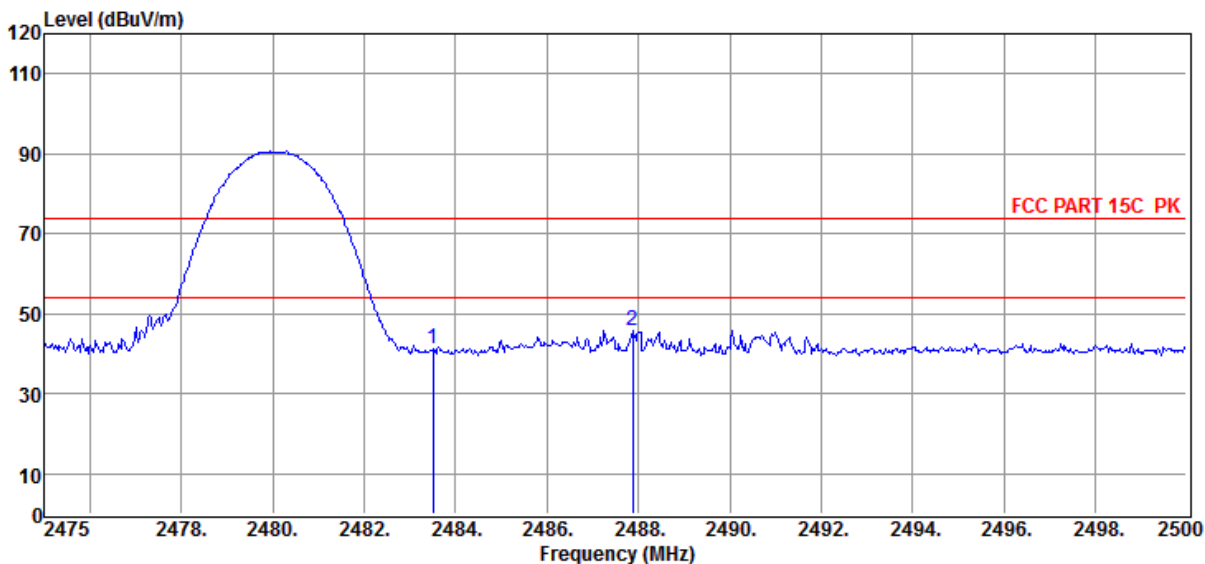
| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss dB | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1 | 2378.70 | 52.72 | 27.88 | 43.13 | 4.79 | 42.26 | 74.00 | -31.74 | Peak | HORIZONTAL |
| 2 | 2390.00 | 50.47 | 27.89 | 43.14 | 4.80 | 40.02 | 74.00 | -33.98 | Peak | HORIZONTAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2#
Test Date : 2021-07-04
EUT : Equipo de Audio y Video para Vehiculo
Power Supply : DC 12V
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa
Memo : 2DH5 2480

D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6
Tested By : Ziqin
Model Number : MTXMO500ASU2i
Test Mode : Tx mode
Antenna/Distance : 2020 BBHA9120D/3m/VERTICAL

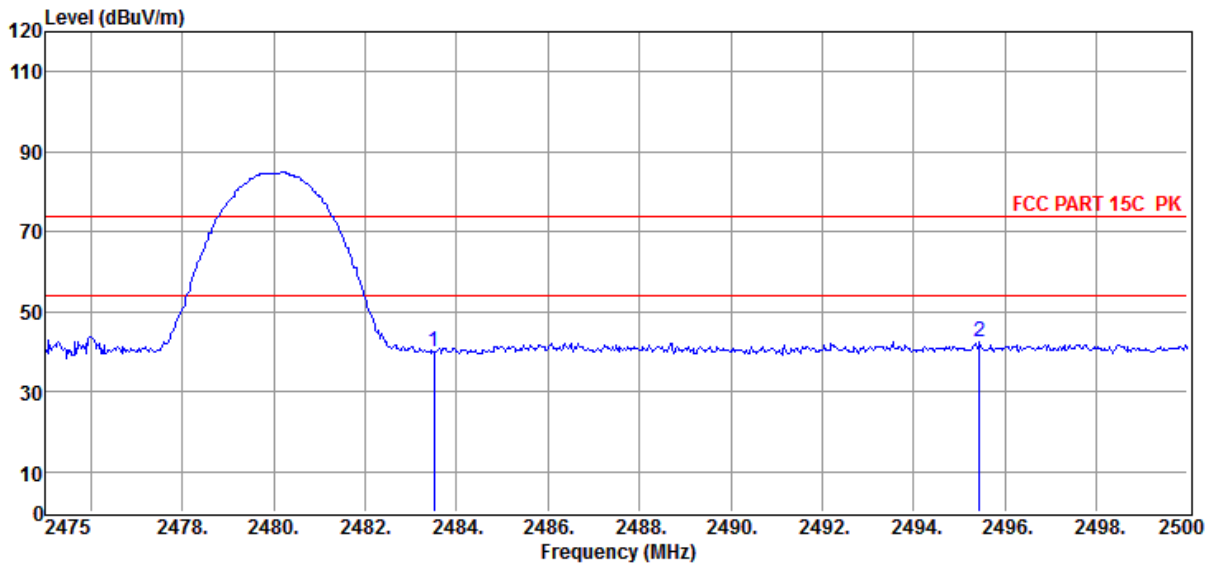


| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor (dB) | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 2483.50 | 51.43 | 27.98 | 43.23 | 4.90 | 41.08 | 74.00 | -32.92 | Peak | VERTICAL |
| 2 | 2487.88 | 56.17 | 27.99 | 43.24 | 4.91 | 45.83 | 74.00 | -28.17 | Peak | VERTICAL |

- Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6
Test Date : 2021-07-04 **Tested By** : Ziqin
EUT : Equipo de Audio y Video para Vehiculo **Model Number** : MTXMO500ASU2i
Power Supply : DC 12V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2020 BBHA9120D/3m/HORIZONTAL
Memo : 2DH5 2480



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor (dB) | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 2483.50 | 50.41 | 27.98 | 43.23 | 4.90 | 40.06 | 74.00 | -33.94 | Peak | HORIZONTAL |
| 2 | 2495.45 | 52.82 | 28.00 | 43.25 | 4.92 | 42.49 | 74.00 | -31.51 | Peak | HORIZONTAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2#

D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6

Test Date : 2021-07-04

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

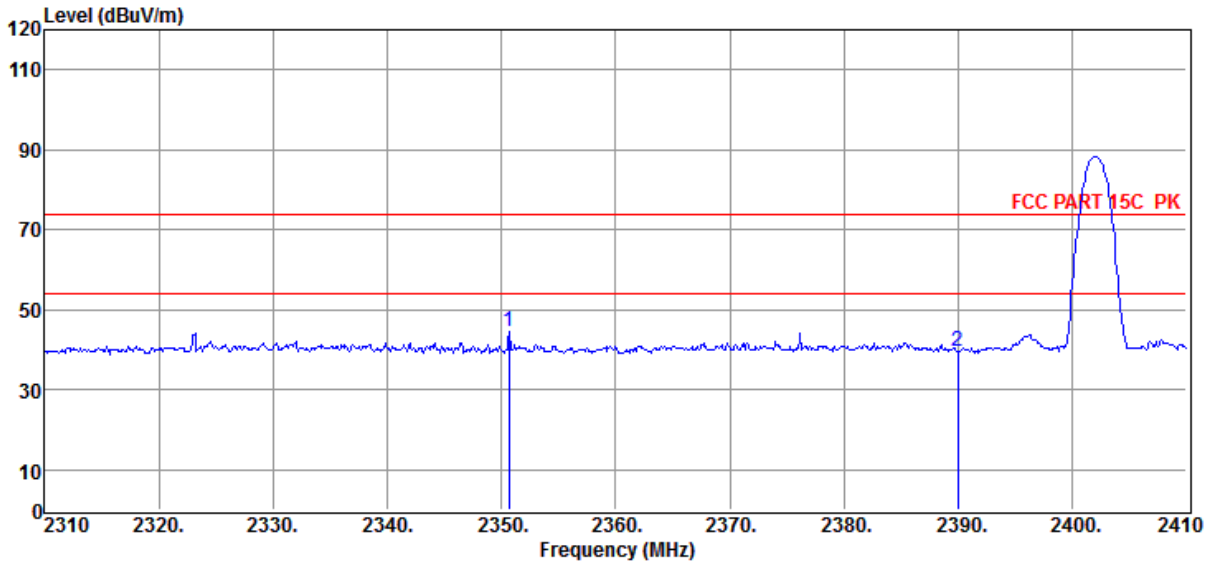
Power Supply : DC 12V

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2020 BBHA9120D/3m/VERTICAL

Memo : 3DH5 2402



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss dB | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1 | 2350.70 | 54.88 | 27.85 | 43.10 | 4.75 | 44.38 | 74.00 | -29.62 | Peak | VERTICAL |
| 2 | 2390.00 | 50.18 | 27.89 | 43.14 | 4.80 | 39.73 | 74.00 | -34.27 | Peak | VERTICAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2#

D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6

Test Date : 2021-07-04

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

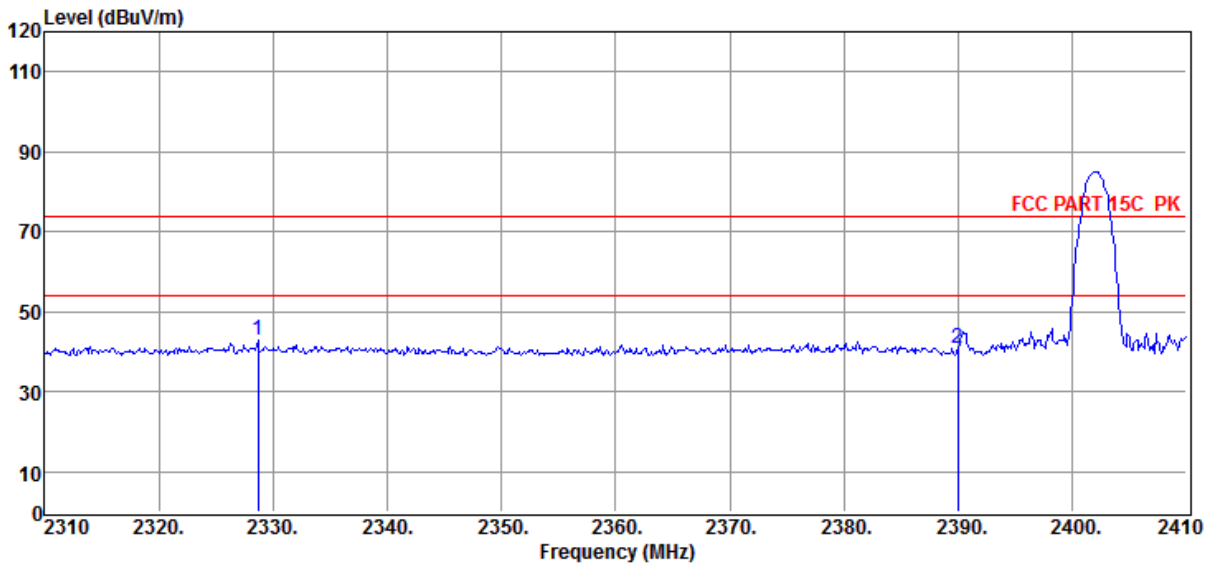
Power Supply : DC 12V

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2020 BBHA9120D/3m/HORIZONTAL

Memo : 3DH5 2402



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss dB | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1 | 2328.70 | 53.30 | 27.83 | 43.08 | 4.73 | 42.78 | 74.00 | -31.22 | Peak | HORIZONTAL |
| 2 | 2390.00 | 51.40 | 27.89 | 43.14 | 4.80 | 40.95 | 74.00 | -33.05 | Peak | HORIZONTAL |

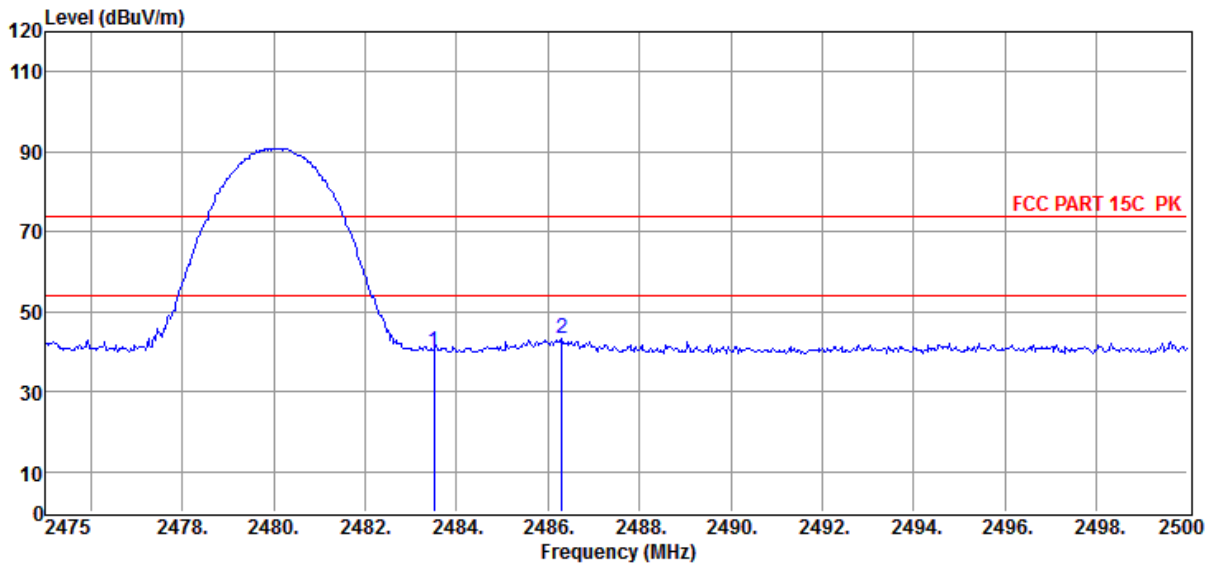
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6
Test Date : 2021-07-04 **Tested By** : Ziqin
EUT : Equipo de Audio y Video para Vehiculo **Model Number** : MTXMO500ASU2i
Power Supply : DC 12V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2020 BBHA9120D/3m/VERTICAL
Memo : 3DH5 2480



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor (dB) | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|-------------|-------------|-------------------|-----------------------|-----------------|-----------------|-----------------------|---------------------|-----------------|----------|--------------|
| 1 | 2483.50 | 50.24 | 27.98 | 43.23 | 4.90 | 39.89 | 74.00 | -34.11 | Peak | VERTICAL |
| 2 | 2486.30 | 53.82 | 27.99 | 43.24 | 4.91 | 43.48 | 74.00 | -30.52 | Peak | VERTICAL |

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2#

D:\2021 RE2# Report Data\Q21060707-2E
MTXMO500ASU2\FCC ABOVE 1G.EM6

Test Date : 2021-07-04

Tested By : Ziqin

EUT : Equipo de Audio y Video para Vehiculo

Model Number : MTXMO500ASU2i

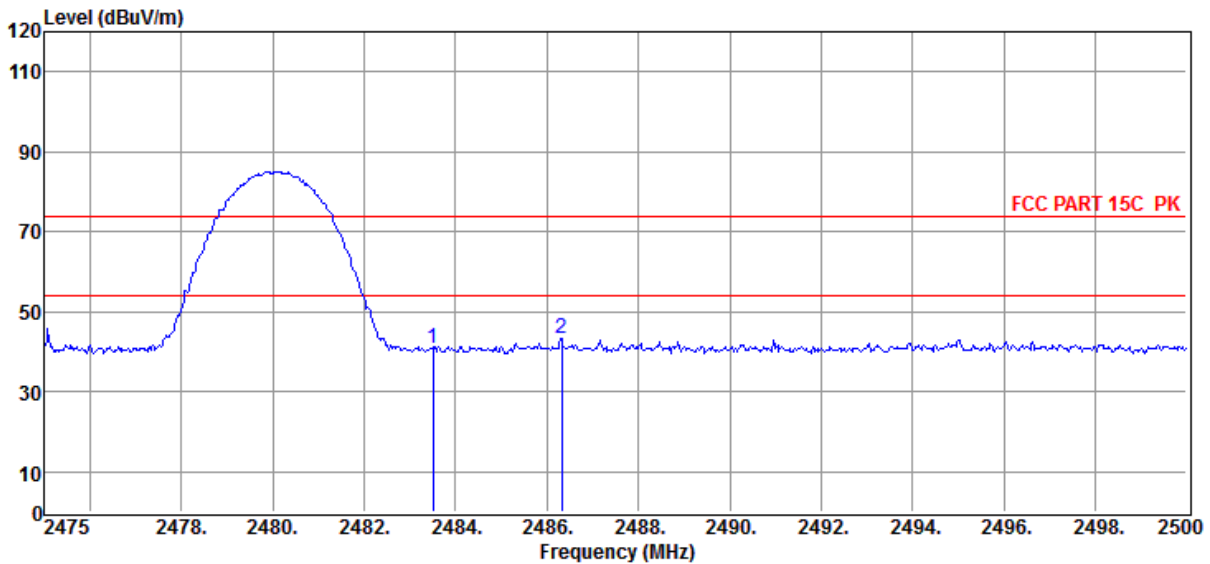
Power Supply : DC 12V

Test Mode : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa

Antenna/Distance : 2020 BBHA9120D/3m/HORIZONTAL

Memo : 3DH5 2480



| Item (Mark) | Freq. (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss dB | Result Level (dBμV/m) | Limit Line (dBμV/m) | Over Limit (dB) | Detector | Polarization |
|----------------|----------------|-------------------------|-----------------------------|---------------------|---------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1 | 2483.50 | 51.19 | 27.98 | 43.23 | 4.90 | 40.84 | 74.00 | -33.16 | Peak | HORIZONTAL |
| 2 | 2486.33 | 53.62 | 27.99 | 43.24 | 4.91 | 43.28 | 74.00 | -30.72 | Peak | HORIZONTAL |

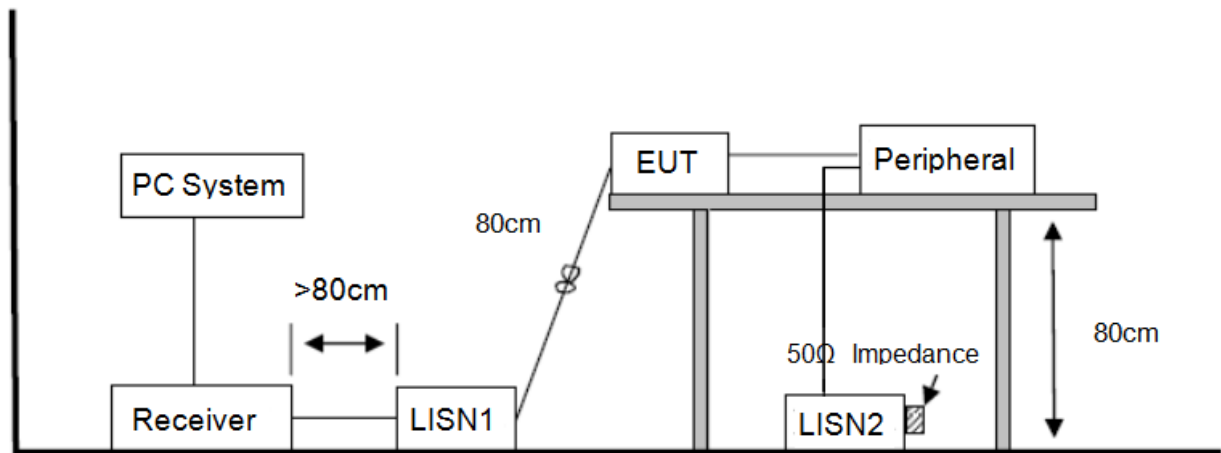
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

13. Power Line Conducted Emission

13.1. Block diagram of test setup



13.2. Power Line Conducted Emission Limits (Class B)

| Frequency | Quasi-Peak Level dB(μ V) | Average Level dB(μ V) |
|-------------------|----------------------------------|-------------------------------|
| 150 kHz ~ 500 kHz | 66 ~ 56* | 56 ~ 46* |
| 500 kHz ~ 5 MHz | 56 | 46 |
| 5 MHz ~ 30 MHz | 60 | 50 |

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

13.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.3 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.3 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worst cable configuration of the above highest emission levels were recorded for reference of the final test. EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

13.4. Test result

Not Applicable

Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

14. Antenna Requirements

14.1. Limit

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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

14.2. Result

There is no other antenna other than that furnished by the responsible party shall be used with the device; the maximum peak gain is 4.51 dBi.