**FCC CFR47 PART 15 SUBPART C**

**DTS Wireless LAN**

**CERTIFICATION TEST REPORT**

**FOR**

**GSM/WCDMA/LTE Phone + BT/BLE and DTS b/g/n**

**MODEL NUMBER : SM-J600GT/DS**

**FCC ID: A3LSMJ600GT**

**REPORT NUMBER: 4788398268-E1V2**

**ISSUE DATE: APR 13, 2018**

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ACCREDITED
Testing Laboratory

**TL-637**

## Revision History

| Rev. | Issue Date | Revisions | Revised By |
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| V1 | 04/11/18 | Initial issue | Hoonpyo Lee |
| V2 | 04/13/18 | Updated to address TCB's question | |


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# 1. ATTESTATION OF TEST RESULTS

| | |
|---|---|
| **COMPANY NAME:** | SAMSUNG ELECTRONICS CO., LTD. |
| **EUT DESCRIPTION:** | GSM/WCDMA/LTE Phone + BT/BLE and DTS b/g/n |
| **MODEL NUMBER:** | SM-J600GT/DS |
| **SERIAL NUMBER:** | R38K20GLBNH (RADIATED, Original);<br>R38K20GLBPP (CONDUCTED, Original);<br>R38K20GTTDX (Spot check) |
| **DATE TESTED:** | MAR 20, 2018 - APR 11, 2018 (Original)<br>APR 04, 2018 - APR 05, 2018 (Spot check) |

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| CFR 47 Part 15 Subpart C | Pass |

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

SungGil Park
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Hoonpyo Lee
Suwon Lab Engineer
UL Korea, Ltd.


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## 1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMJ600G DTS WLAN(FCC CFR 47 Part 15C). And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

## 1.2. DIFFERENCE

The FCC ID: A3LSMJ600GT shares the same enclosure and circuit board as FCC ID: A3LSMJ600G. The WLAN antennas and surrounding circuitry and layout are identical between these two units.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMJ600G remains representative of FCC ID: A3LSMJ600GT. The test data of FCC ID: A3LSMJ600G being submitted for this application to cover WLAN features.

## 1.3. SPOT CHECK VERIFICATION DATA

| Band | Test Item | Mode | Frequency(MHz) | Test Limit | Original model<br>SM-J600G/DS Results<br>FCC ID : A3LSMJ600G | Spot check model<br>SM-J600GT/DS Results<br>FCC ID : A3LSMJ600GT | Deviation | Remark |
|---|---|---|---|---|---|---|---|---|
| DTS WLAN (2.4GHz) | Band Edge | 802.11b | 2462 | 54 dBuV/m | 45.01 dBuV/m | 46.17 dBuV/m | 1.16 dB | |
| | RSE | 802.11b | 2412(9643) | 74 dBuV/m | 40.76 dBuV/m | 40.25 dBuV/m | -0.51 dB | Noise floor level |
| | Band Edge | 802.11g | 2462 | 74 dBuV/m | 71.21 dBuV/m | 68.47 dBuV/m | -2.74 dB | |
| | RSE | 802.11g | 2412(9646) | 74 dBuV/m | 40.51 dBuV/m | 40.49 dBuV/m | -0.02 dB | Noise floor level |
| | Band Edge | 802.11n | 2462 | 74 dBuV/m | 70.72 dBuV/m | 71.01 dBuV/m | 0.29 dB | |
| | RSE | 802.11n | 2412(9643) | 74 dBuV/m | 41.52 dBuV/m | 40.47 dBuV/m | -1.05 dB | Noise floor level |

Comparison of two models, upper deviation is within 3dB range and all test results are under FCC Technical Limits.


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## 1.4. REFERENCE DETAIL

Reference application that contains the reused reference data.

| Equipment Class | Reference FCC ID | Type Grant/Permissive Change | Reference Application | Folder Test/RF Exposure | Report Tittle / Section |
|---|---|---|---|---|---|
| DTS | A3LSMJ600G | Grant | 4788397759-E1V2 | Test | FCC Report DTS WLAN / All sections |
| | | | 4788397759-E2V1 | Test | FCC Report BLE All sections |
| DSS | A3LSMJ600G | Grant | 4788397759-E3V1 | Test | FCC Report BT / All sections |
| PCE | A3LSMJ600G | Grant | 4788397759-E4V2 | Test | FCC Report WWAN / All sections |


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# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 DTS Meas Guidance v04.
4. ANSI C63.10-2013.

# 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 218 Maeyeong-ro |
|---|
| ☒ Chamber 1 |
| ☐ Chamber 2 |
| ☐ Chamber 3 |

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# 4. CALIBRATION AND UNCERTAINTY

## 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

## 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

## 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER | UNCERTAINTY |
|---|---|
| Conducted Disturbance, 0.15 to 30 MHz | 2.32 dB |
| Radiated Disturbance, Below 1GHz | 3.86 dB |
| Radiated Disturbance, Above 1 GHz | 5.97 dB |

Uncertainty figures are valid to a confidence level of 95%.


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# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE and DTS b/g/n
This test report addresses the DTS (WLAN) operational mode.

## 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

| Frequency Range [MHz] | Mode | Output Power [dBm] | Output Power [mW] |
|---|---|---|---|
| 2412 - 2472 | 802.11b | 17.37 | 54.58 |
| | 802.11g | 16.75 | 47.32 |
| | 802.11n HT20 | 16.59 | 45.60 |

## 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antennas, with a antenna's maximum gain of -2.0 dBi.

## 5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20 mode: MCS0

Note : All radiated and power line conducted tests were performed connected with earphone and charger for evaluation of worst case mode.


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## 5.5. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| Support Equipment List | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** | **FCC ID** |
| Charger | SAMSUNG | ETA0U83EWE | RT2K117oS/A-E | N/A |
| Data Cable | SAMSUNG | ECB-DU68WE | N/A | N/A |
| Earphone | SAMSUNG | EHS61ASFWE | N/A | N/A |

**I/O CABLES**

| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| **Cable No** | **Port** | **# of identical ports** | **Connector Type** | **Cable Type** | **Cable Length (m)** | **Remarks** |
| 1 | DC Power | 1 | Mini-USB | Shielded | 1.2m | N/A |
| 2 | Audio | 2 | Mini-Jack | Unshielded | 1.2m | N/A |

**TEST SETUP**

The EUT is a stand-alone unit during the tests.
Test software in hidden menu exercised the EUT to enable DTS mode.


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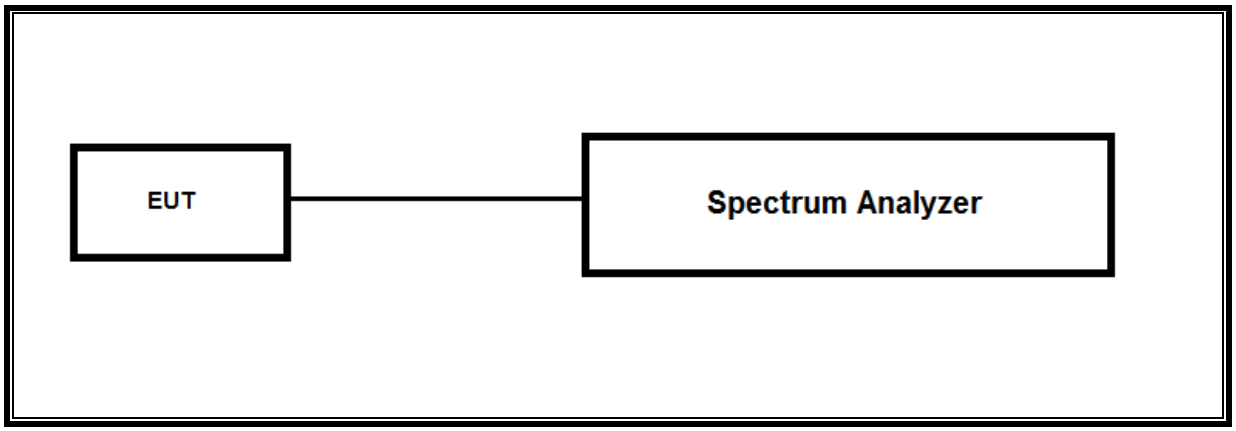
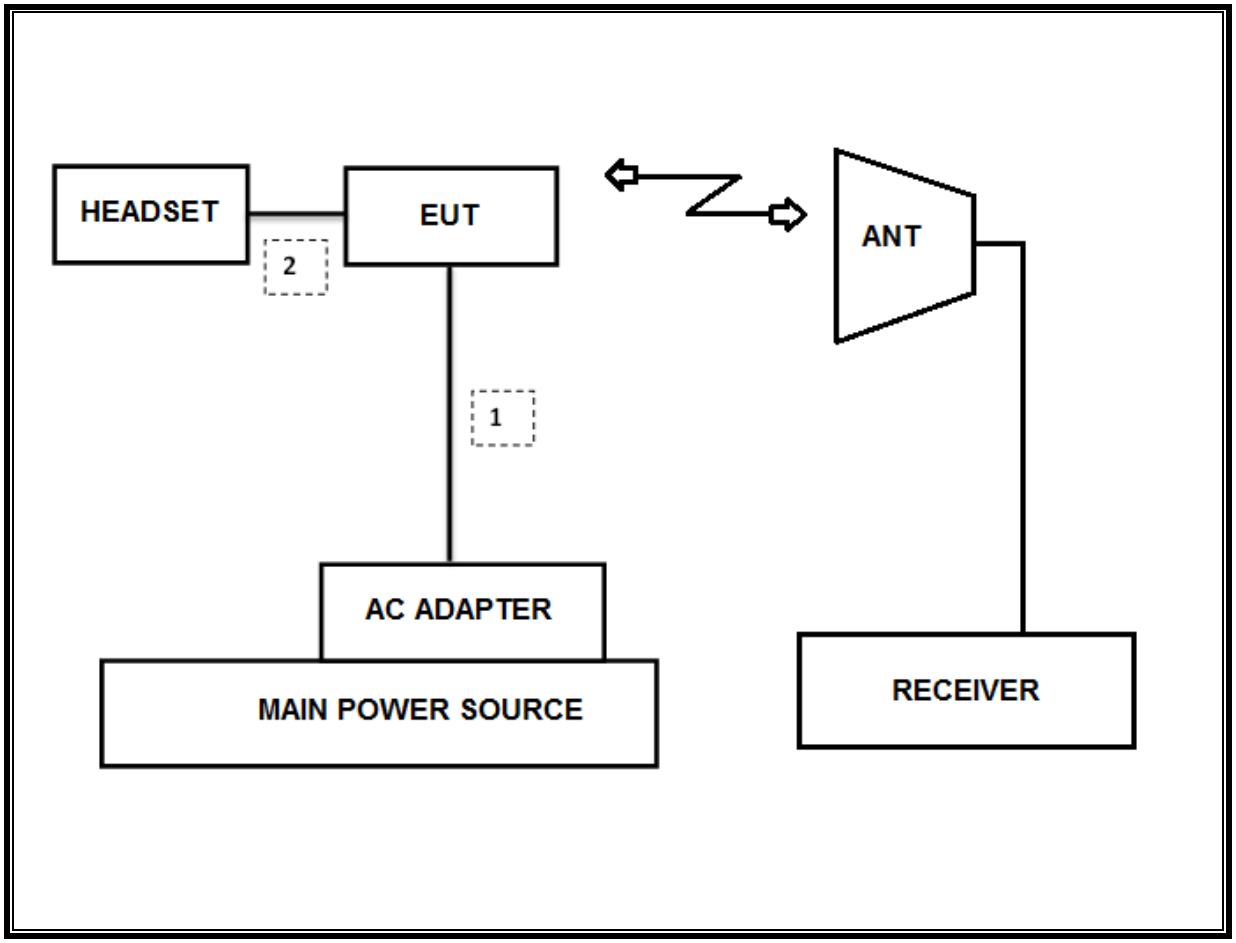
**SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)**




**SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)**





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# 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Equipment List | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **S/N** | **Cal Due** |
| Antenna, Bilog, 30MHz-1GHz | SCHWARZBECK | VULB9163 | 750 | 08-31-19 |
| Antenna, Bilog, 30MHz-1GHz | SCHWARZBECK | VULB9163 | 749 | 09-14-19 |
| Antenna, Bilog, 30MHz-1GHz | SCHWARZBECK | VULB9163 | 845 | 08-31-19 |
| Antenna, Loop, 9kHz-30MHz | R&S | HFH2-Z2 | 100418 | 10-26-19 |
| Antenna, Horn, 18 GHz | ETS | 3115 | 00167211 | 10-14-18 |
| Antenna, Horn, 18 GHz | ETS | 3115 | 00161451 | 03-10-19 |
| Antenna, Horn, 18 GHz | ETS | 3117 | 00168724 | 05-31-19 |
| Antenna, Horn, 18 GHz | ETS | 3117 | 00168717 | 05-31-19 |
| Antenna, Horn, 18 GHz | ETS | 3117 | 00205959 | 11-29-18 |
| Antenna, Horn, 40 GHz | ETS | 3116C | 00166155 | 12-04-19 |
| Antenna, Horn, 40 GHz | ETS | 3116C | 00168645 | 12-04-19 |
| Antenna, Horn, 40 GHz | ETS | 3116C-PA | 00168841 | 11-13-19 |
| Preamplifier, 1000 MHz | Sonoma | 310N | 341282 | 08-09-18 |
| Preamplifier, 1000 MHz | Sonoma | 310N | 351741 | 08-07-18 |
| Preamplifier, 1000 MHz | Sonoma | 310N | 370599 | 08-10-18 |
| Preamplifier, 18 GHz | Miteq | AFS42-00101800-25-S-42 | 1876511 | 08-08-18 |
| Preamplifier, 18 GHz | Miteq | AFS42-00101800-25-S-42 | 1896138 | 08-08-18 |
| Preamplifier, 18 GHz | Miteq | AFS42-00101800-25-S-42 | 2029169 | 08-11-18 |
| Spectrum Analyzer, 44 GHz | Agilent / HP | N9030A | MY54170614 | 08-08-18 |
| Spectrum Analyzer, 44 GHz | Agilent / HP | N9030A | MY54490312 | 08-08-18 |
| Spectrum Analyzer, 43.5 GHz | R&S | FSW43 | 104089 | 08-11-18 |
| Average Power Sensor | Agilent / HP | U2000 | MY54270007 | 08-08-18 |
| Attenuator | PASTERNACK | PE7087-10 | A001 | 08-08-18 |
| Attenuator | PASTERNACK | PE7087-10 | A008 | 08-08-18 |
| Attenuator | PASTERNACK | PE7087-10 | 2 | 08-10-18 |
| Attenuator | PASTERNACK | PE7087-10 | A009 | 08-08-18 |
| EMI Test Receive, 40 GHz | R&S | ESU40 | 100439 | 08-08-18 |
| EMI Test Receive, 40 GHz | R&S | ESU40 | 100457 | 08-08-18 |
| EMI Test Receive, 44 GHz | R&S | ESW44 | 101590 | 08-09-18 |
| EMI Test Receive, 3 GHz | R&S | ESR3 | 101832 | 08-07-18 |
| Low Pass Filter 5GHz | Micro-Tronics | LPS17541 | 009 | 08-08-18 |
| Low Pass Filter 5GHz | Micro-Tronics | LPS17541 | 015 | 08-08-18 |
| Low Pass Filter 5GHz | Micro-Tronics | LPS17541 | 020 | 08-11-18 |
| High Pass Filter 3GHz | Micro-Tronics | HPM17543 | 010 | 08-08-18 |
| High Pass Filter 3GHz | Micro-Tronics | HPM17543 | 015 | 08-08-18 |
| High Pass Filter 3GHz | Micro-Tronics | HPM17543 | 020 | 08-11-18 |
| High Pass Filter 6GHz | Micro-Tronics | HPS17542 | 009 | 08-08-18 |
| High Pass Filter 6GHz | Micro-Tronics | HPS17542 | 016 | 08-08-18 |
| High Pass Filter 6GHz | Micro-Tronics | HPS17542 | 021 | 08-11-18 |
| LISN | R&S | ENV-216 | 101837 | 08-09-18 |
| **UL Software** | | | | |
| **Description** | **Manufacturer** | **Model** | **Version** | |
| Radiated software | UL | UL EMC | Ver 9.5 | |


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# 7. REFERENCE MEASUREMENT RESULTS

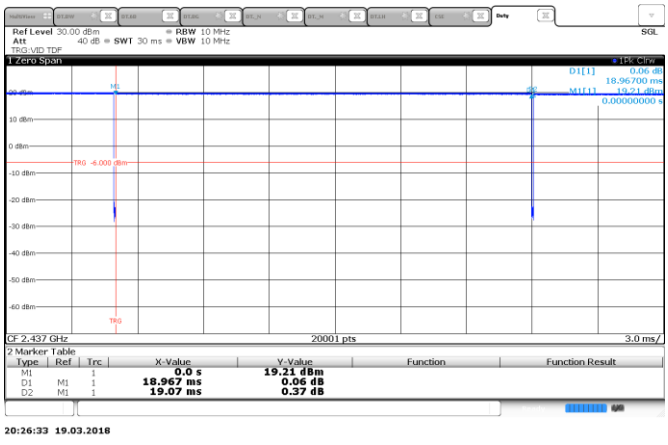
## 7.1. ON TIME AND DUTY CYCLE RESULTS

**LIMITS**

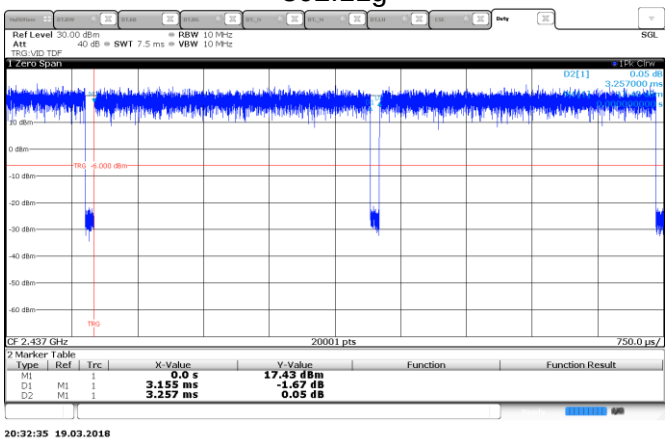
None; for reporting purposes only.

| Mode | ON Time B [msec) | Period [msec] | Duty Cycle x [linear] | Duty Cycle [%] | Duty Cycle Correction Factor [dB] | 1/T Minimum VBW [kHz] |
|---|---|---|---|---|---|---|
| **2400MHz Bands** | | | | | | |
| 802.11b | 18.97 | 19.07 | 0.995 | 99.5% | 0.00 | 0.010 |
| 802.11g | 3.155 | 3.257 | 0.969 | 96.9% | 0.14 | 0.317 |
| 802.11n HT20 | 2.928 | 3.029 | 0.967 | 96.7% | 0.15 | 0.342 |

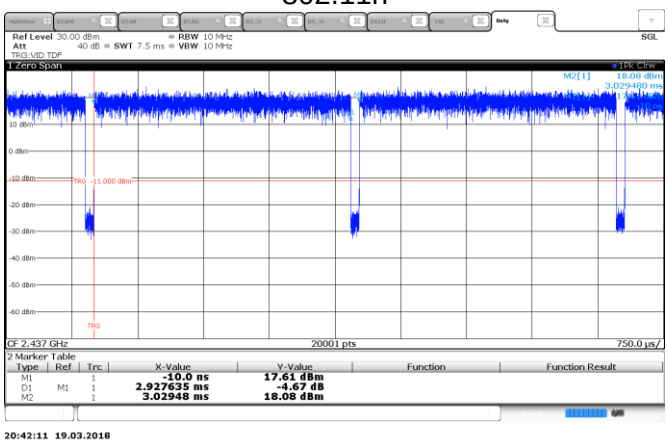
802.11b




802.11g




802.11n





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# 8. MEASUREMENT METHODS

6 dB BW : KDB 558074 D01 v04, Section 8.2.

OUTPUT POWER : KDB 558074 D01 v04, Section 9.2.3.1.

POWER SPECTRAL DENSITY : KDB 558074 D01 v04, Section 10.3./10.5.

Out-of-band EMISSIONS (Conducted) : KDB 558074 D01 v04, Section 11.1, 11.2.

Out-of-band EMISSIONS IN NON-RESTRICTED BANDS: KDB 558074 D01 v04, Section 11.0.

Out-of-band EMISSIONS IN RESTRICTED BANDS : KDB 558074 D01 v04, Section 12.1.

AC Power Line Conducted Emission : ANSI C63.10-2013, Section 6.2.


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# 9. SUMMARY TABLE

| FCC Part Section | Test Description | Test Limit | Test Condition | Test Result |
|---|---|---|---|---|
| 15.247 (a)(2) | Occupied Band width (6dB) | >500KHz | Conducted | Pass |
| 2.1051, 15.247 (d) | Band Edge / Conducted Spurious Emission | -30dBc | | Pass |
| 15.247 (b)(3) | TX conducted output power | <30dBm | | Pass |
| 15.247 (e) | PSD | <8dBm | | Pass |
| 15.207 (a) | AC Power Line conducted emissions | Section 10 | Power Line conducted | Pass |
| 15.205, 15.209 | Radiated Spurious Emission | < 54dBuV/m | Radiated | Pass |


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# 10. ANTENNA PORT TEST RESULTS

## 10.1. 6 dB BANDWIDTH

**LIMITS**

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

**TEST PROCEDURE**

Reference to KDB 558074 D01 DTS Meas Guidance v04: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.


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**RESULTS**

### 10.1.1.802.11b MODE IN THE 2.4 GHz BAND

| Channel | Frequency [MHz] | 6 dB Bandwidth [MHz] | Minimum Limit [MHz] |
|---|---|---|---|
| Low | 2412 | 8.560 | 0.5 |
| Mid | 2437 | 8.763 | 0.5 |
| High | 2462 | 8.383 | 0.5 |
| 12 | 2467 | 8.692 | 0.5 |
| 13 | 2472 | 8.712 | 0.5 |
| Worst | | 8.383 | 0.5 |

### 10.1.1.1. 802.11g MODE IN THE 2.4 GHz BAND

| Channel | Frequency [MHz] | 6 dB Bandwidth [MHz] | Minimum Limit [MHz] |
|---|---|---|---|
| Low | 2412 | 16.333 | 0.5 |
| Mid | 2437 | 16.316 | 0.5 |
| High | 2457 | 15.664 | 0.5 |
| 11 | 2462 | 16.300 | 0.5 |
| 12 | 2467 | 15.938 | 0.5 |
| 13 | 2472 | 15.932 | 0.5 |
| Worst | | 15.664 | 0.5 |

### 10.1.2.802.11n HT20 MODE IN THE 2.4 GHz BAND

| Channel | Frequency [MHz] | 6 dB Bandwidth [MHz] | Minimum Limit [MHz] |
|---|---|---|---|
| Low | 2412 | 17.296 | 0.5 |
| Mid | 2437 | 16.939 | 0.5 |
| High | 2457 | 16.547 | 0.5 |
| 11 | 2462 | 17.572 | 0.5 |
| 12 | 2467 | 16.930 | 0.5 |
| 13 | 2472 | 17.543 | 0.5 |
| Worst | | 16.547 | 0.5 |


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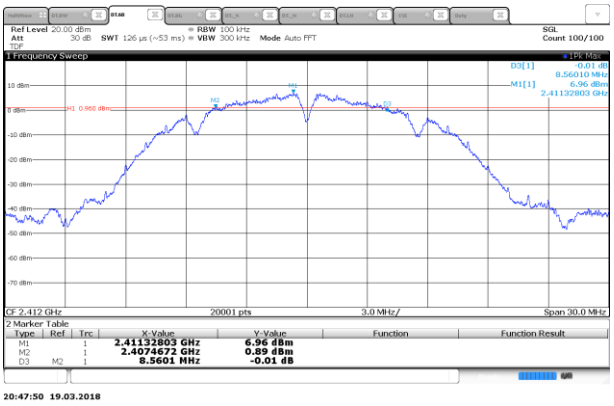
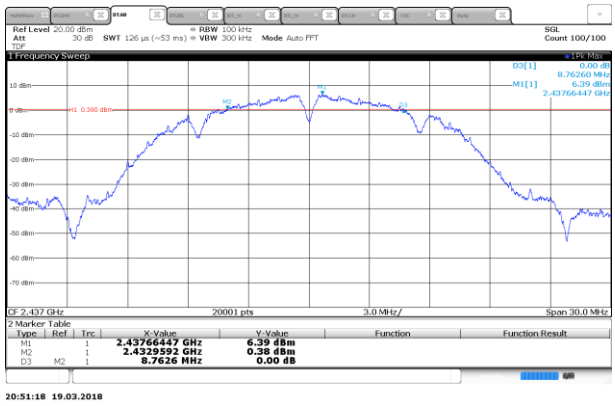
## 10.1.3.6 dB BANDWIDTH PLOTS

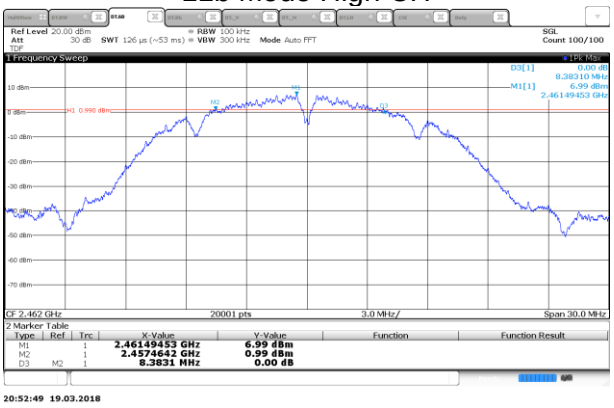
11b Mode Low CH



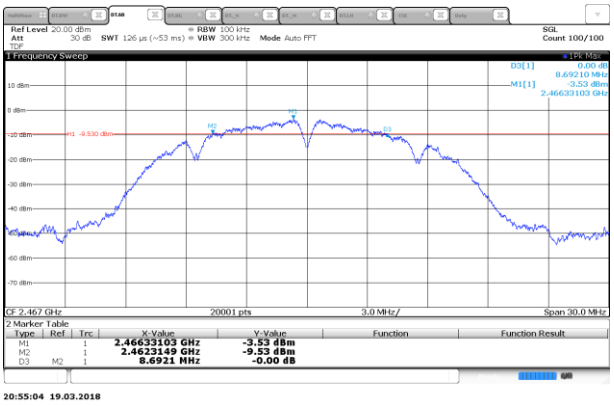

11b Mode Middle CH



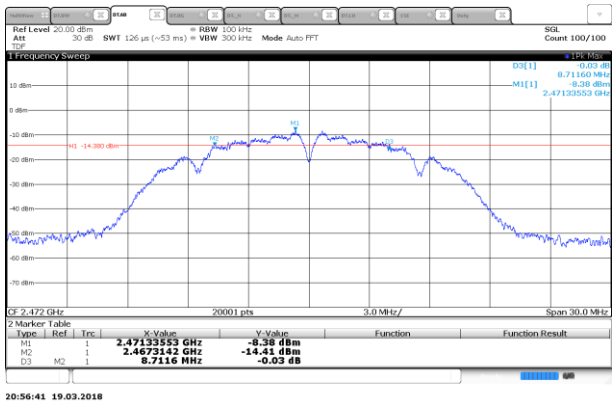

11b Mode High CH




11b Mode 12 CH




11b Mode 13 CH





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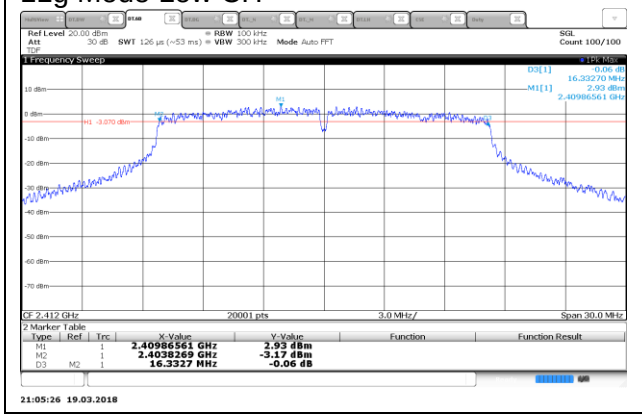
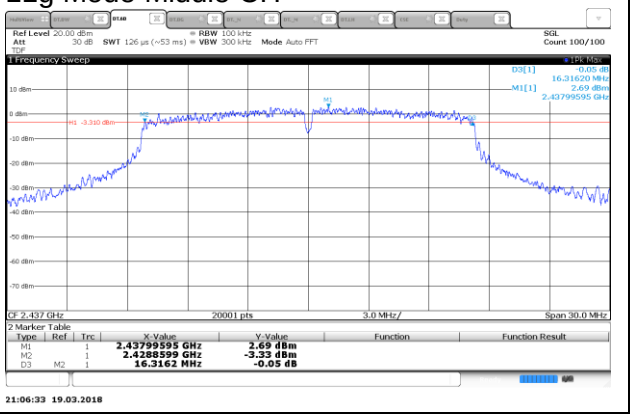
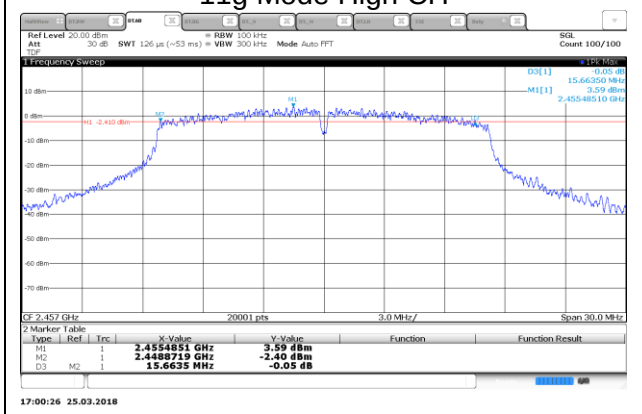
11g Mode Low CH



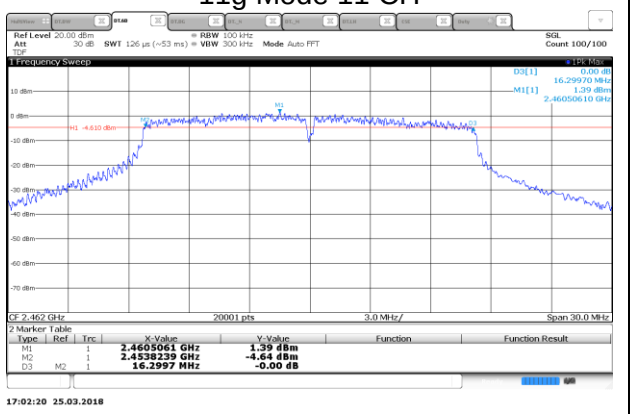

11g Mode Middle CH



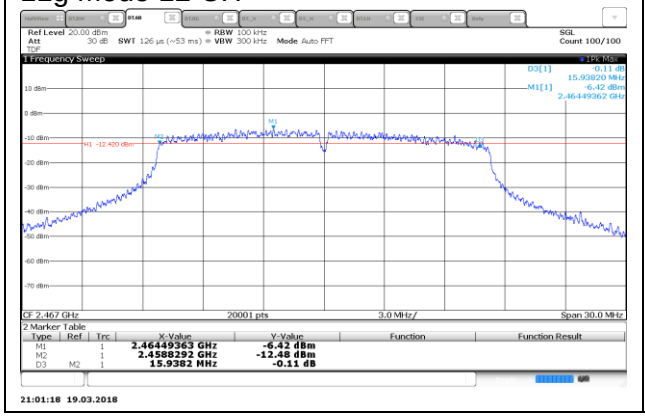

11g Mode High CH



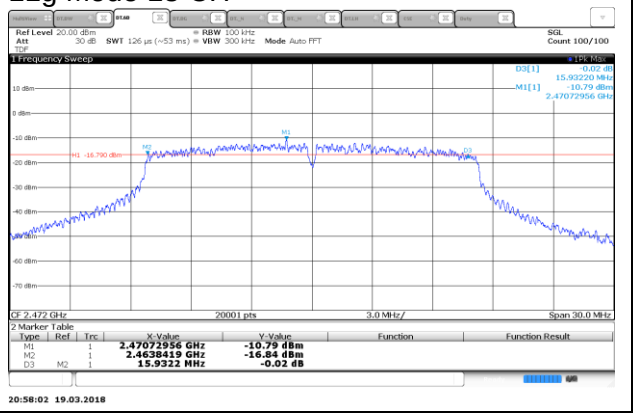

11g Mode 11 CH




11g Mode 12 CH




11g Mode 13 CH





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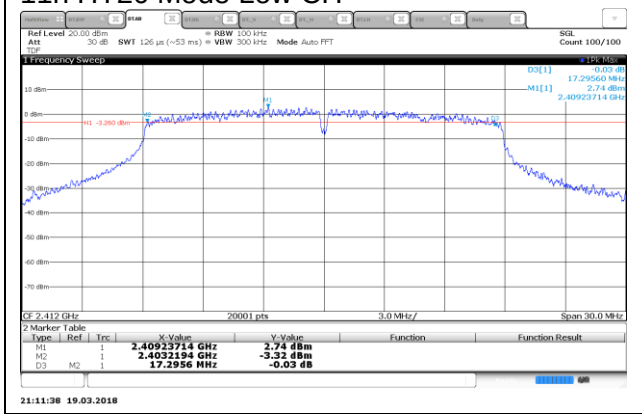
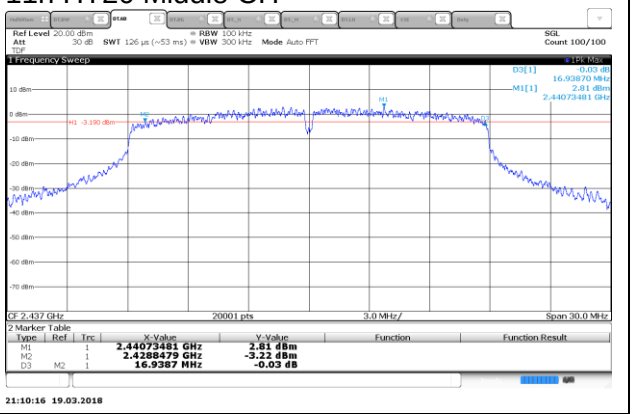
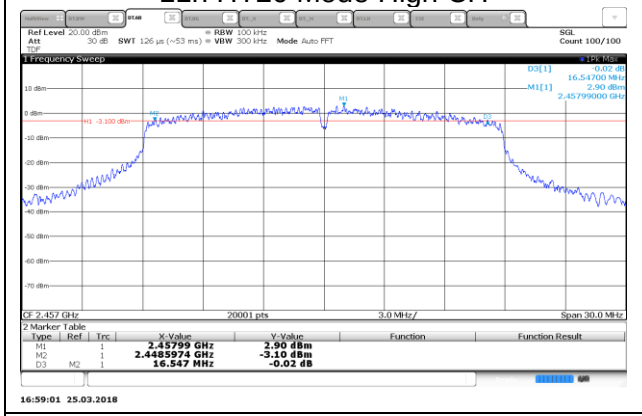
## 11n HT20 Mode Low CH



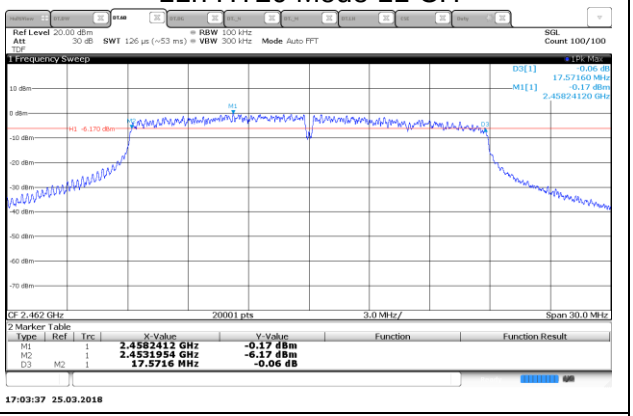

## 11n HT20 Middle CH



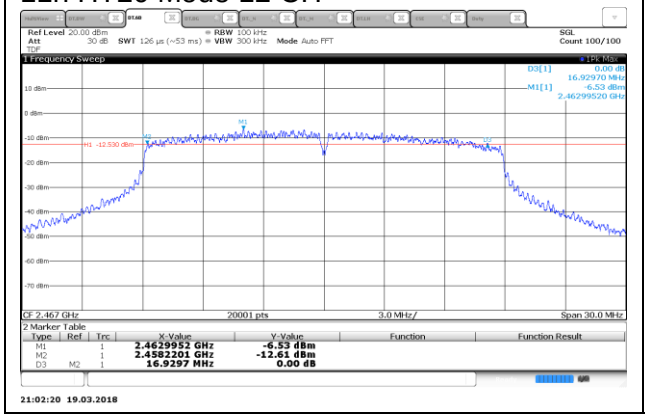

## 11n HT20 Mode High CH



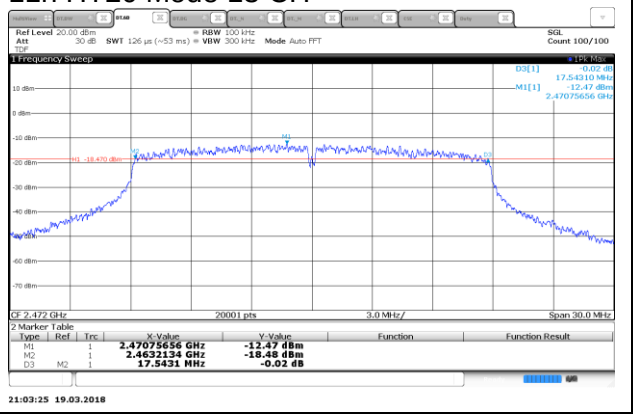

## 11n HT20 Mode 11 CH




## 11n HT20 Mode 12 CH




## 11n HT20 Mode 13 CH





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## 10.2. OUTPUT POWER

**LIMITS**

FCC §15.247

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**DIRECTIONAL ANTENNA GAIN**

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

**TEST PROCEDURE**

The transmitter output is connected to a power meter.

The cable assembly insertion loss was entered as an offset in the power meter to allow for direct reading of power.

Output power measurement was performed utilizing the “§9.2.3.1 AVGPM” under KDB558074 D01 DTS Meas Guidance v04.

Duty cycle correction factor is already added to the average output power results for duty cycle factor < 98%. (802.11g, 802.11n mode)


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**RESULTS**

## 10.2.1.802.11b MODE IN THE 2.4 GHz BAND

**Limits**

| Channel | Frequency [MHz] | Directional Gain Primary [dBi] | FCC Power Limit [dBm] | Max Power [dBm] |
|---|---|---|---|---|
| Low | 2412 | -2.00 | 30.00 | 30.00 |
| Mid | 2437 | -2.00 | 30.00 | 30.00 |
| High | 2462 | -2.00 | 30.00 | 30.00 |
| 12 | 2467 | -2.00 | 30.00 | 30.00 |
| 13 | 2472 | -2.00 | 30.00 | 30.00 |

**Results**

| Channel | Frequency [MHz] | Meas Power [dBm] | Total Power [dBm] | Power Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|
| Low | 2412 | 17.32 | 17.32 | 30.00 | -12.68 |
| Mid | 2437 | 17.28 | 17.28 | 30.00 | -12.72 |
| High | 2462 | 17.37 | 17.37 | 30.00 | -12.63 |
| 12 | 2467 | 7.02 | 7.02 | 30.00 | -22.98 |
| 13 | 2472 | 1.39 | 1.39 | 30.00 | -28.61 |
| Worst | | | 17.37 | 30.00 | -12.63 |


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## 10.2.2.802.11g MODE IN THE 2.4 GHz BAND

**Limits**

| Channel | Frequency [MHz] | Directional Gain Primary [dBi] | FCC Power Limit [dBm] | Max Power [dBm] |
|---|---|---|---|---|
| Low | 2412 | -2.00 | 30.00 | 30.00 |
| Mid | 2437 | -2.00 | 30.00 | 30.00 |
| High | 2457 | -2.00 | 30.00 | 30.00 |
| 11 | 2462 | -2.00 | 30.00 | 30.00 |
| 12 | 2467 | -2.00 | 30.00 | 30.00 |
| 13 | 2472 | -2.00 | 30.00 | 30.00 |

**Results**

| Channel | Frequency [MHz] | Meas Power [dBm] | Total Power [dBm] | Power Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|
| Low | 2412 | 16.26 | 16.26 | 30.00 | -13.74 |
| Mid | 2437 | 16.30 | 16.30 | 30.00 | -13.70 |
| High | 2457 | 16.75 | 16.75 | 30.00 | -13.25 |
| 11 | 2462 | 14.60 | 13.43 | 30.00 | -16.57 |
| 12 | 2467 | 7.21 | 7.21 | 30.00 | -22.79 |
| 13 | 2472 | 1.79 | 1.79 | 30.00 | -28.21 |
| Worst | | | 16.75 | 30.00 | -13.25 |


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## 10.2.3.802.11n HT20 MODE IN THE 2.4 GHz BAND

**Limits**

| Channel | Frequency [MHz] | Directional Gain Primary [dBi] | FCC Power Limit [dBm] | Max Power [dBm] |
|---|---|---|---|---|
| Low | 2412 | -2.00 | 30.00 | 30.00 |
| Mid | 2437 | -2.00 | 30.00 | 30.00 |
| High | 2457 | -2.00 | 30.00 | 30.00 |
| 11 | 2462 | -2.00 | 30.00 | 30.00 |
| 12 | 2467 | -2.00 | 30.00 | 30.00 |
| 13 | 2472 | -2.00 | 30.00 | 30.00 |

**Results**

| Channel | Frequency [MHz] | Meas Power [dBm] | Total Power [dBm] | Power Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|
| Low | 2412 | 16.09 | 16.09 | 30.00 | -13.91 |
| Mid | 2437 | 16.10 | 16.10 | 30.00 | -13.90 |
| High | 2457 | 16.59 | 16.59 | 30.00 | -13.41 |
| 11 | 2462 | 13.71 | 13.71 | 30.00 | -16.29 |
| 12 | 2467 | 7.10 | 7.10 | 30.00 | -22.90 |
| 13 | 2472 | 1.76 | 1.76 | 30.00 | -28.24 |
| Worst | | | 16.59 | 30.00 | -13.41 |


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## 10.3. PSD

**LIMITS**

FCC §15.247

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

**TEST PROCEDURE**

Power Spectral Density was performed utilizing the “Method §10.3 AVGPSD-1 (802.11 b mode) and §10.5 AVGPSD-2(802.11 g/n mode)” under KDB558074 D01 DTS Meas Guidance v04.


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**RESULTS**

## 10.3.1.802.11b MODE IN THE 2.4 GHz BAND

**PSD Results**

| Channel | Frequency [MHz] | PSD Meas [dBm] | Duty Factor [dB] | Final PSD [dBm/3kHz] | Limit [dBm/3kHz] | Margin [dB] |
|---|---|---|---|---|---|---|
| Low | 2412 | -15.210 | 0.00 | -15.210 | 8.00 | -23.210 |
| Mid | 2437 | -16.910 | 0.00 | -16.910 | 8.00 | -24.910 |
| High | 2462 | -16.290 | 0.00 | -16.290 | 8.00 | -24.290 |
| 12 | 2467 | -26.780 | 0.00 | -26.780 | 8.00 | -34.780 |
| 13 | 2472 | -31.590 | 0.00 | -31.590 | 8.00 | -39.590 |

## 10.3.2.802.11g MODE IN THE 2.4 GHz BAND

**PSD Results**

| Channel | Frequency [MHz] | PSD Meas [dBm] | Duty Factor [dB] | Final PSD [dBm/3kHz] | Limit [dBm/3kHz] | Margin [dB] |
|---|---|---|---|---|---|---|
| Low | 2412 | -19.880 | 0.14 | -19.740 | 8.00 | -27.880 |
| Mid | 2437 | -19.310 | 0.14 | -19.170 | 8.00 | -27.310 |
| High | 2457 | -18.970 | 0.14 | -18.830 | 8.00 | -26.970 |
| 11 | 2462 | -21.920 | 0.14 | -21.780 | 8.00 | -29.920 |
| 12 | 2467 | -29.400 | 0.14 | -29.260 | 8.00 | -37.400 |
| 13 | 2472 | -37.200 | 0.14 | -37.060 | 8.00 | -45.200 |

## 10.3.3.802.11n HT20 MODE IN THE 2.4 GHz BAND

**PSD Results**

| Channel | Frequency [MHz] | PSD Meas [dBm] | Duty Factor [dB] | Final PSD [dBm/3kHz] | Limit [dBm/3kHz] | Margin [dB] |
|---|---|---|---|---|---|---|
| Low | 2412 | -19.810 | 0.15 | -19.660 | 8.00 | -27.810 |
| Middle | 2437 | -19.010 | 0.15 | -18.860 | 8.00 | -27.010 |
| High | 2457 | -19.450 | 0.15 | -19.300 | 8.00 | -27.450 |
| 11 | 2462 | -23.250 | 0.15 | -23.100 | 8.00 | -31.250 |
| 12 | 2467 | -29.360 | 0.15 | -29.210 | 8.00 | -37.360 |
| 13 | 2472 | -32.070 | 0.15 | -31.920 | 8.00 | -40.070 |


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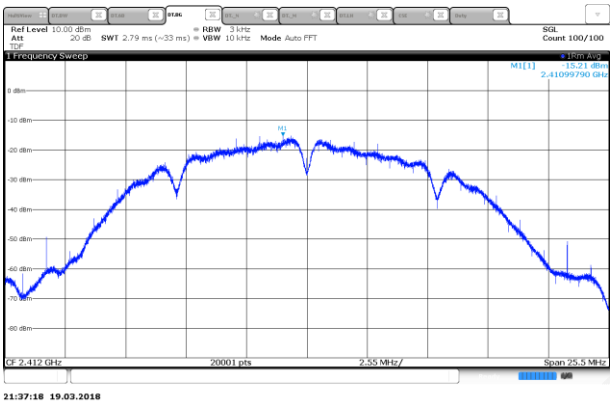
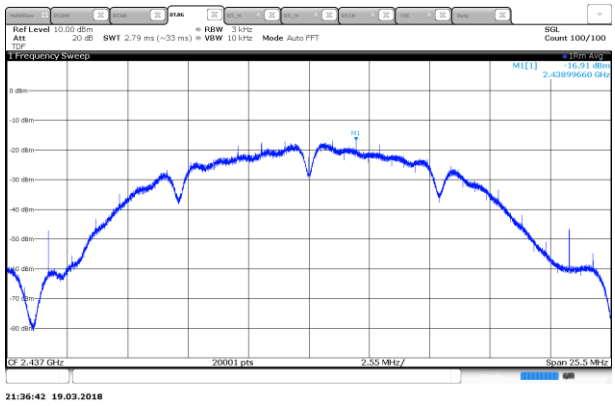
## 10.3.4.PSD PLOTS

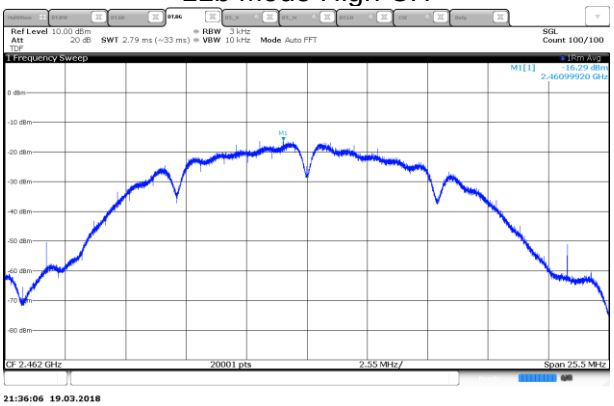
11b Mode Low CH



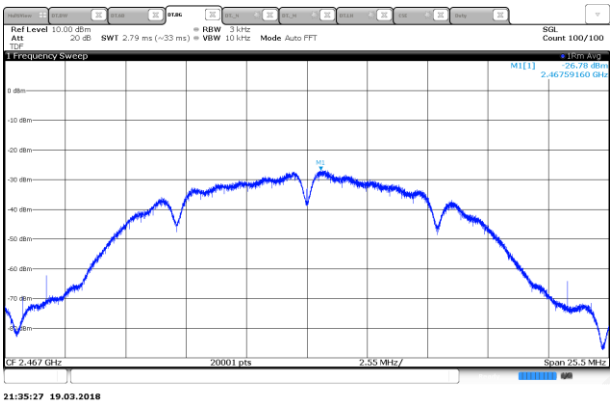

11b Mode Middle CH



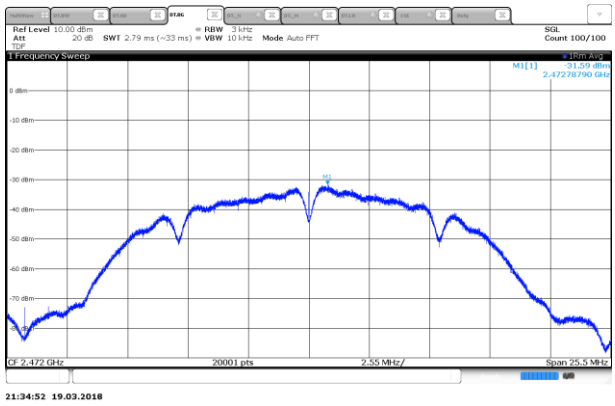

11b Mode High CH




11b Mode 12 CH




11b Mode 13 CH





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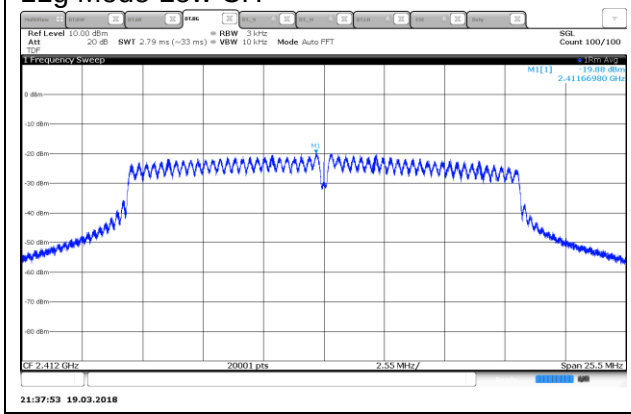
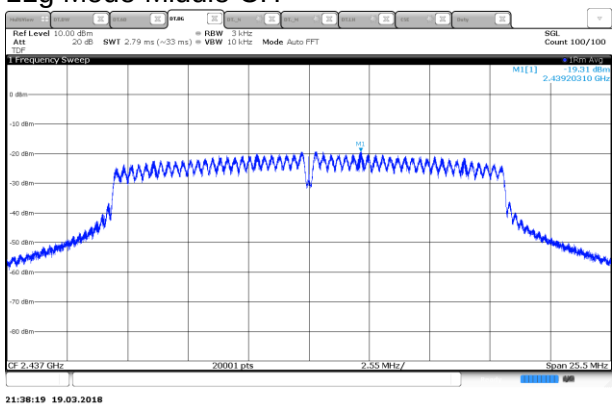
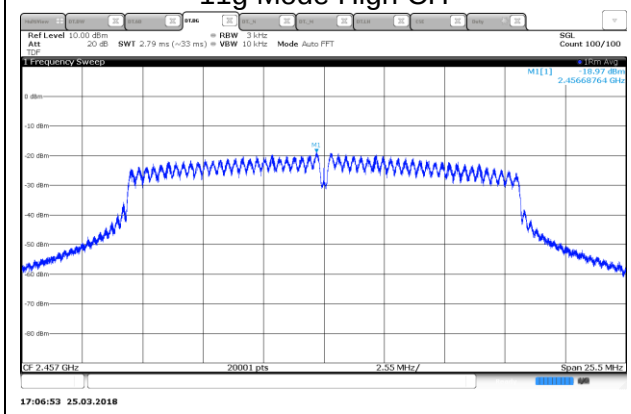
11g Mode Low CH



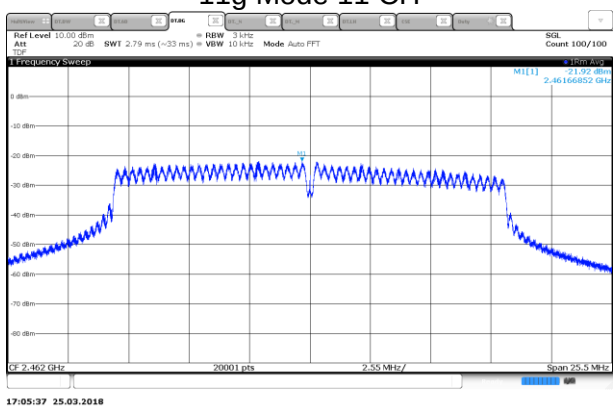

11g Mode Middle CH



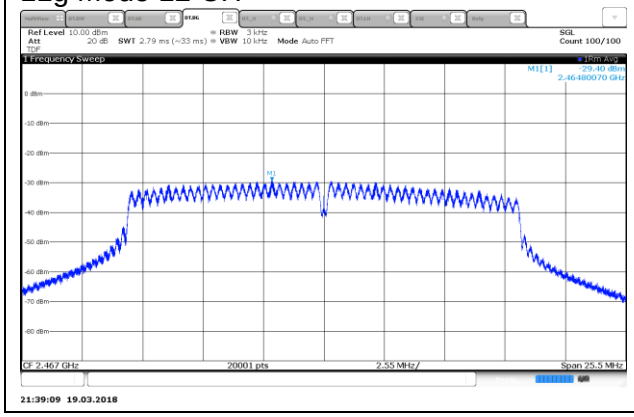

11g Mode High CH



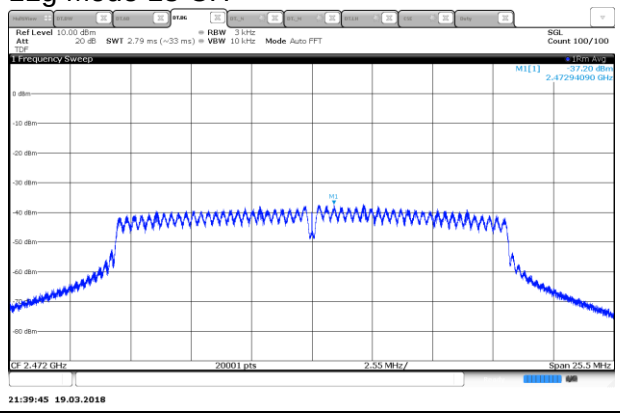

11g Mode 11 CH




11g Mode 12 CH




11g Mode 13 CH





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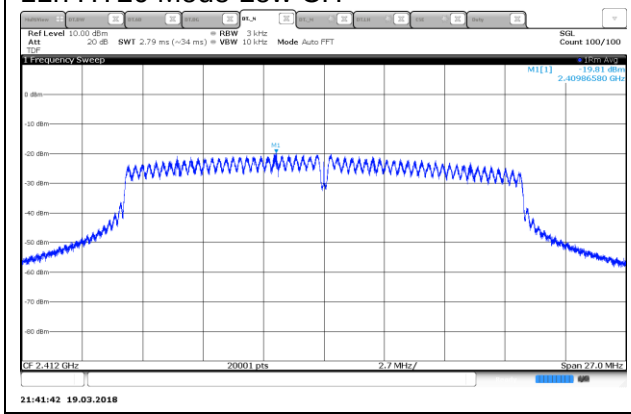
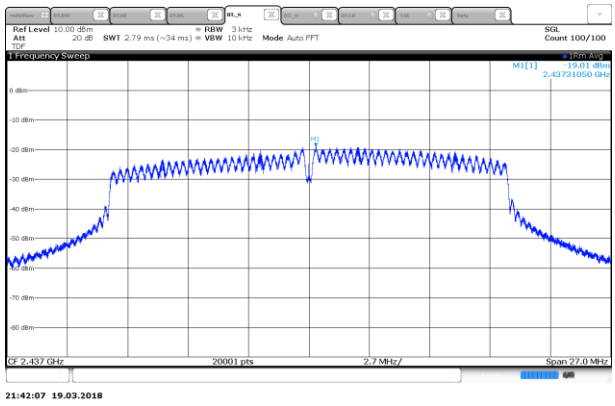
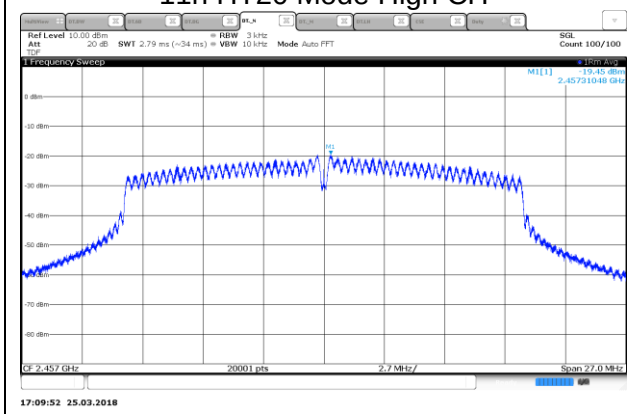
11n HT20 Mode Low CH



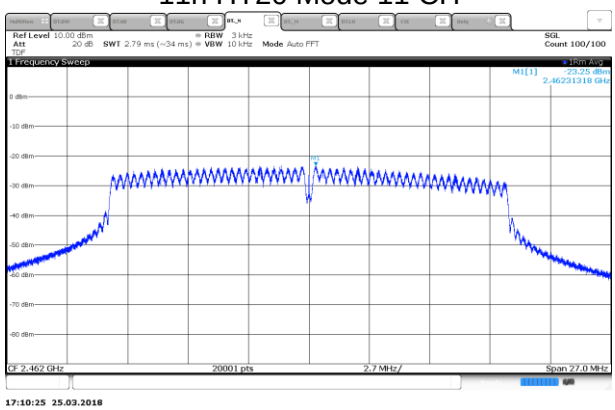

11n HT20 Mode Middle CH



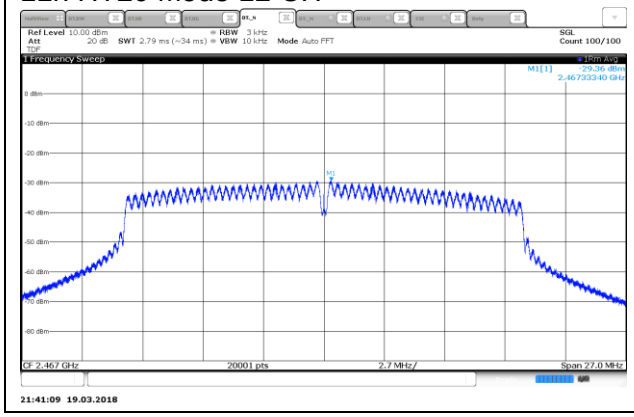

11n HT20 Mode High CH



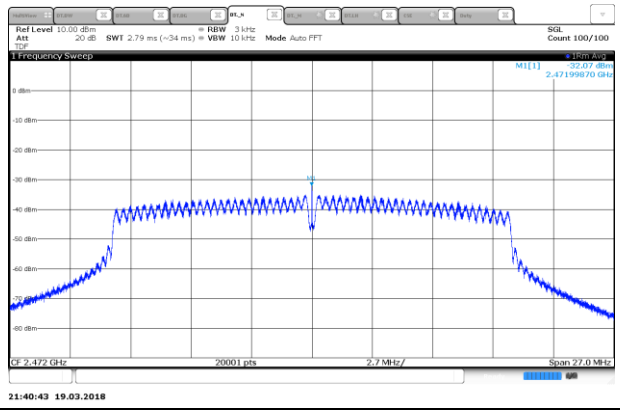

11n HT20 Mode 11 CH




11n HT20 Mode 12 CH




11n HT20 Mode 13 CH





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## 10.4. OUT-OF-BAND EMISSIONS

**LIMITS**

FCC §15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

**TEST PROCEDURE**

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made)

For out-of-band emissions, it was tested with RBW = 1 MHz, VBW = 3 MHz, peak detector, and max hold.

If the emission level with above setting was close to the limit (ie, less than 3 dB margin) then re-test is required using RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold to get accurate emission level within 100 kHz BW


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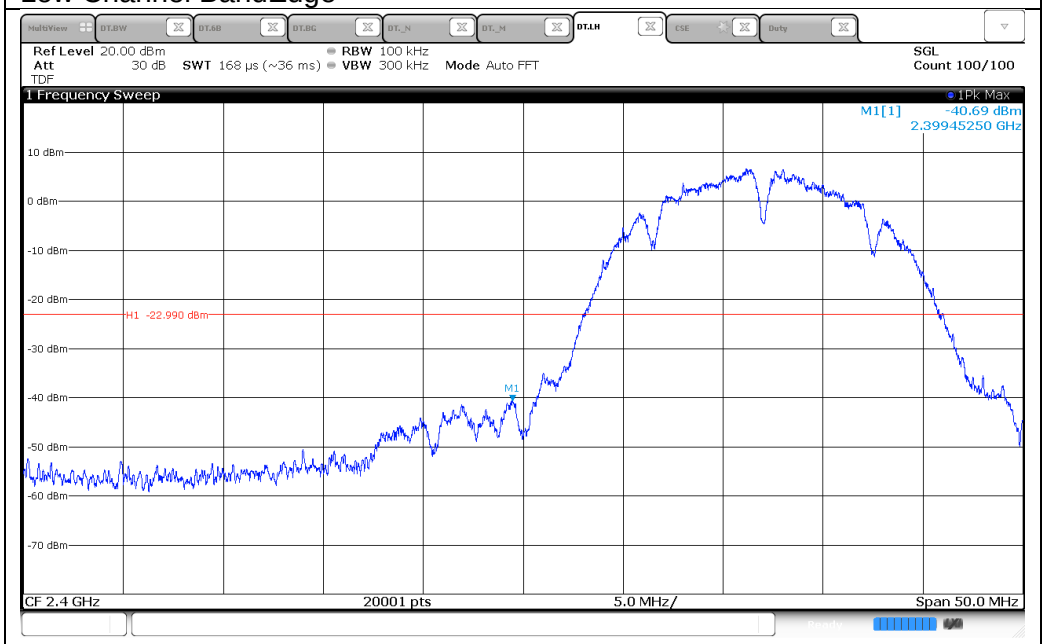
**RESULTS**

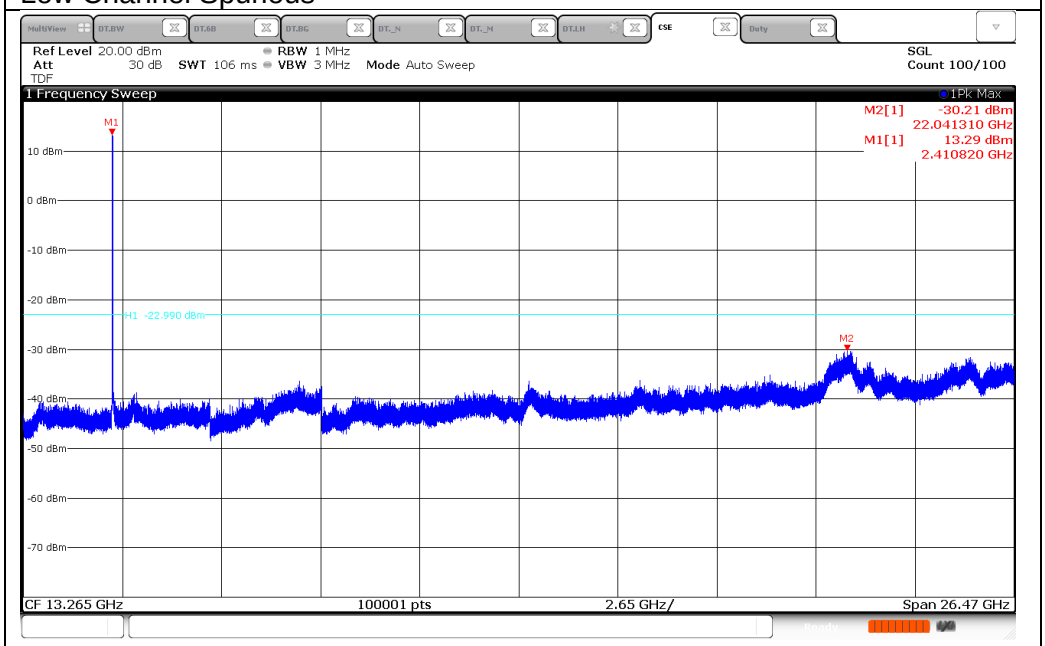
## 10.4.1.802.11b MODE IN THE 2.4 GHz BAND

Low Channel BandEdge




21:47:45 19.03.2018

Low Channel Spurious




15:15:44 20.03.2018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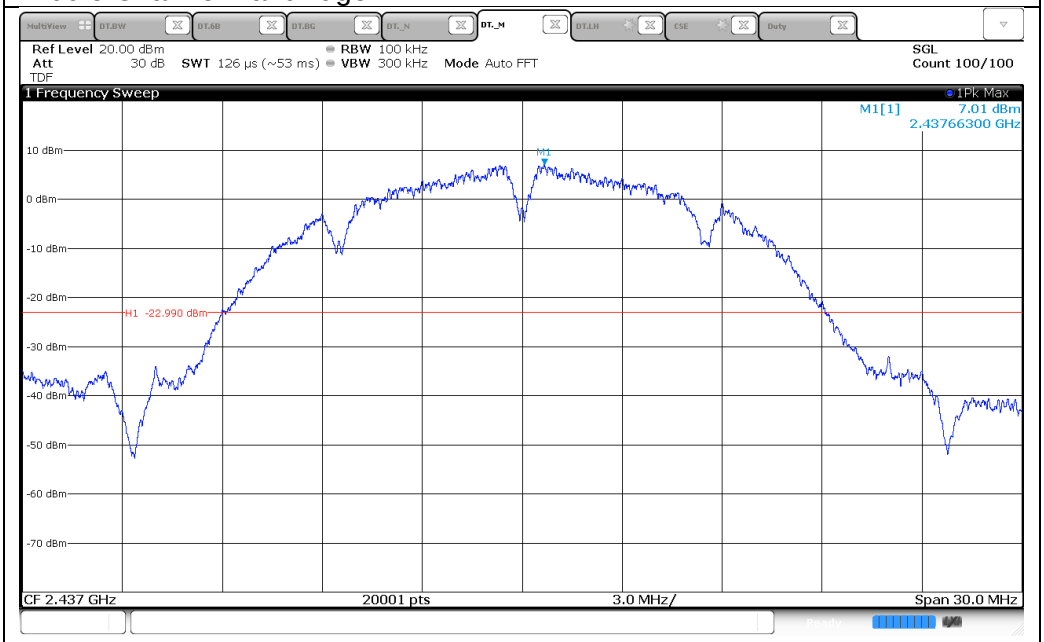
Middle Channel BandEdge

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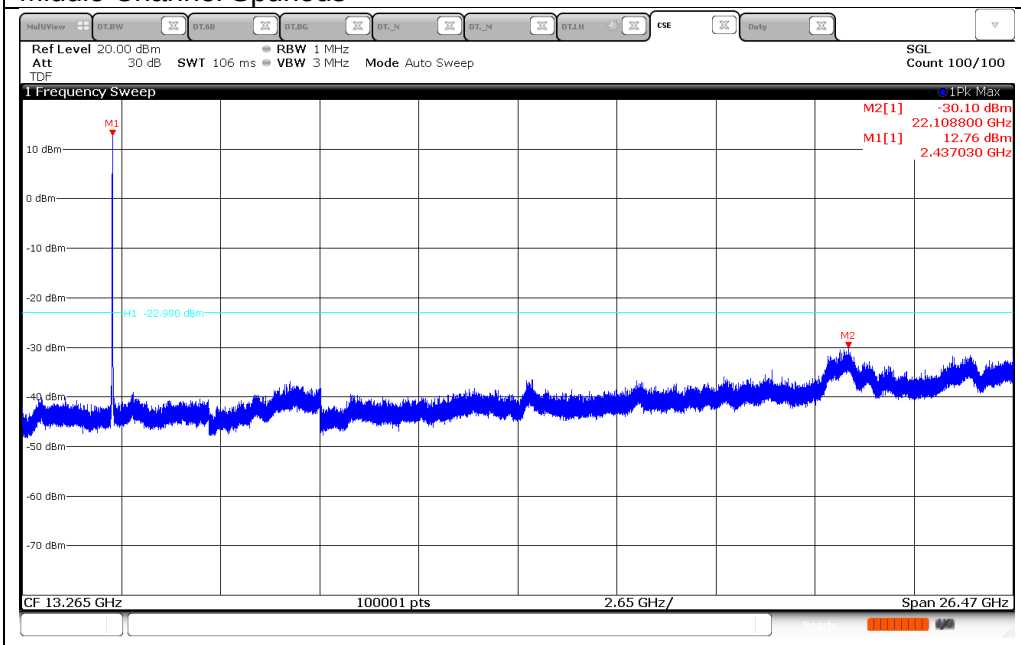


**15:17:33 20.03.2018**


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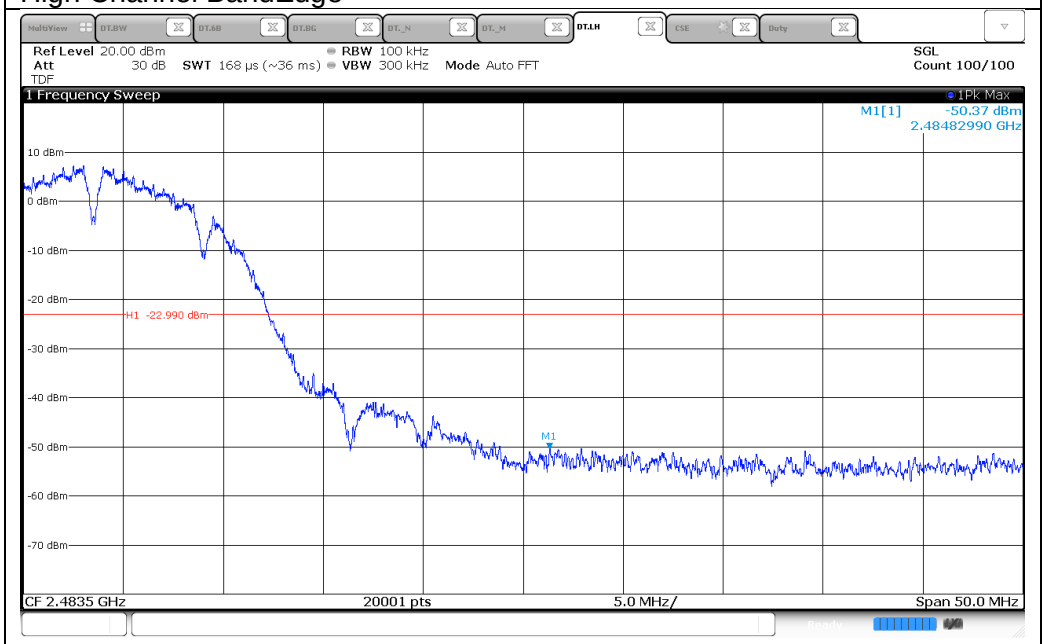
## High Channel BandEdge

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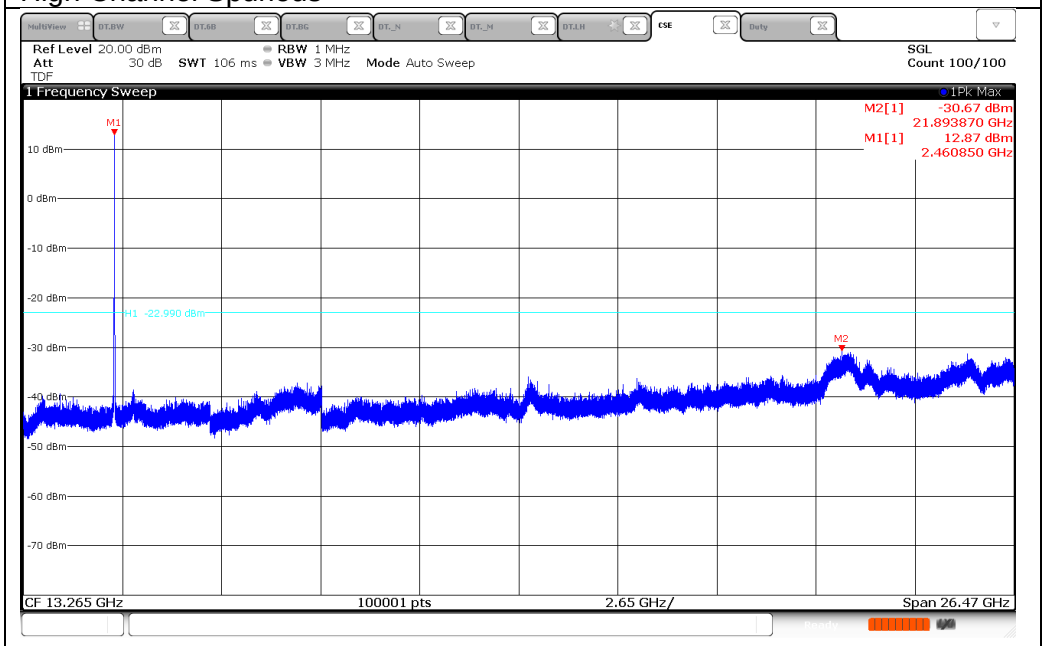


**15:18:33 20.03.2018**


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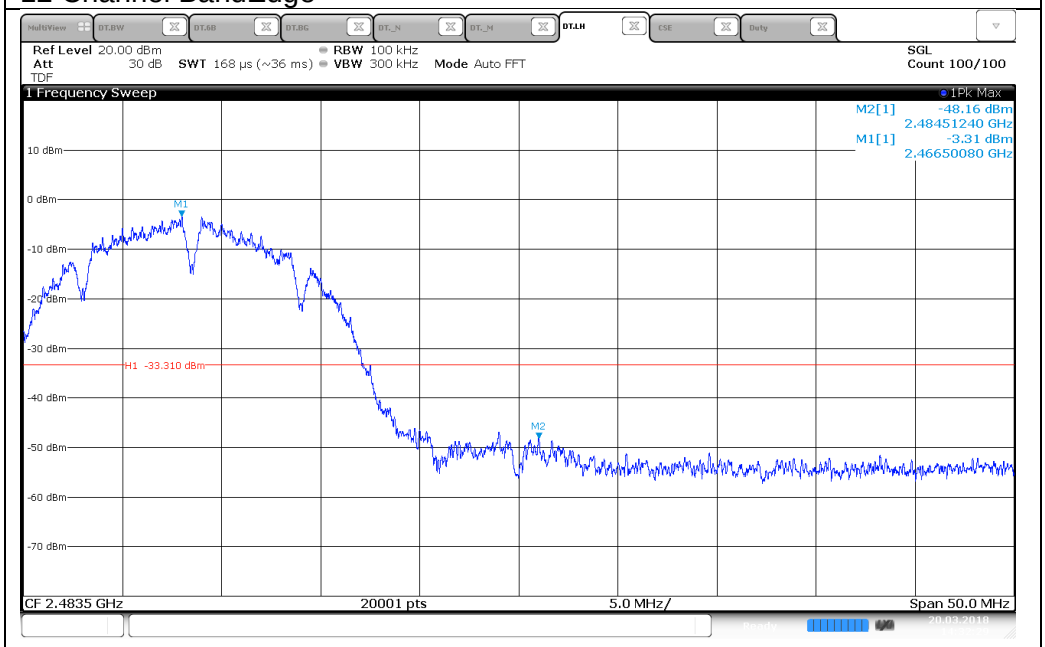
## 12 Channel BandEdge

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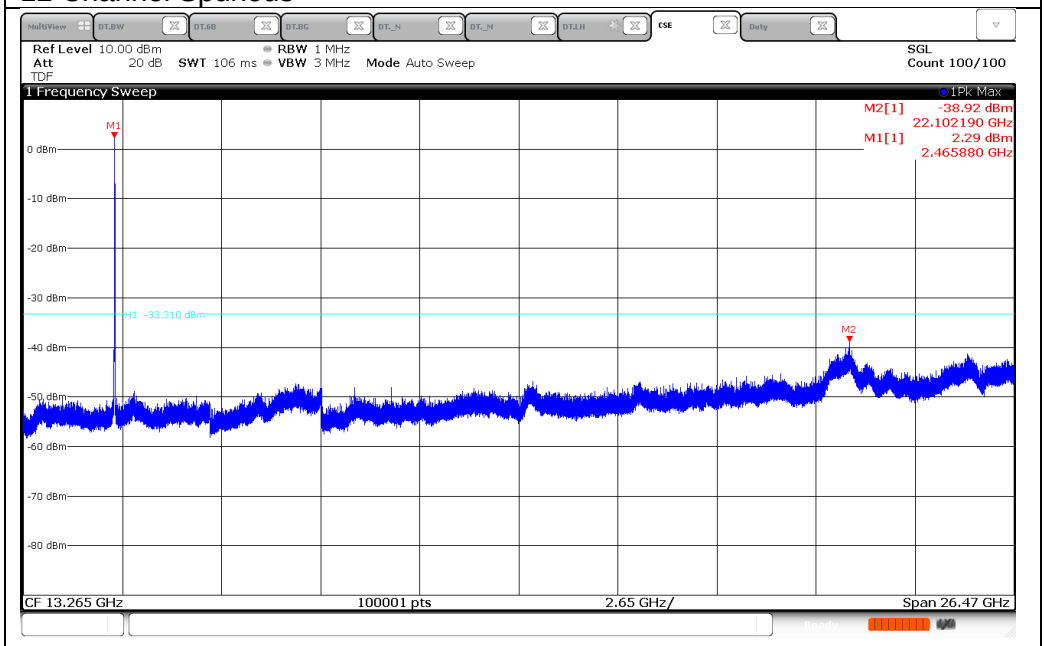


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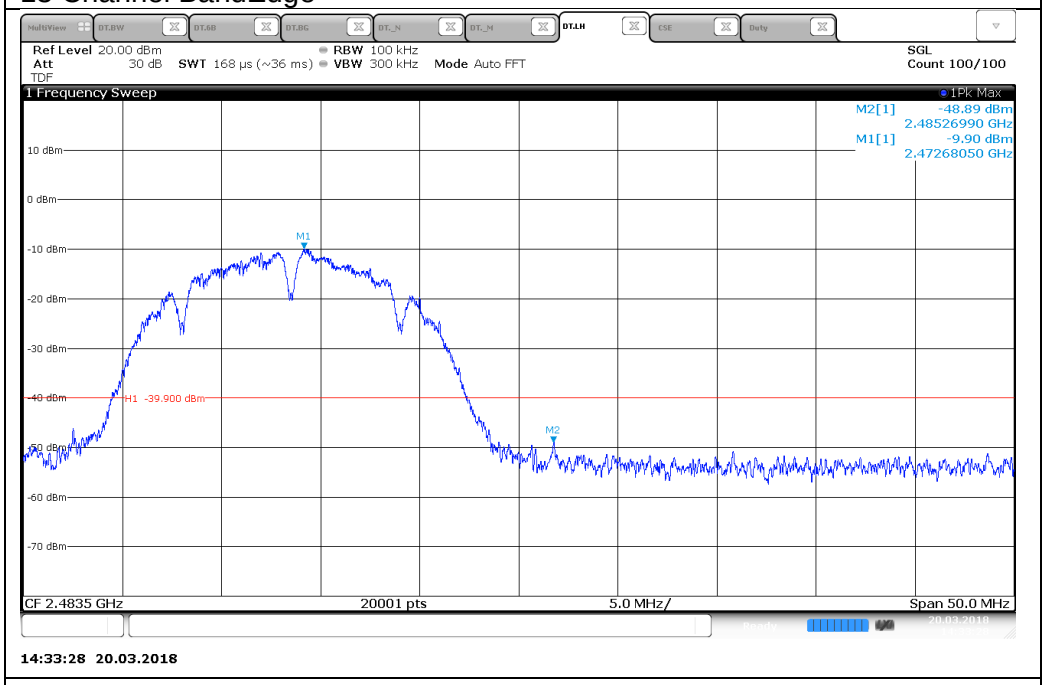
## 13 Channel BandEdge

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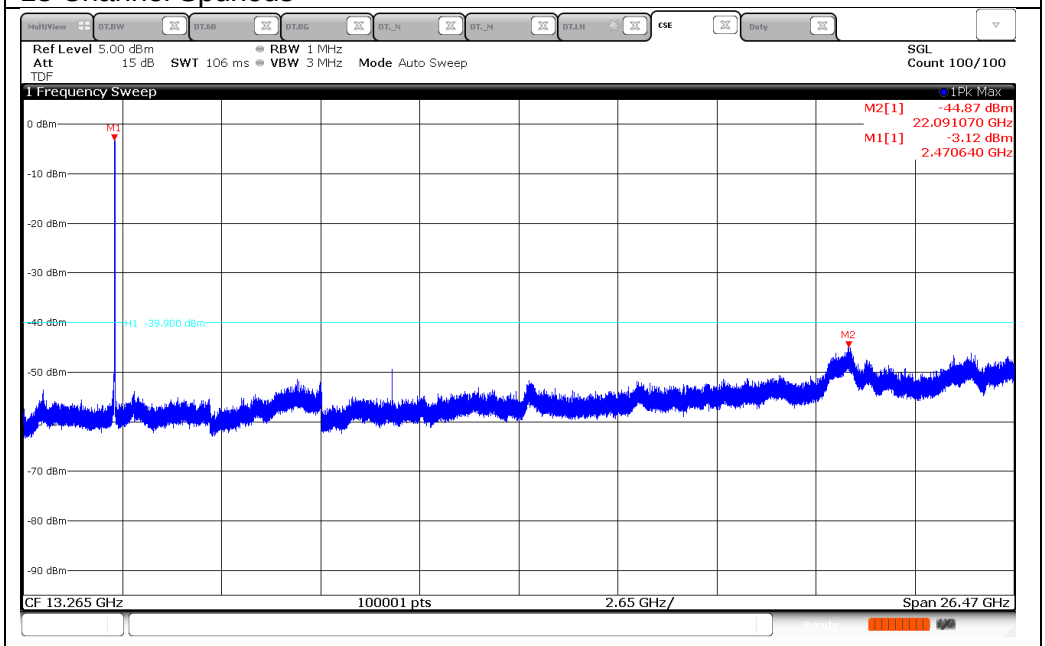


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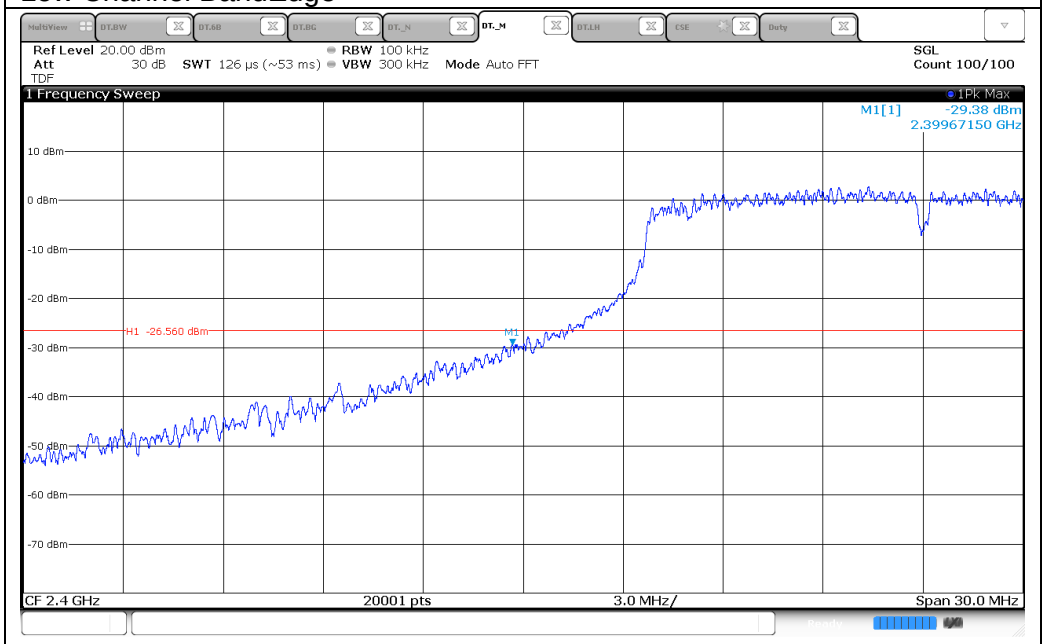
## 10.4.2.802.11g MODE IN THE 2.4 GHz BAND

Low Channel BandEdge

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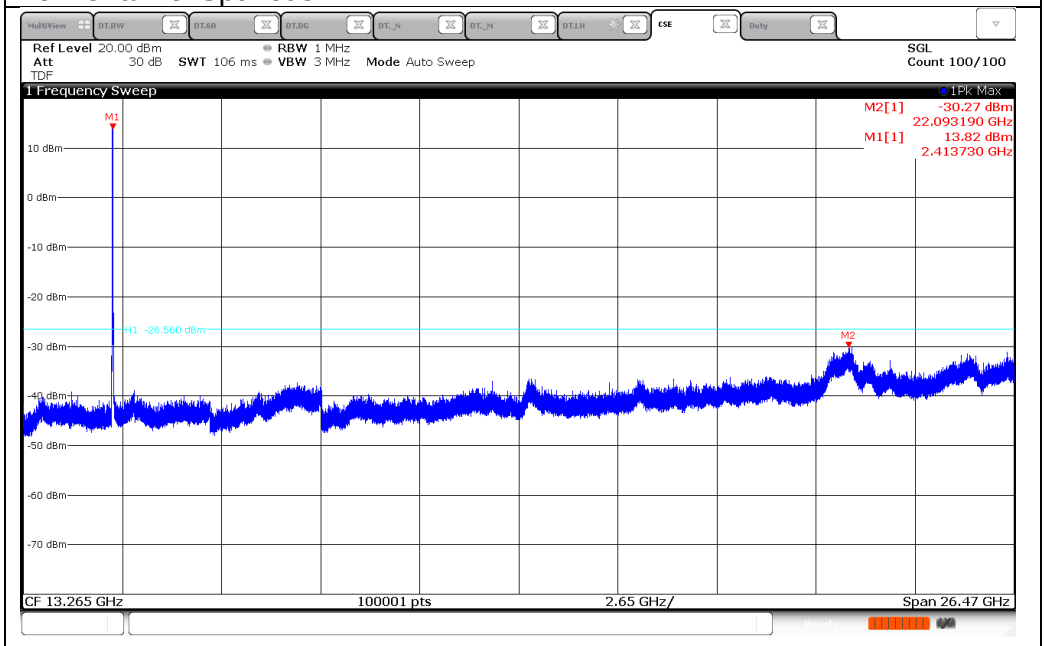


15:10:21 20.03.2018


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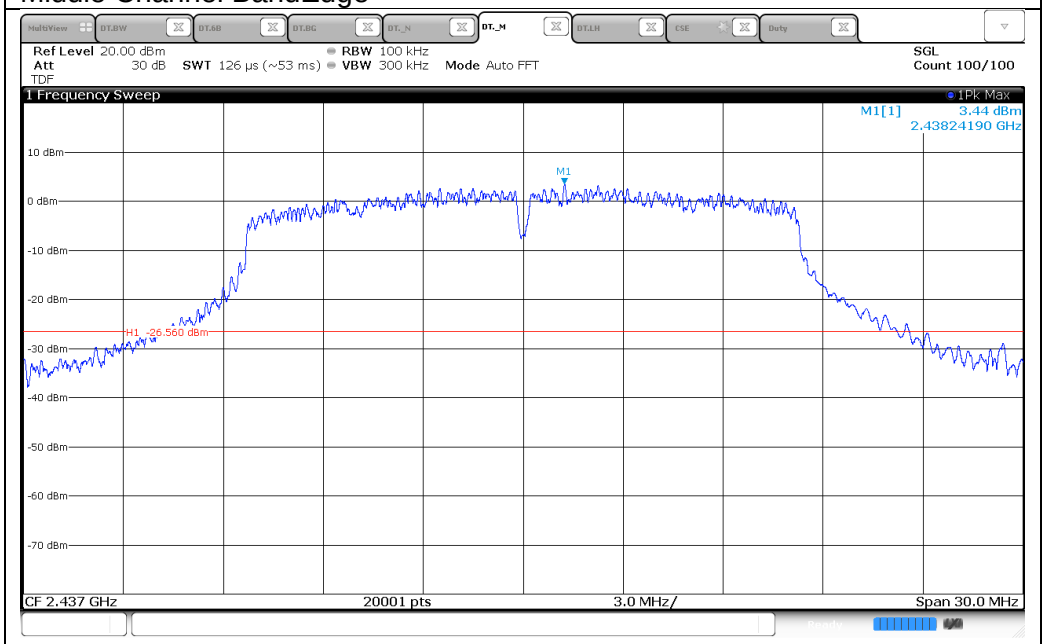
## Middle Channel BandEdge

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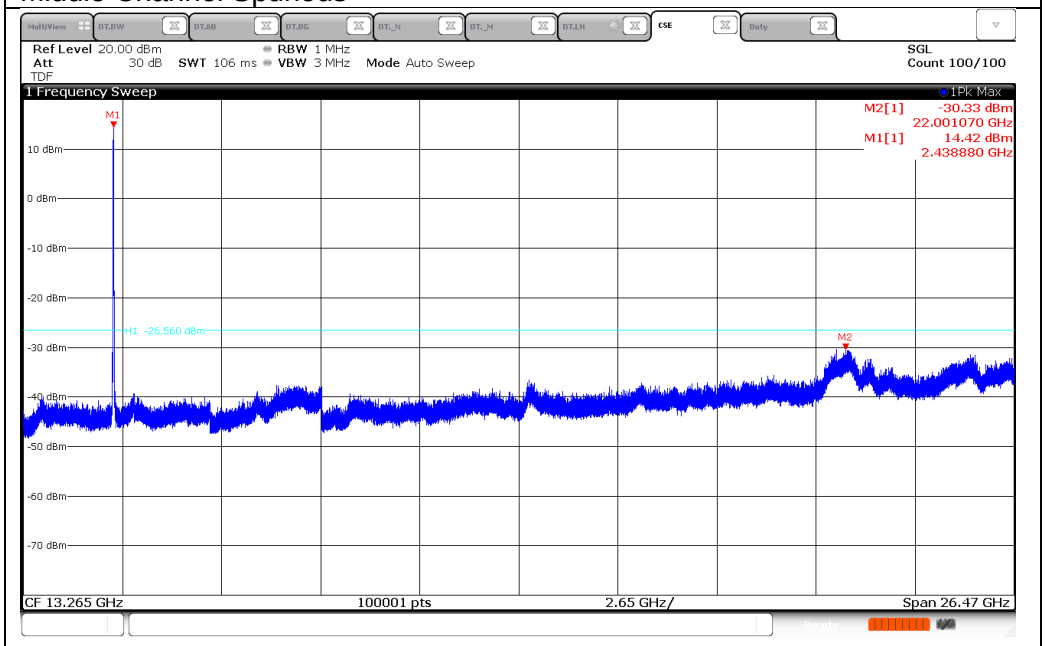


**15:11:32 20.03.2018**


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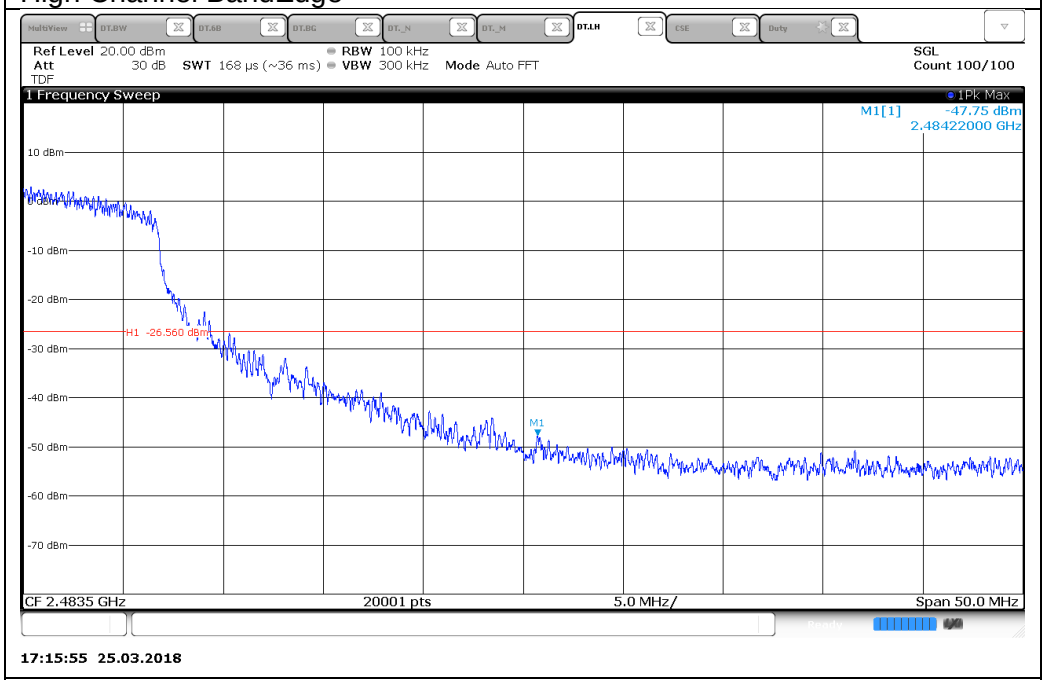
## High Channel BandEdge

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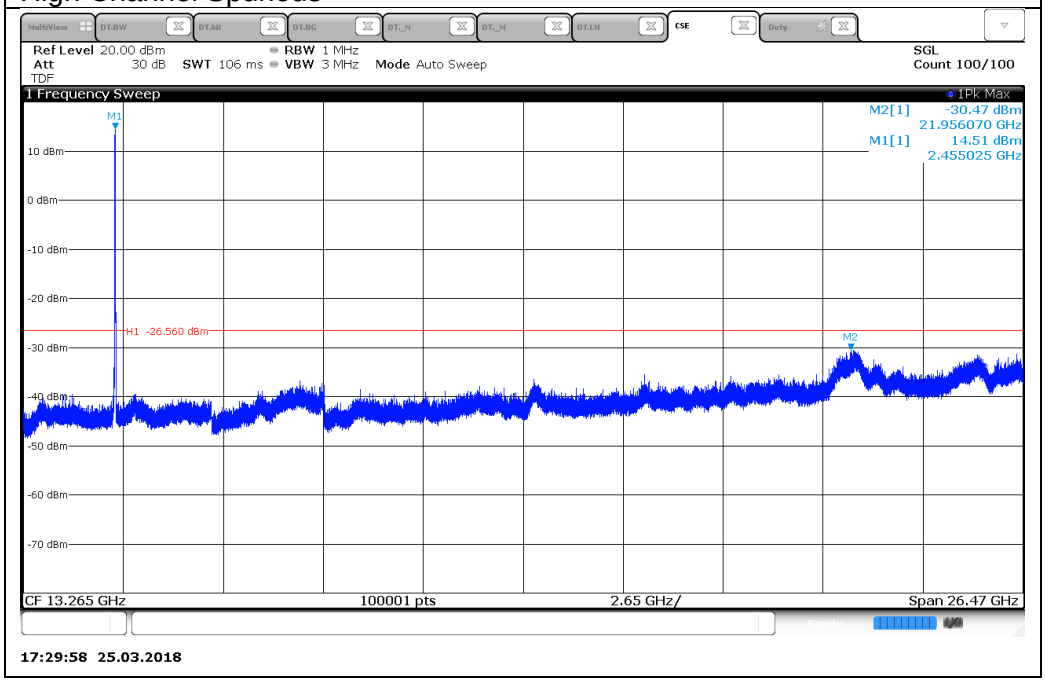



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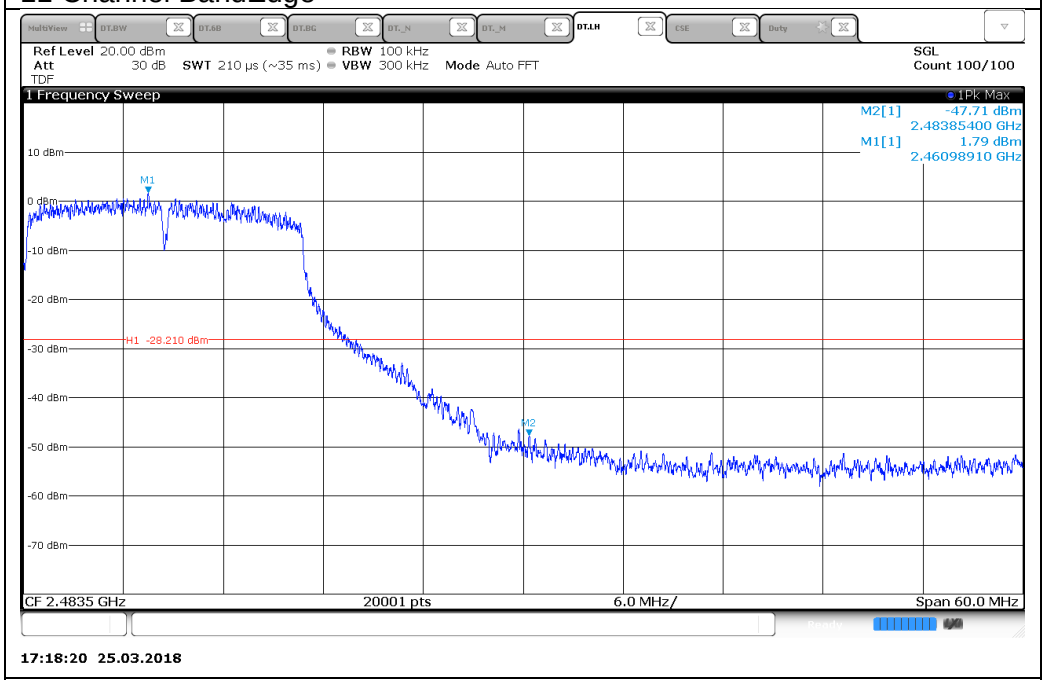
## 11 Channel BandEdge

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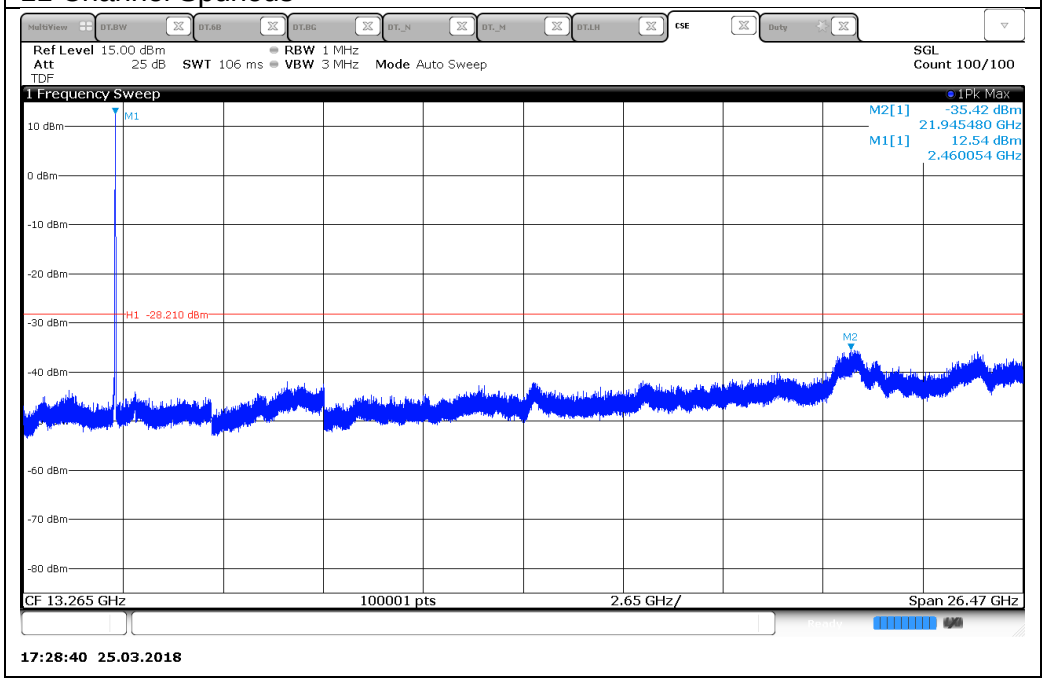


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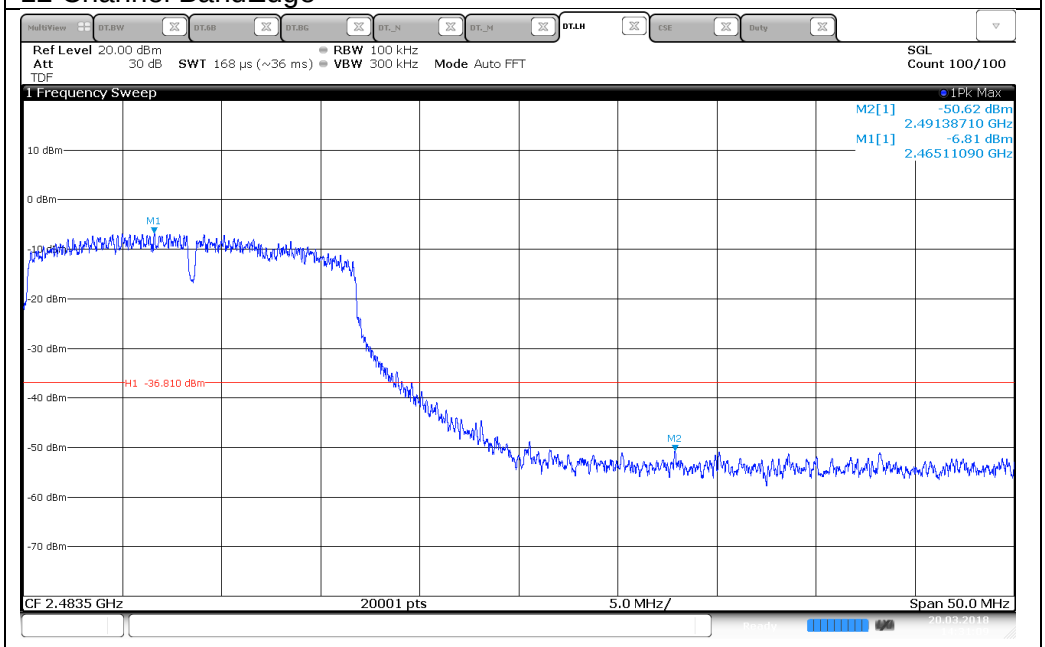
## 12 Channel BandEdge

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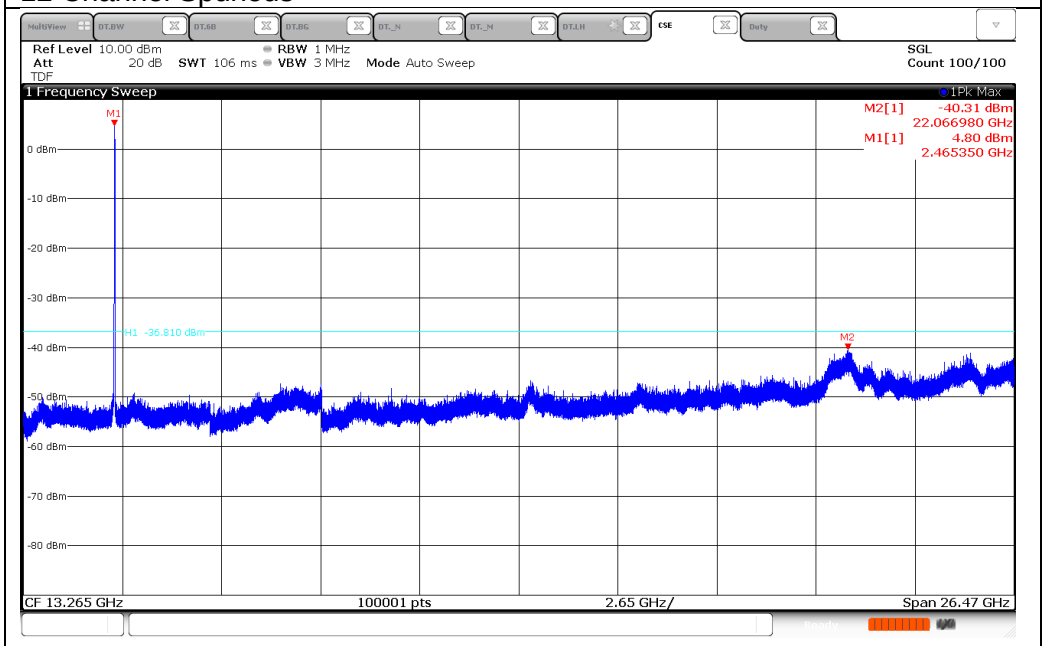


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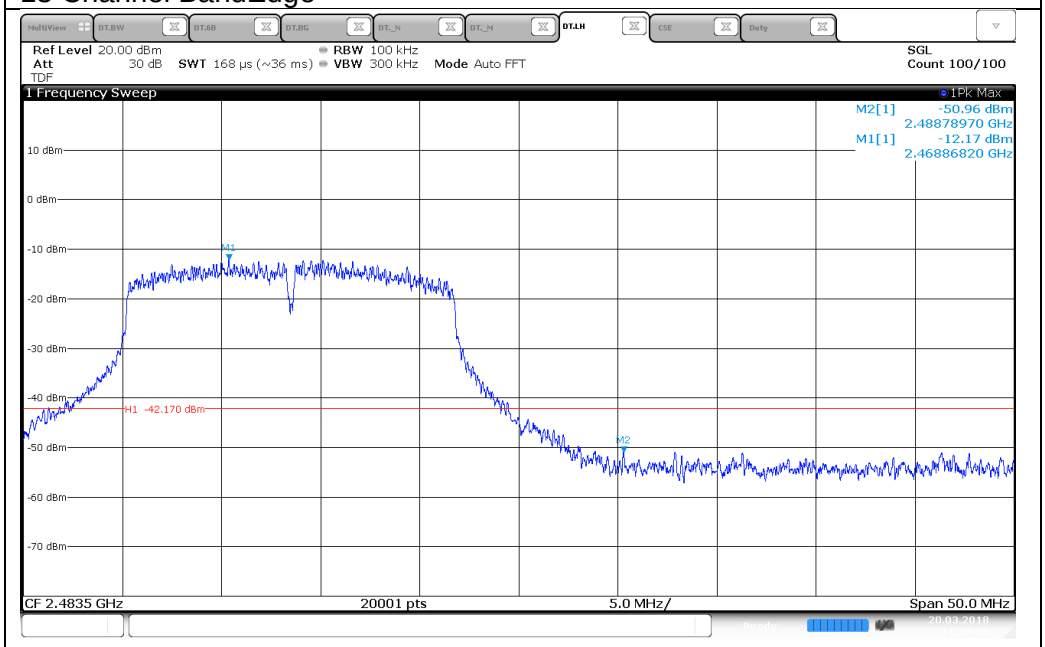
## 13 Channel BandEdge

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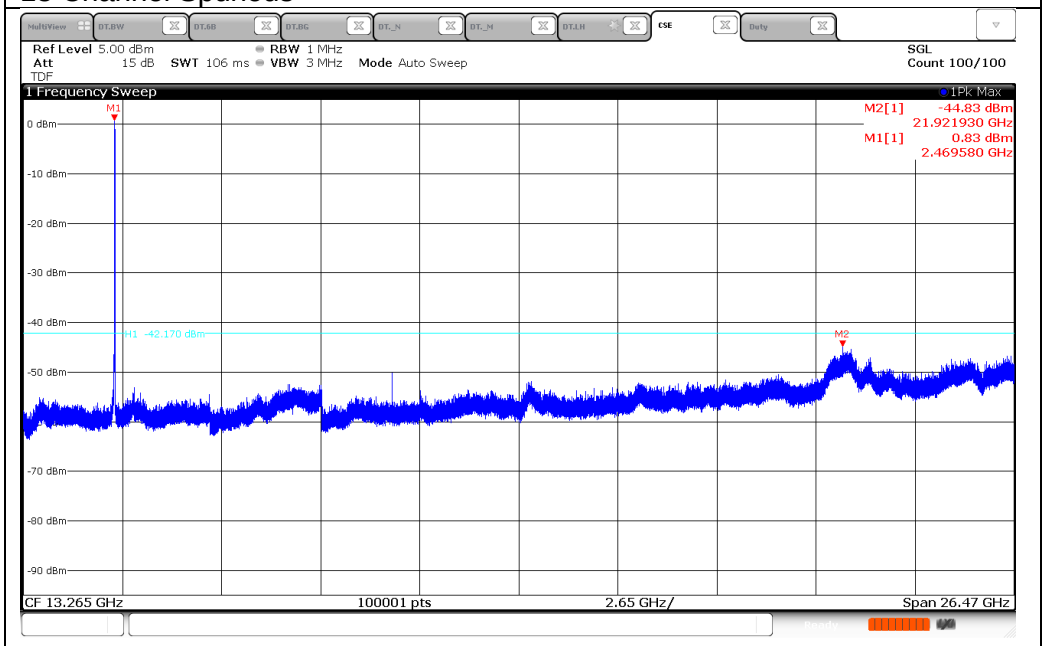


15:47:33 20.03.2018


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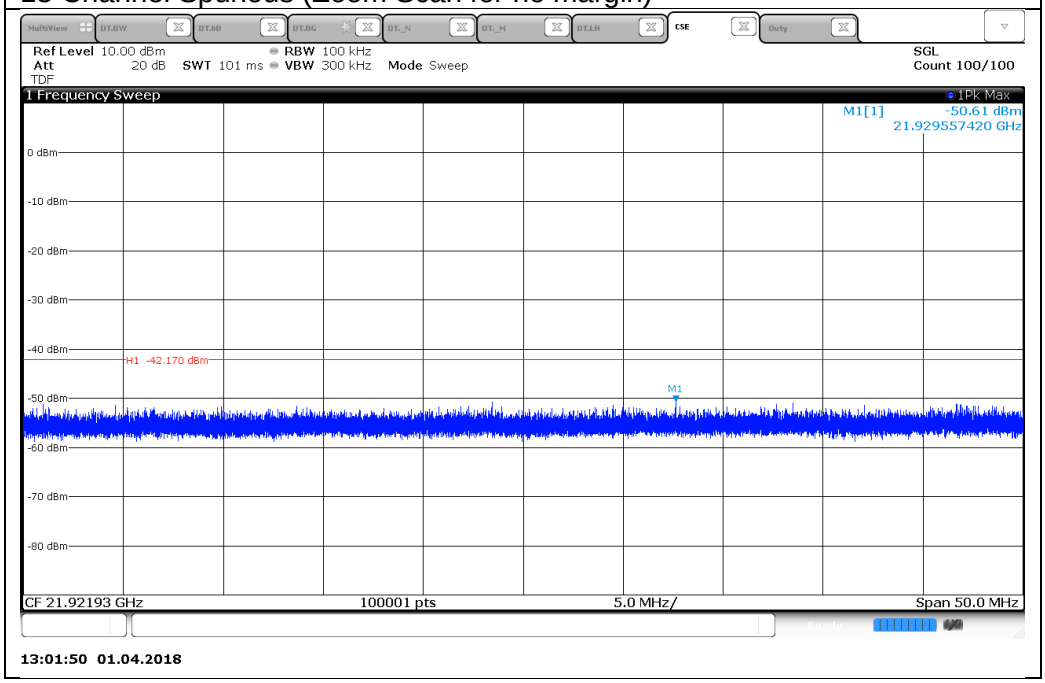
13 Channel Spurious (Zoom Scan for no margin)





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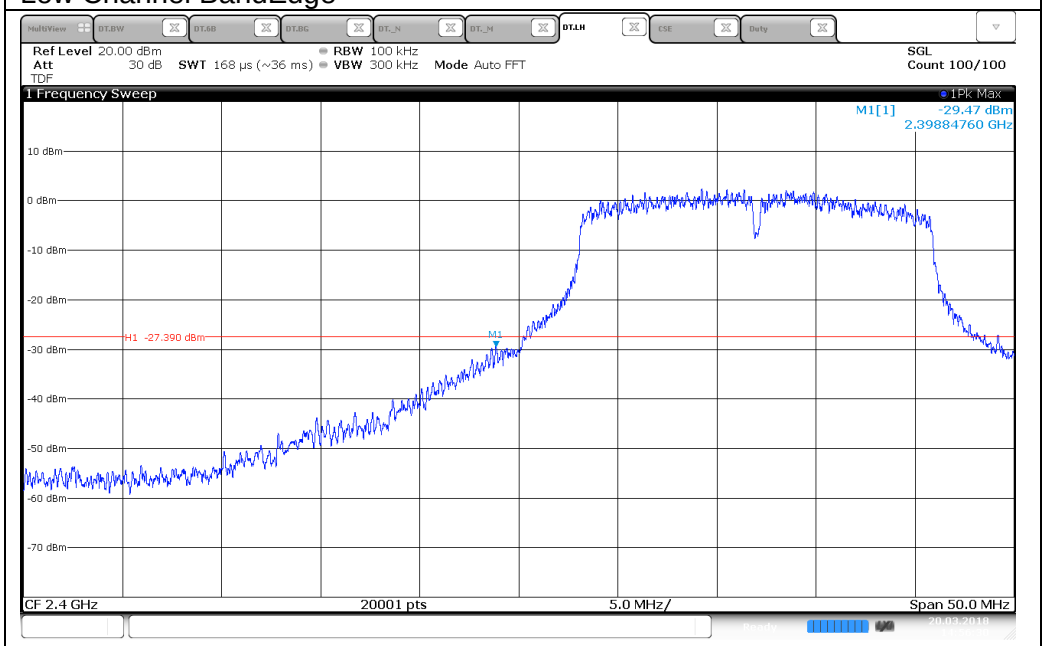
## 10.4.3.802.11n HT20 MODE IN THE 2.4 GHz BAND

Low Channel BandEdge

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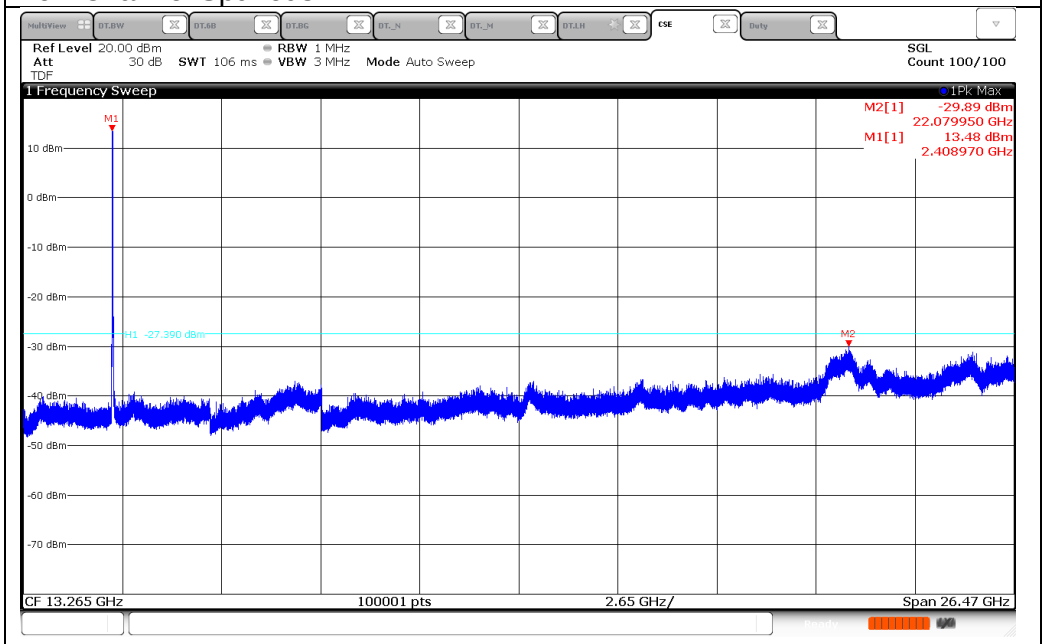


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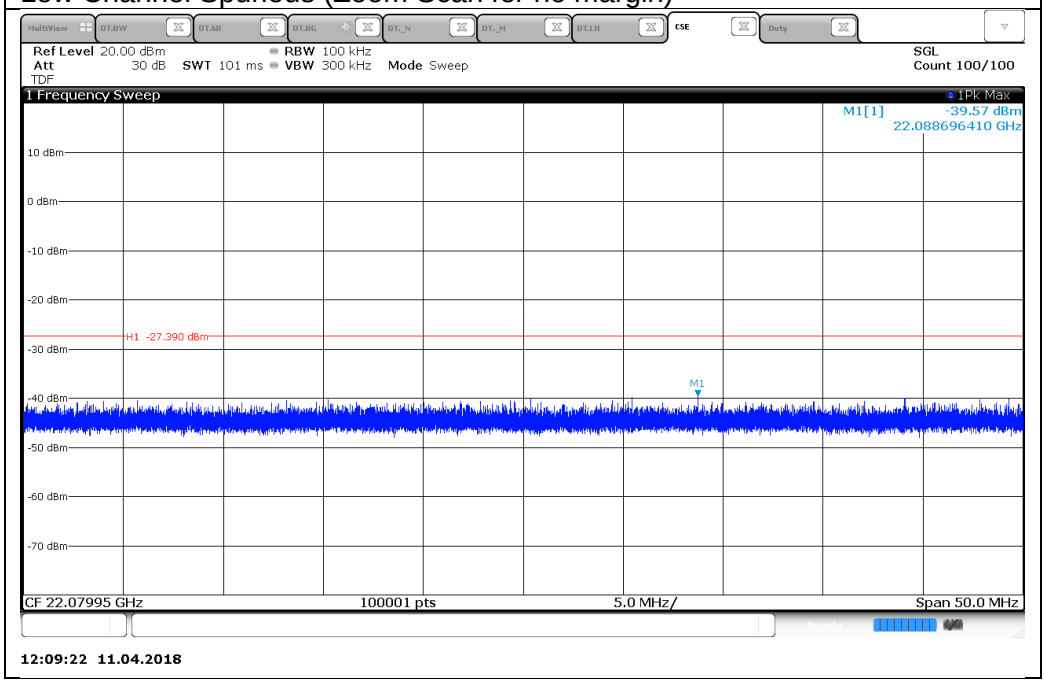
Low Channel Spurious (Zoom Scan for no margin)





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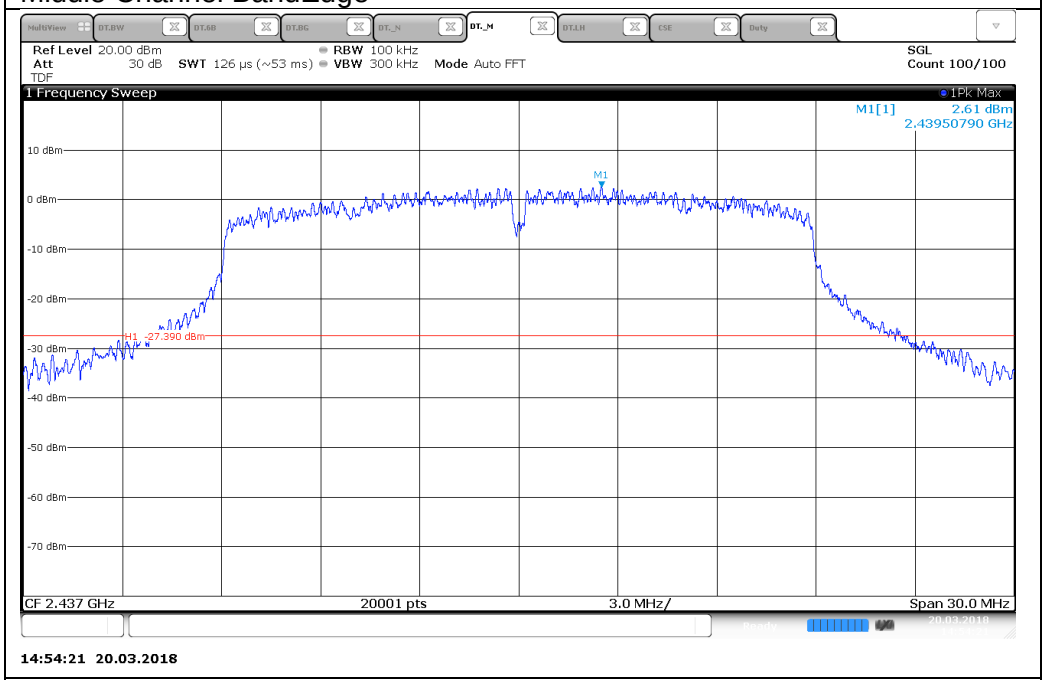
## Middle Channel BandEdge

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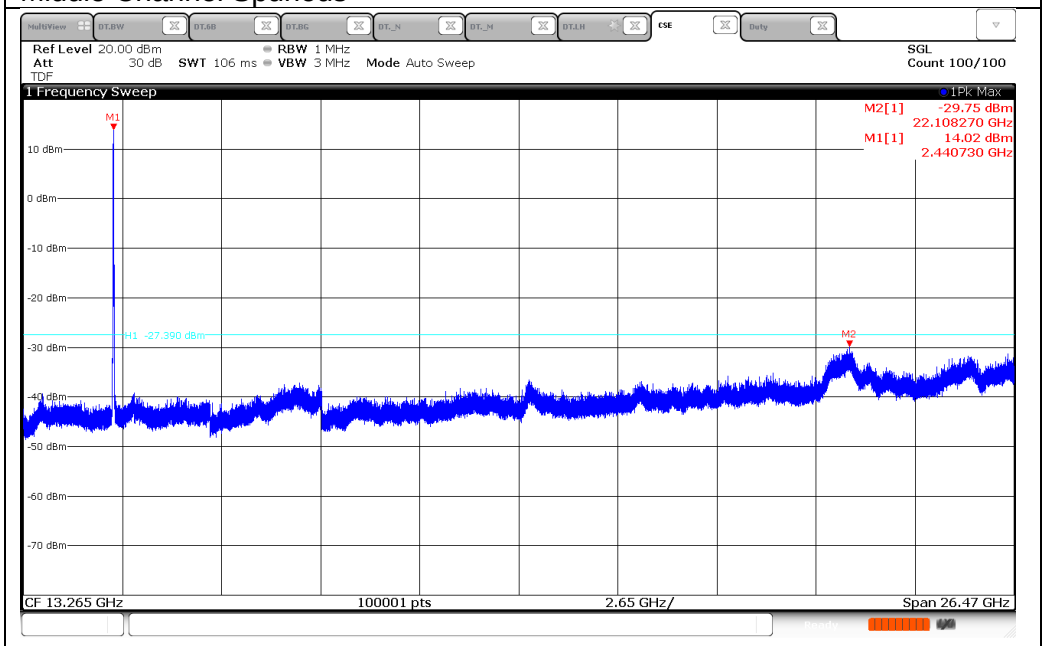


**15:07:25 20.03.2018**


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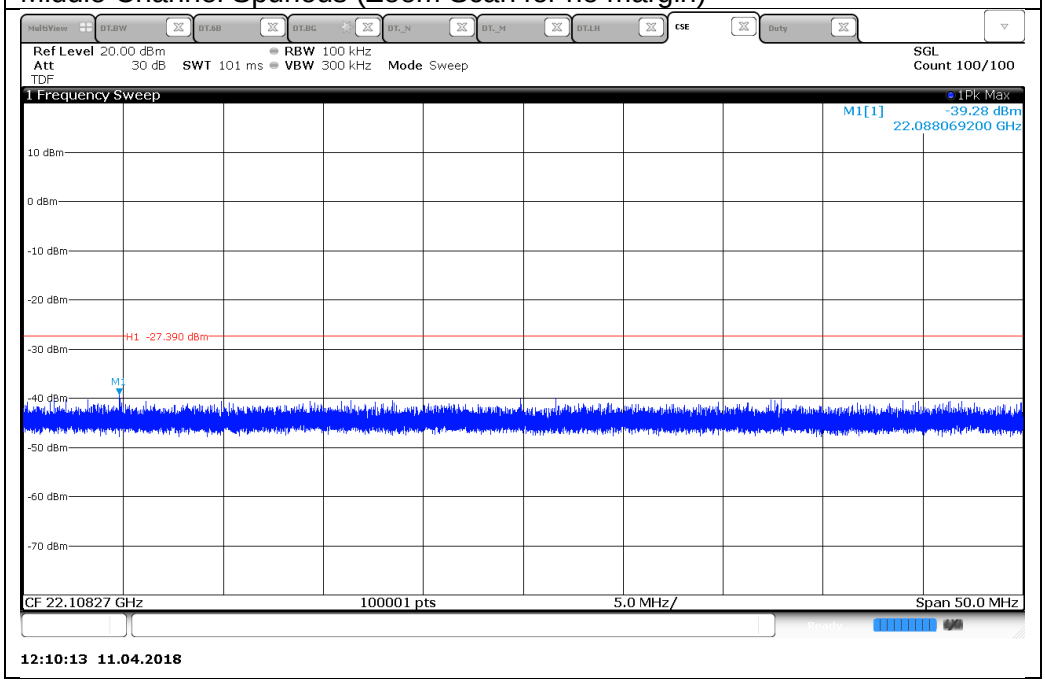
Middle Channel Spurious (Zoom Scan for no margin)





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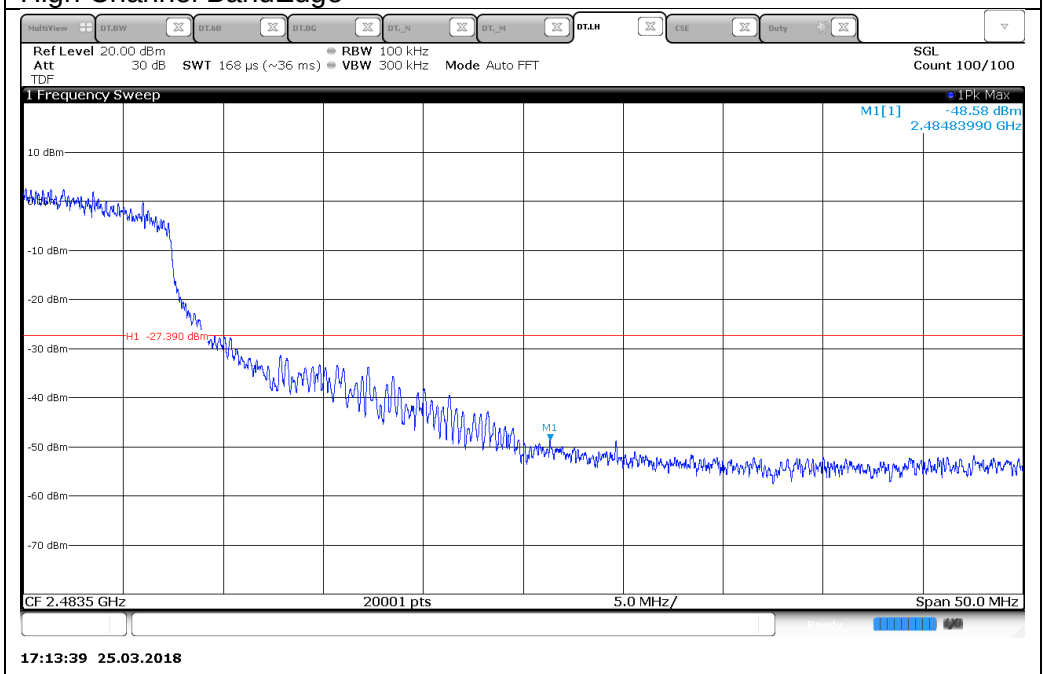
High Channel BandEdge

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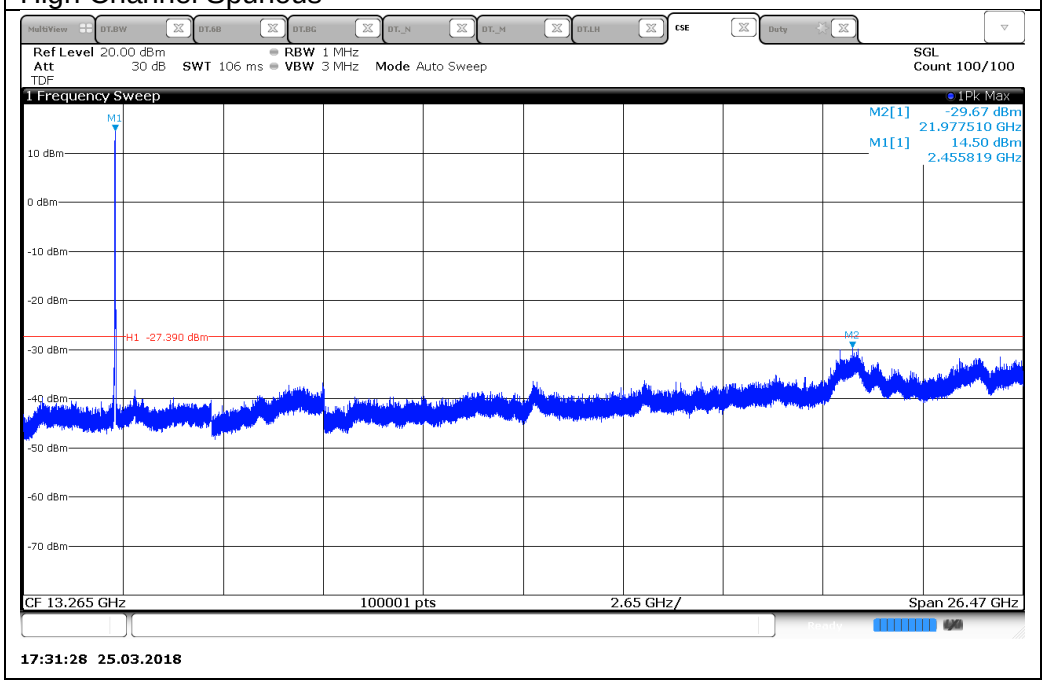



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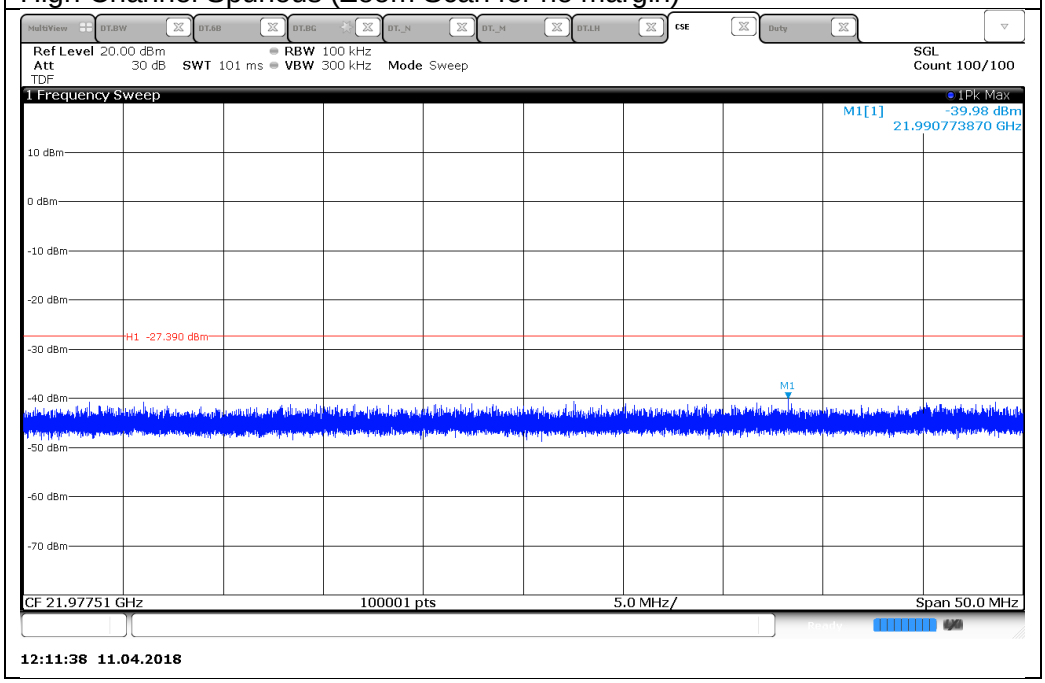
High Channel Spurious (Zoom Scan for no margin)





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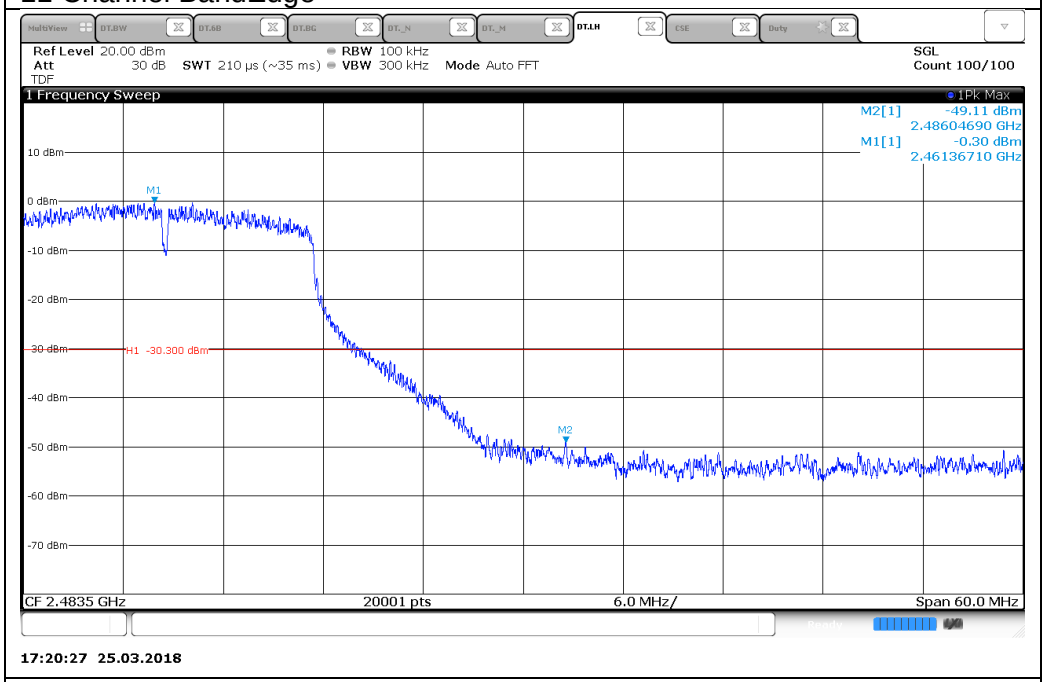
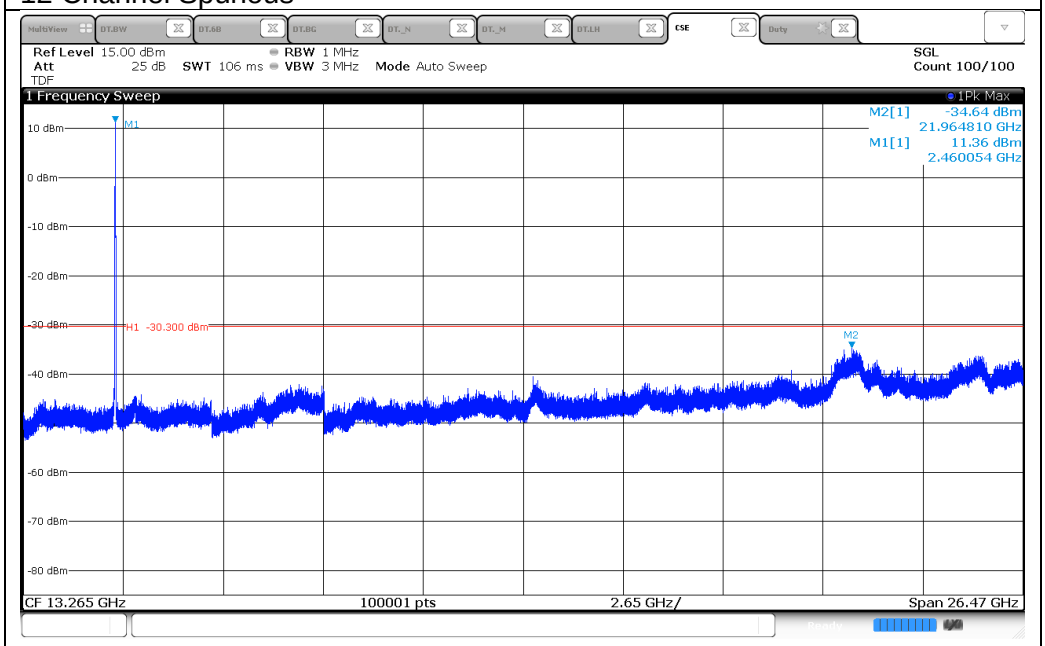
## 11 Channel BandEdge




**17:20:27 25.03.2018**

## 12 Channel Spurious




**17:23:40 25.03.2018**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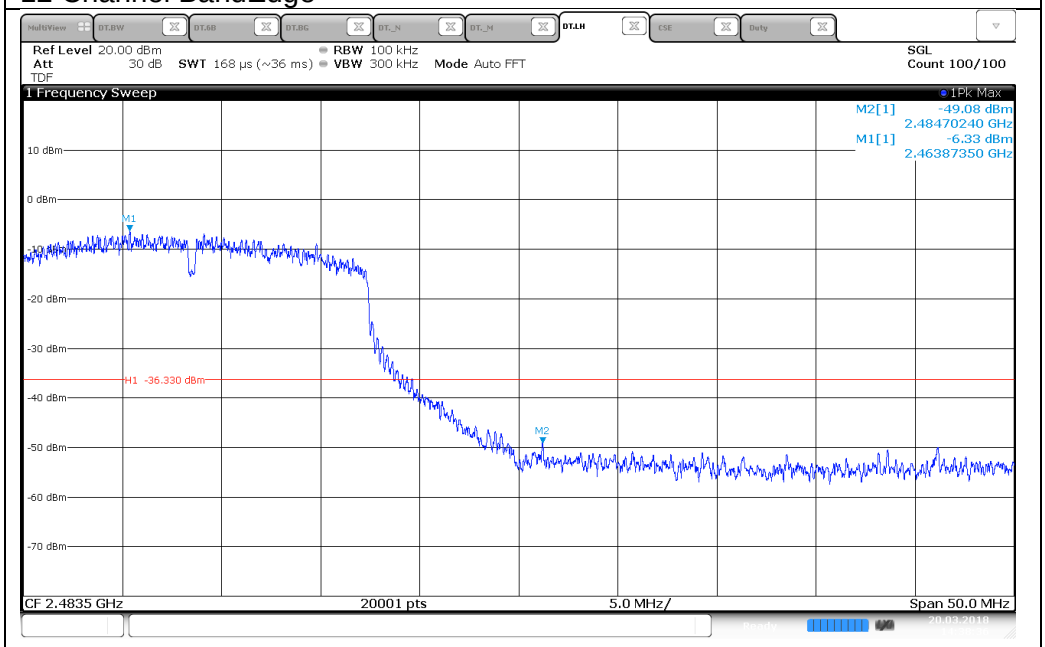
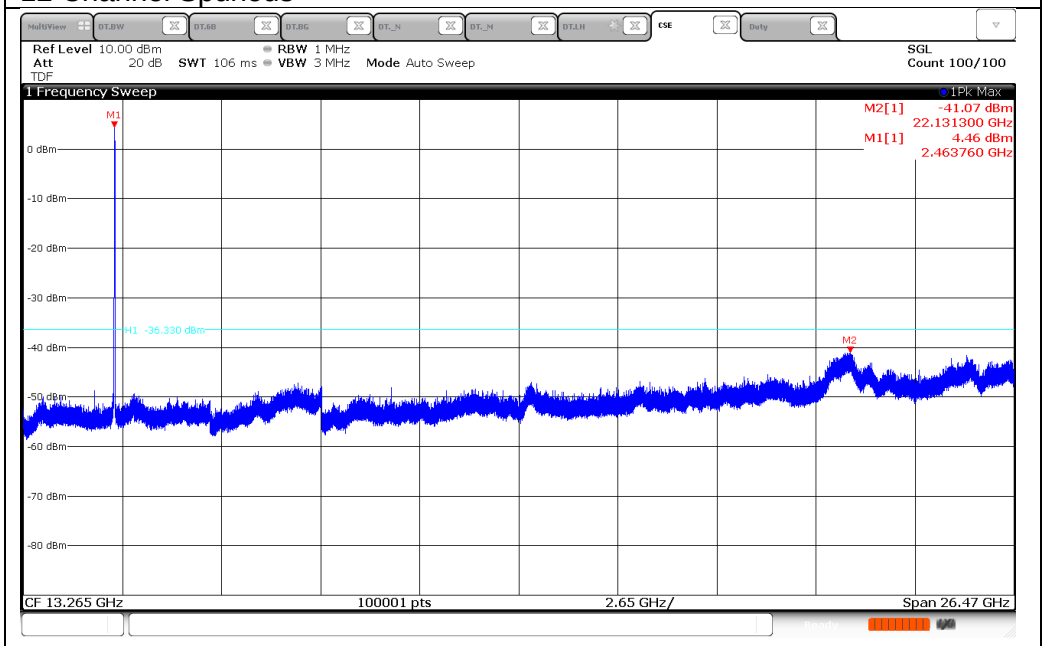
## 12 Channel BandEdge




**14:38:36 20.03.2018**

## 12 Channel Spurious




**15:56:41 20.03.2018**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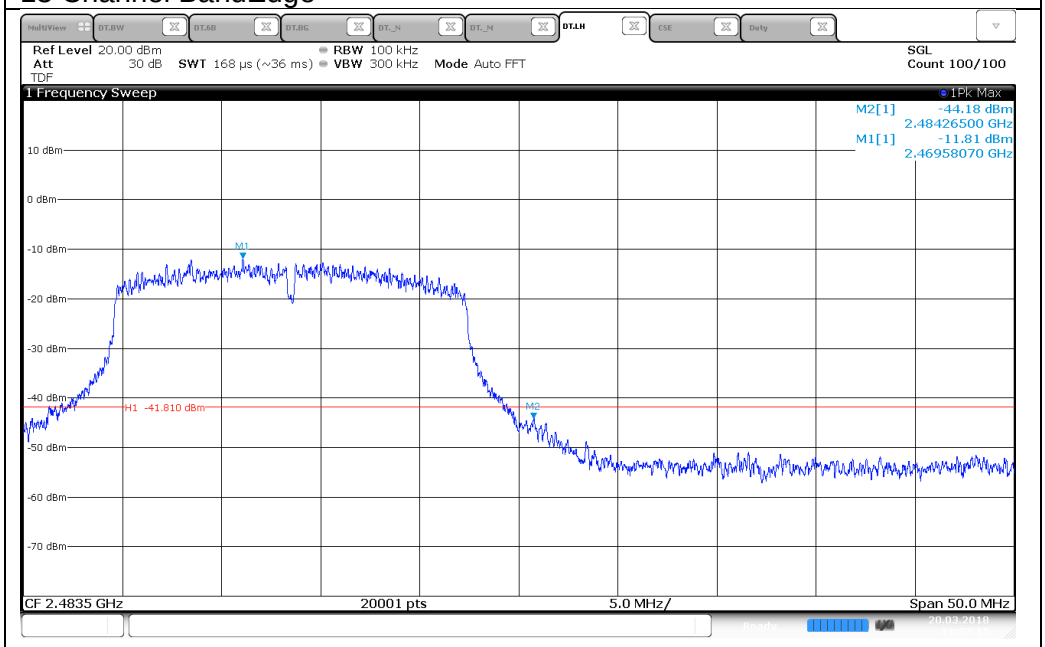
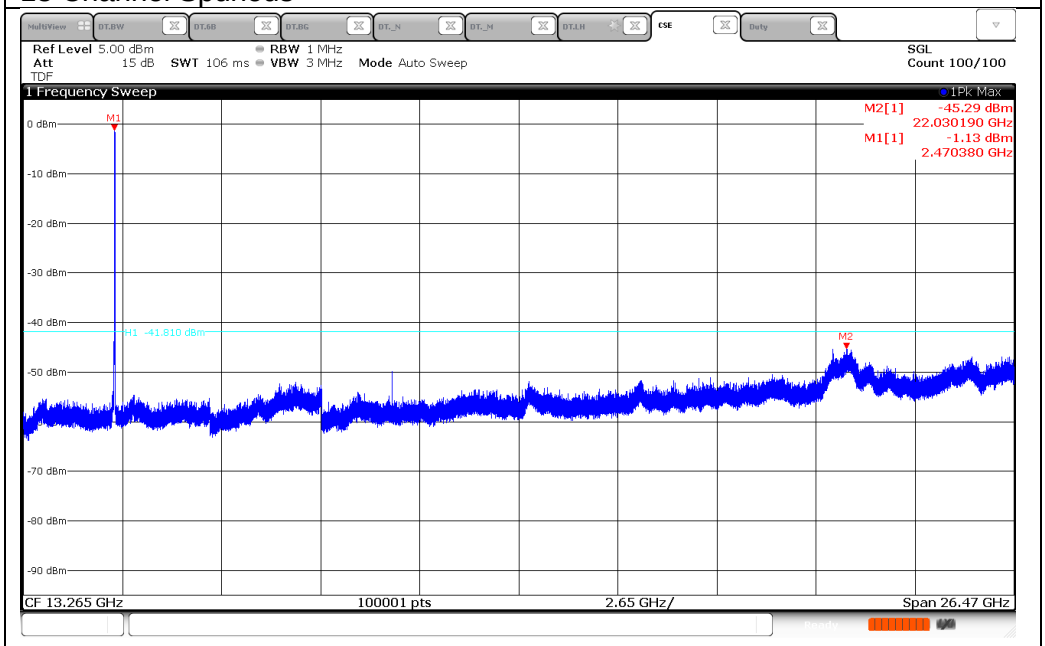
## 13 Channel BandEdge




**14:37:15 20.03.2018**

## 13 Channel Spurious




**15:58:37 20.03.2018**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# 11. RADIATED TEST RESULTS

## 11.1. LIMITS AND PROCEDURE

**LIMITS**

FCC §15.205 and §15.209

| Limits for radiated disturbance of an intentional radiator | | |
|---|---|---|
| Frequency range (MHz) | Limits (µV/m) | Measurement Distance (m) |
| 0.009 – 0.490 | 2400 / F (kHz) | 300 |
| 0.490 – 1.705 | 24000 / F (kHz) | 30 |
| 1.705 – 30.0 | 30 | 30 |
| 30 – 88 | 100** | 3 |
| 88 - 216 | 150** | 3 |
| 216 – 960 | 200** | 3 |
| Above 960 | 500 | 3 |

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.


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**TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. (Restriced bandedge, Final detection of spurious harmonic emissions)
Duty cycle factor= 10log (1/x) For this sample B mode = 0dB (duty cycle >98%); G mode = 0.14dB; N mode = 0.15dB.

Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

The spectrum from 1 GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.


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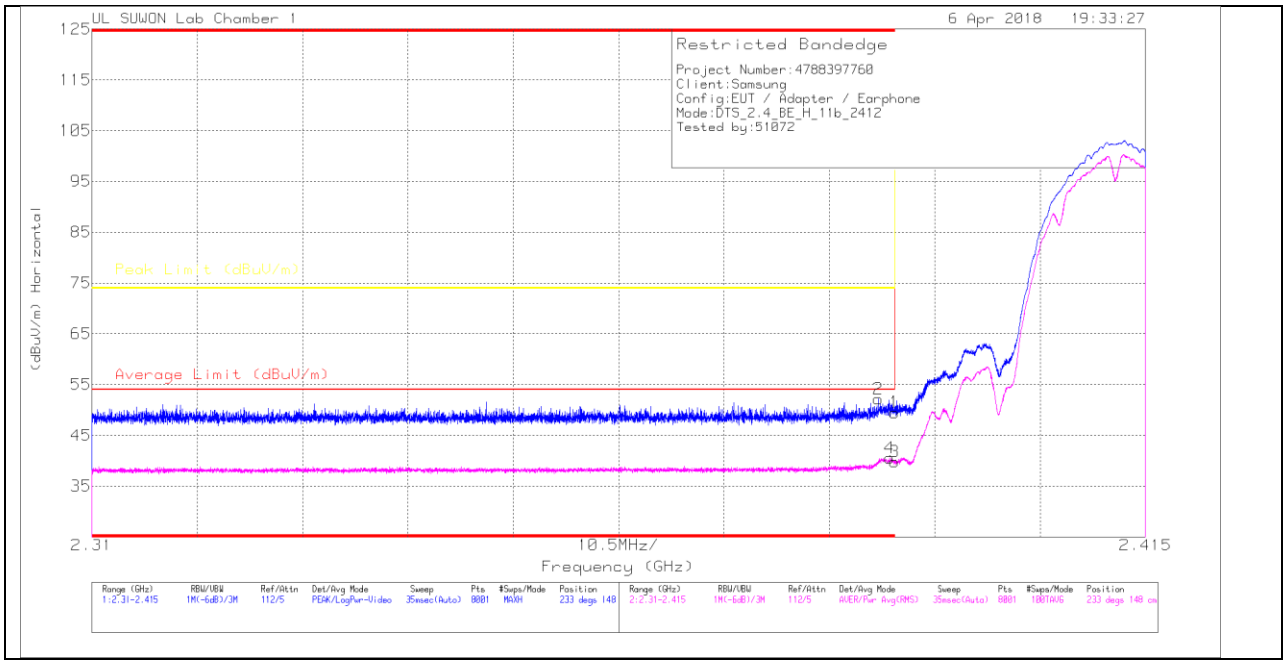
## 11.2. TRANSMITTER ABOVE 1 GHz

### 11.2.1.TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

### RESTRICTED BANDEDGE (LOW CHANNEL)

**HORIZONTAL PEAK AND AVERAGE PLOT**




**HORIZONTAL DATA**

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.39 | 43.92 | Pk | 31.3 | -25.7 | 0 | 49.52 | - | - | 74 | -24.48 | 233 | 148 | H |
| 2 | * 2.388 | 46.59 | Pk | 31.3 | -25.7 | 0 | 52.19 | - | - | 74 | -21.81 | 233 | 148 | H |
| 3 | * 2.39 | 34.24 | RMS | 31.3 | -25.7 | 0 | 39.84 | 54 | -14.16 | - | - | 233 | 148 | H |
| 4 | * 2.389 | 34.94 | RMS | 31.3 | -25.7 | 0 | 40.54 | 54 | -13.46 | - | - | 233 | 148 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection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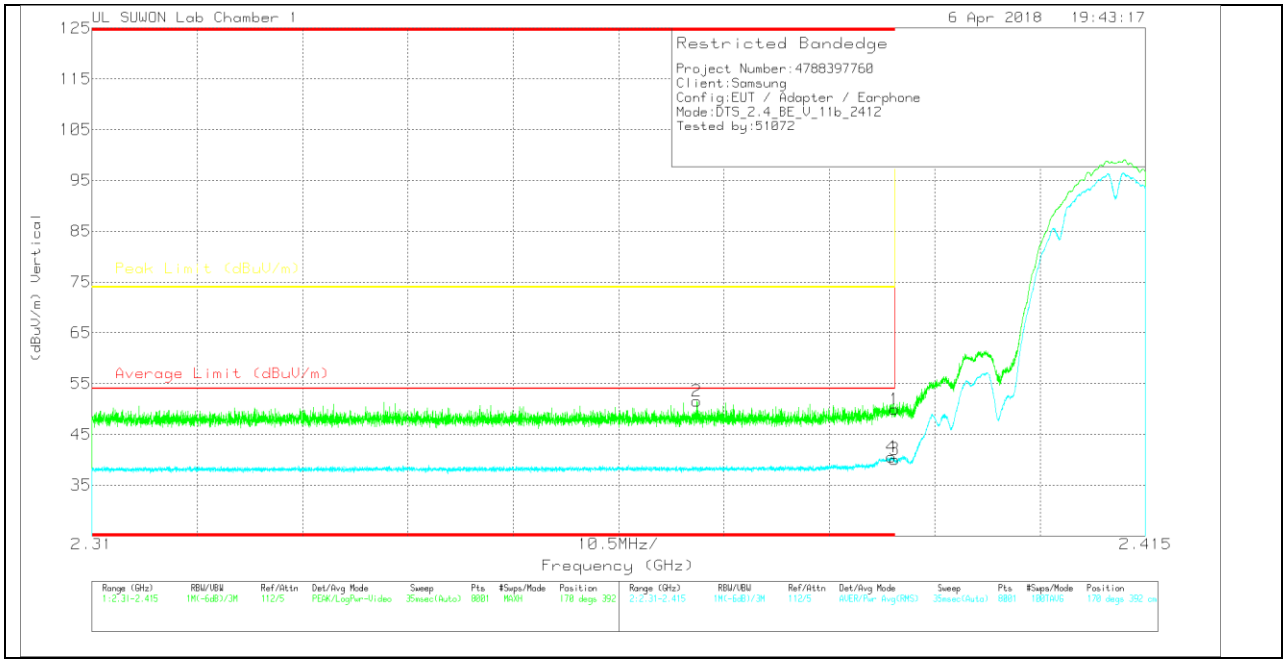
## VERTICAL PEAK AND AVERAGE PLOT




## VERTICAL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.39 | 44.39 | Pk | 31.3 | -25.7 | 0 | 49.99 | - | - | 74 | -24.01 | 170 | 392 | V |
| 2 | * 2.37 | 46.18 | Pk | 31.2 | -25.8 | 0 | 51.58 | - | - | 74 | -22.42 | 170 | 392 | V |
| 3 | * 2.39 | 34.52 | RMS | 31.3 | -25.7 | 0 | 40.12 | 54 | -13.88 | - | - | 170 | 392 | V |
| 4 | * 2.39 | 34.93 | RMS | 31.3 | -25.7 | 0 | 40.53 | 54 | -13.47 | - | - | 170 | 392 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection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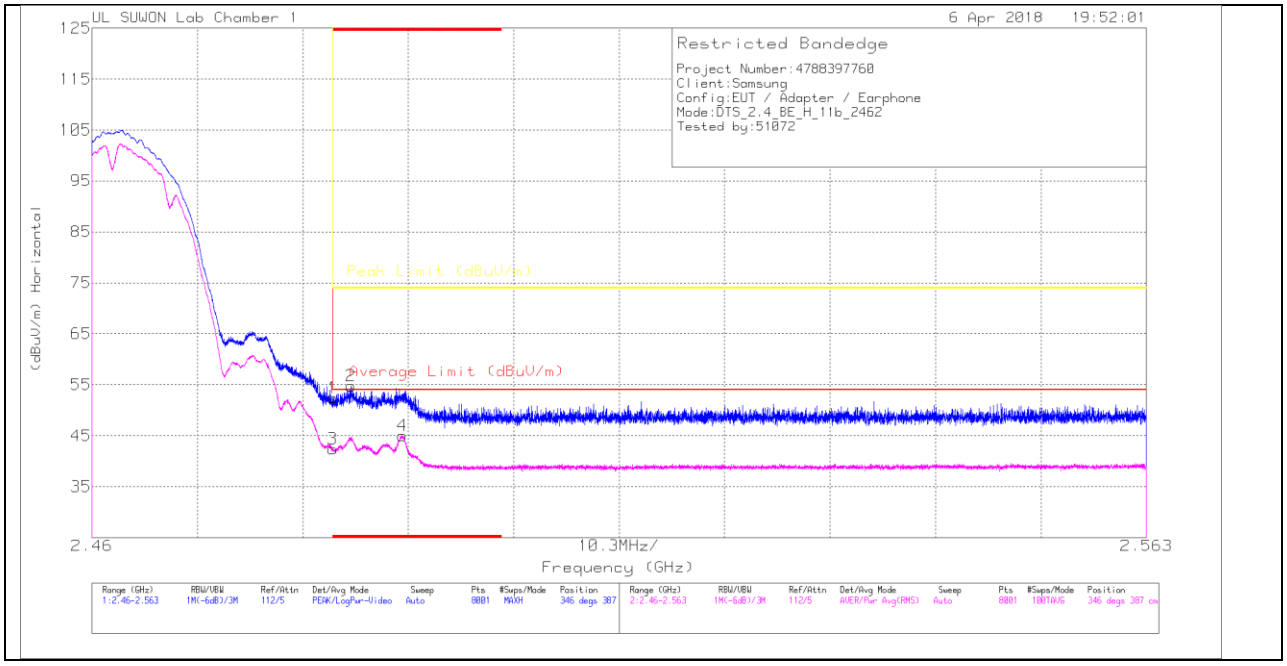
## AUTHORIZED BANDEDGE (HIGH CHANNEL)

### HORIZONTAL PEAK AND AVERAGE PLOT




### HORIZONTAL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 46.28 | Pk | 31.6 | -25.5 | 0 | 52.38 | - | - | 74 | -21.62 | 346 | 387 | H |
| 2 | * 2.485 | 48.73 | Pk | 31.6 | -25.5 | 0 | 54.83 | - | - | 74 | -19.17 | 346 | 387 | H |
| 3 | * 2.484 | 36.36 | RMS | 31.6 | -25.5 | 0 | 42.46 | 54 | -11.54 | - | - | 346 | 387 | H |
| 4 | * 2.49 | 38.81 | RMS | 31.6 | -25.4 | 0 | 45.01 | 54 | -8.99 | - | - | 346 | 387 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection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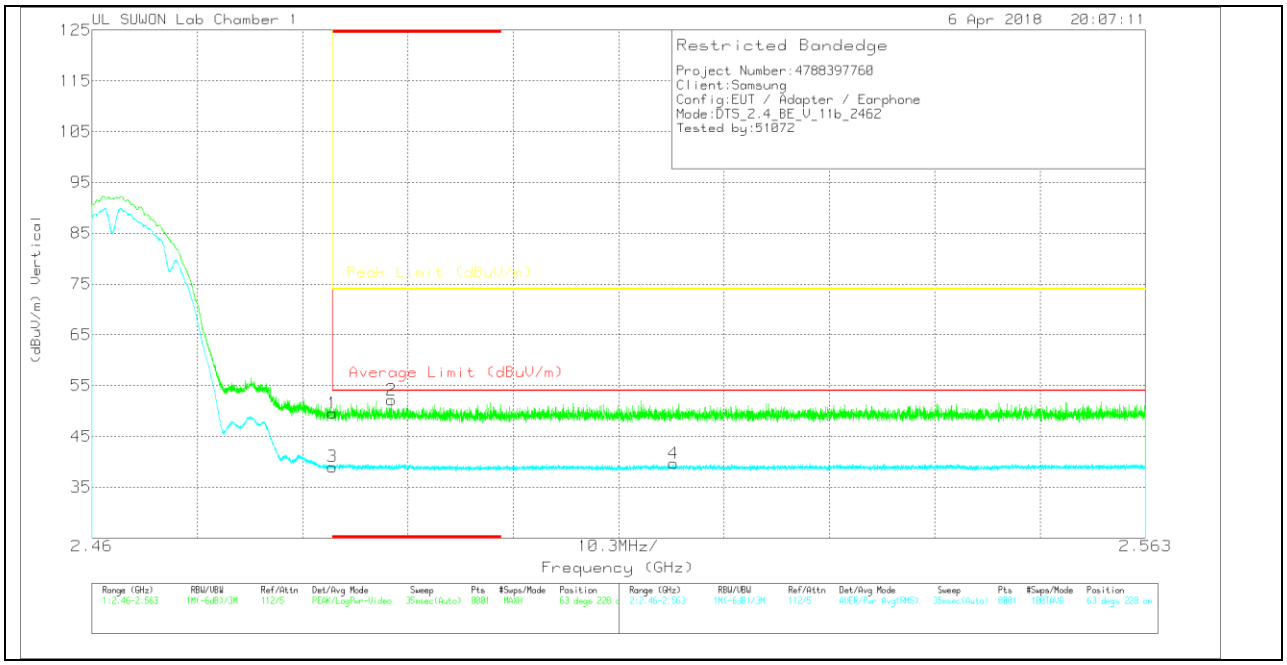
## VERTICAL PEAK AND AVERAGE PLOT




## VERTICAL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 43.49 | Pk | 31.6 | -25.5 | 0 | 49.59 | - | - | 74 | -24.41 | 63 | 228 | V |
| 2 | * 2.489 | 45.97 | Pk | 31.6 | -25.4 | 0 | 52.17 | - | - | 74 | -21.83 | 63 | 228 | V |
| 3 | * 2.484 | 32.91 | RMS | 31.6 | -25.5 | 0 | 39.01 | 54 | -14.99 | - | - | 63 | 228 | V |
| 4 | 2.517 | 33.39 | RMS | 31.6 | -25.3 | 0 | 39.69 | 54 | -14.31 | - | - | 63 | 228 | V |

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Pk - Peak detector
RMS - RMS detection


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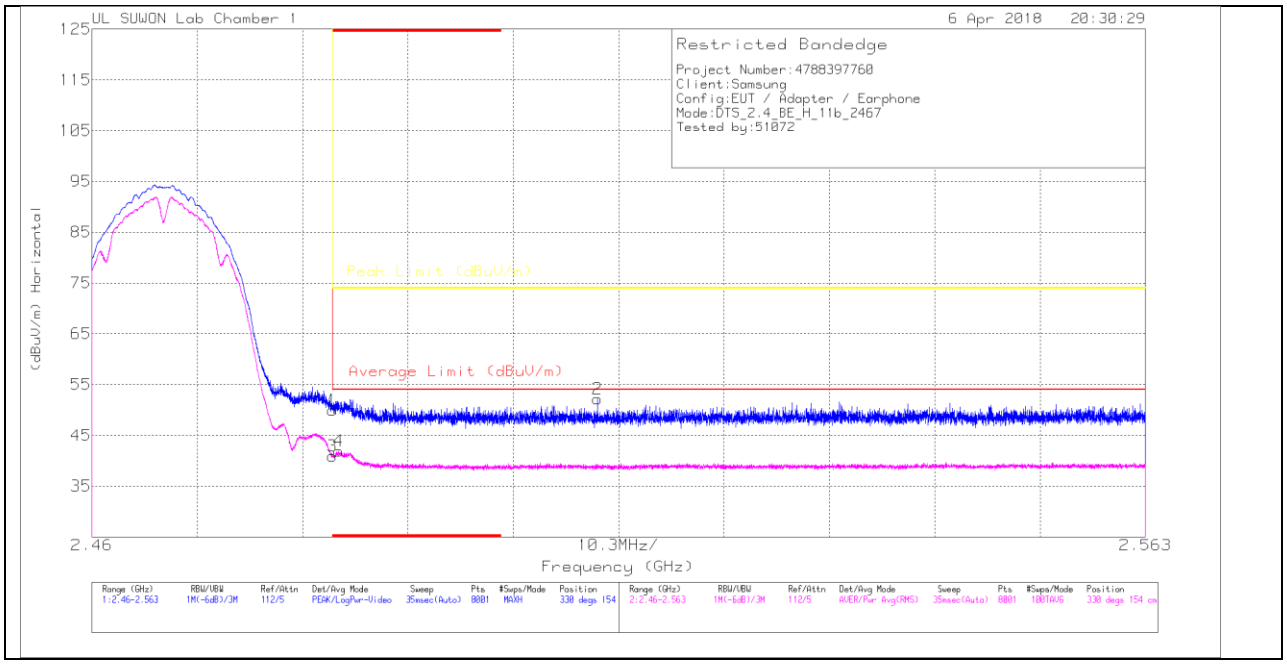
## AUTHORIZED BANDEDGE (12 CHANNEL)

### HORIZONTAL PEAK AND AVERAGE PLOT




### HORIZONTAL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 43.81 | Pk | 31.6 | -25.5 | 0 | 49.91 | - | - | 74 | -24.09 | 330 | 154 | H |
| 2 | 2.509 | 45.96 | Pk | 31.6 | -25.4 | 0 | 52.16 | - | - | 74 | -21.84 | 330 | 154 | H |
| 3 | * 2.484 | 34.87 | RMS | 31.6 | -25.5 | 0 | 40.97 | 54 | -13.03 | - | - | 330 | 154 | H |
| 4 | * 2.484 | 35.85 | RMS | 31.6 | -25.5 | 0 | 41.95 | 54 | -12.05 | - | - | 330 | 154 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection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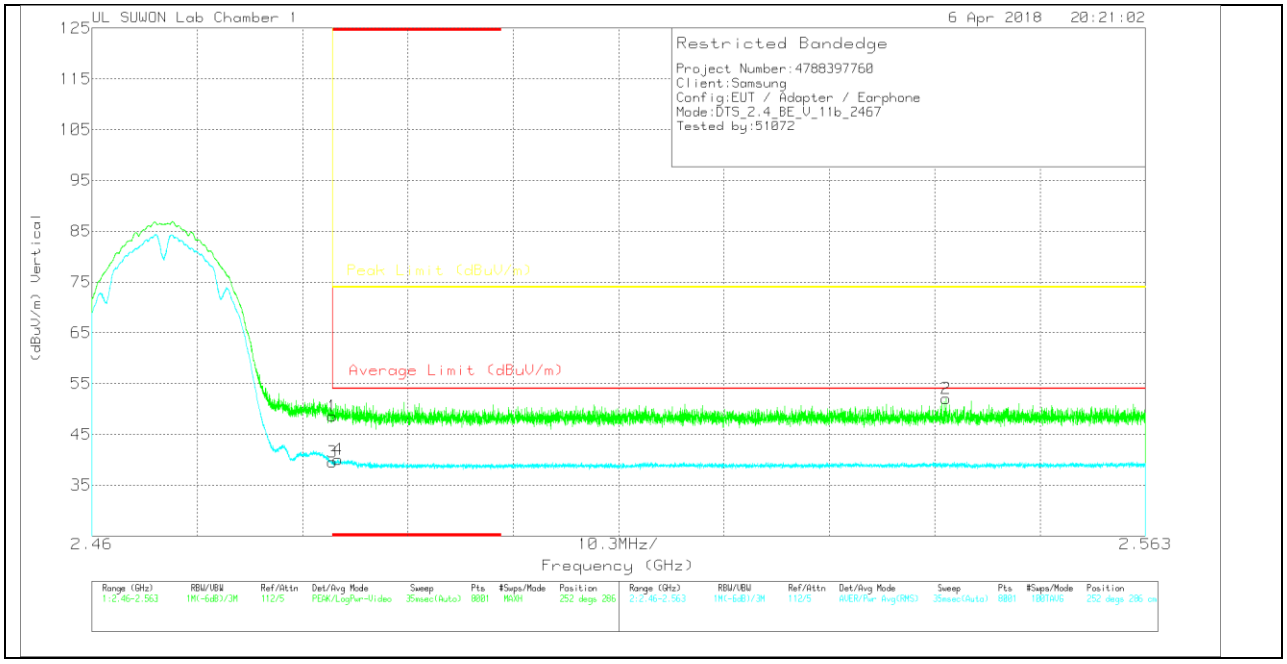
## VERTICAL PEAK AND AVERAGE PLOT




## VERTICAL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 42.46 | Pk | 31.6 | -25.5 | 0 | 48.56 | - | - | 74 | -25.44 | 252 | 286 | V |
| 2 | 2.543 | 45.57 | Pk | 31.7 | -25.2 | 0 | 52.07 | - | - | 74 | -21.93 | 252 | 286 | V |
| 3 | * 2.484 | 33.44 | RMS | 31.6 | -25.5 | 0 | 39.54 | 54 | -14.46 | - | - | 252 | 286 | V |
| 4 | * 2.484 | 33.93 | RMS | 31.6 | -25.5 | 0 | 40.03 | 54 | -13.97 | - | - | 252 | 286 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection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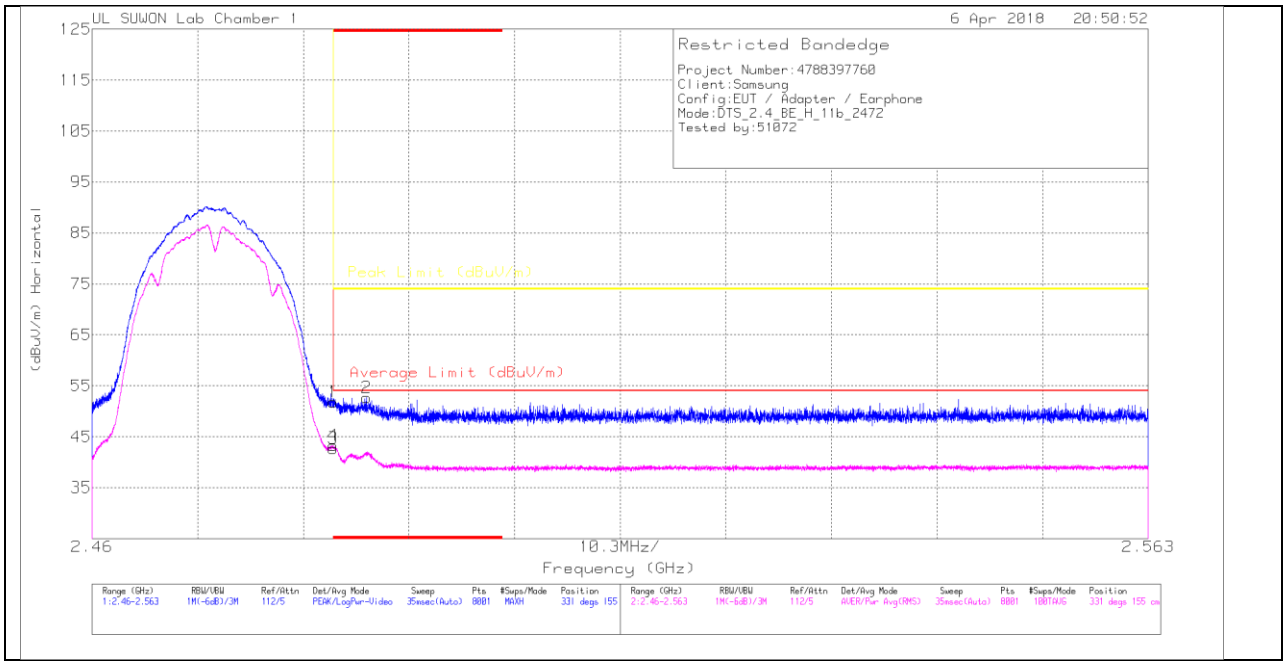
## AUTHORIZED BANDEDGE (13 CHANNEL)

### HORIZONTAL PEAK AND AVERAGE PLOT




### HORIZONTAL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 45.67 | Pk | 31.6 | -25.5 | 0 | 51.77 | - | - | 74 | -22.23 | 331 | 155 | H |
| 2 | * 2.487 | 46.48 | Pk | 31.6 | -25.4 | 0 | 52.68 | - | - | 74 | -21.32 | 331 | 155 | H |
| 3 | * 2.484 | 36.62 | RMS | 31.6 | -25.5 | 0 | 42.72 | 54 | -11.28 | - | - | 331 | 155 | H |
| 4 | * 2.484 | 37.16 | RMS | 31.6 | -25.5 | 0 | 43.26 | 54 | -10.74 | - | - | 331 | 155 | H |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection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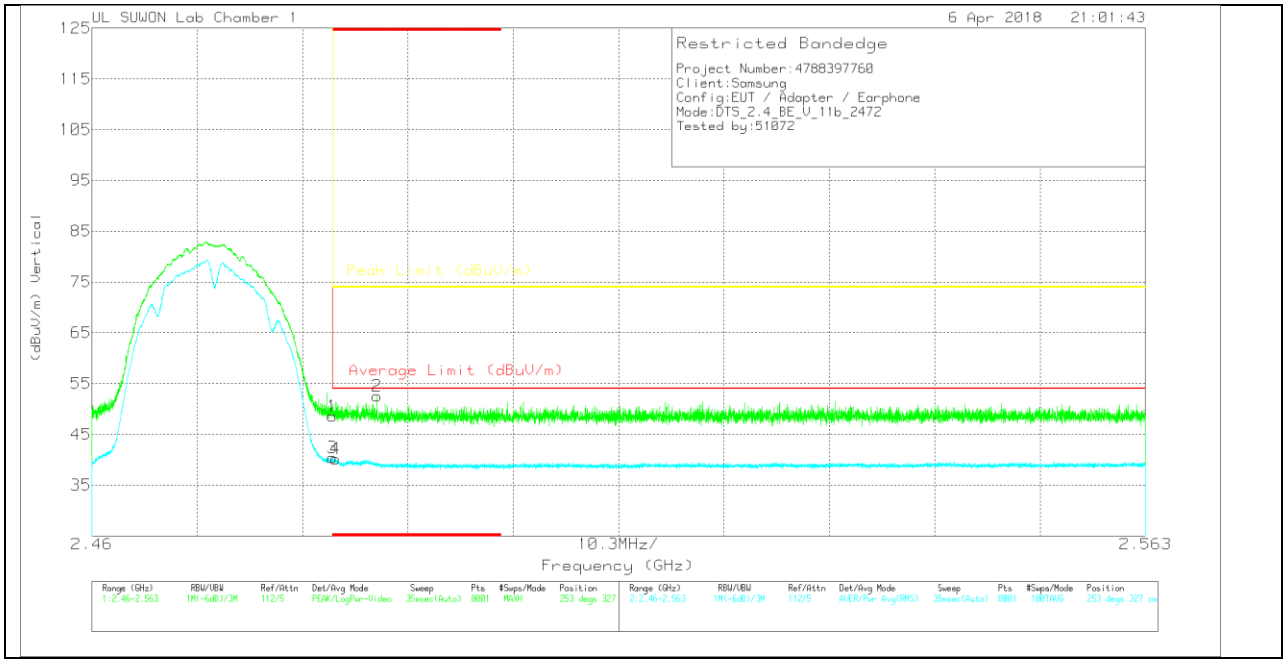
## VERTICAL PEAK AND AVERAGE PLOT




## VERTICAL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 10dB_ATT(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 2.484 | 42.46 | Pk | 31.6 | -25.5 | 0 | 48.56 | - | - | 74 | -25.44 | 253 | 327 | V |
| 2 | * 2.488 | 46.33 | Pk | 31.6 | -25.4 | 0 | 52.53 | - | - | 74 | -21.47 | 253 | 327 | V |
| 3 | * 2.484 | 34.3 | RMS | 31.6 | -25.5 | 0 | 40.4 | 54 | -13.6 | - | - | 253 | 327 | V |
| 4 | * 2.484 | 34.11 | RMS | 31.6 | -25.5 | 0 | 40.21 | 54 | -13.79 | - | - | 253 | 327 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection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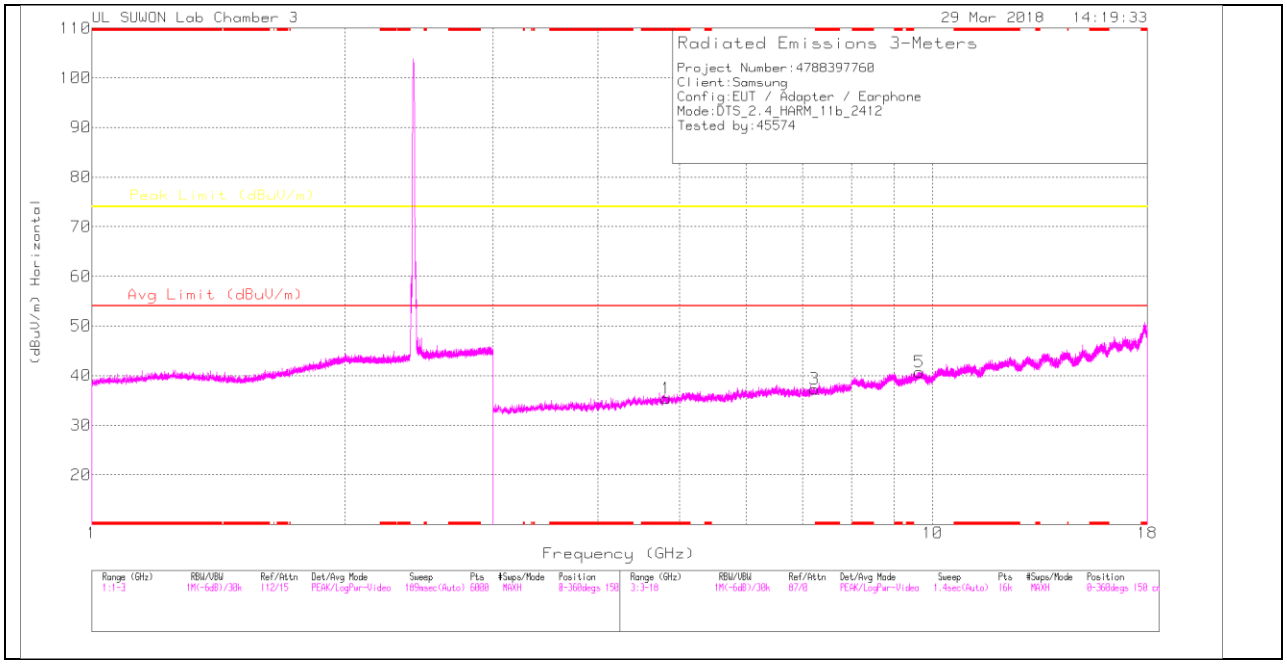
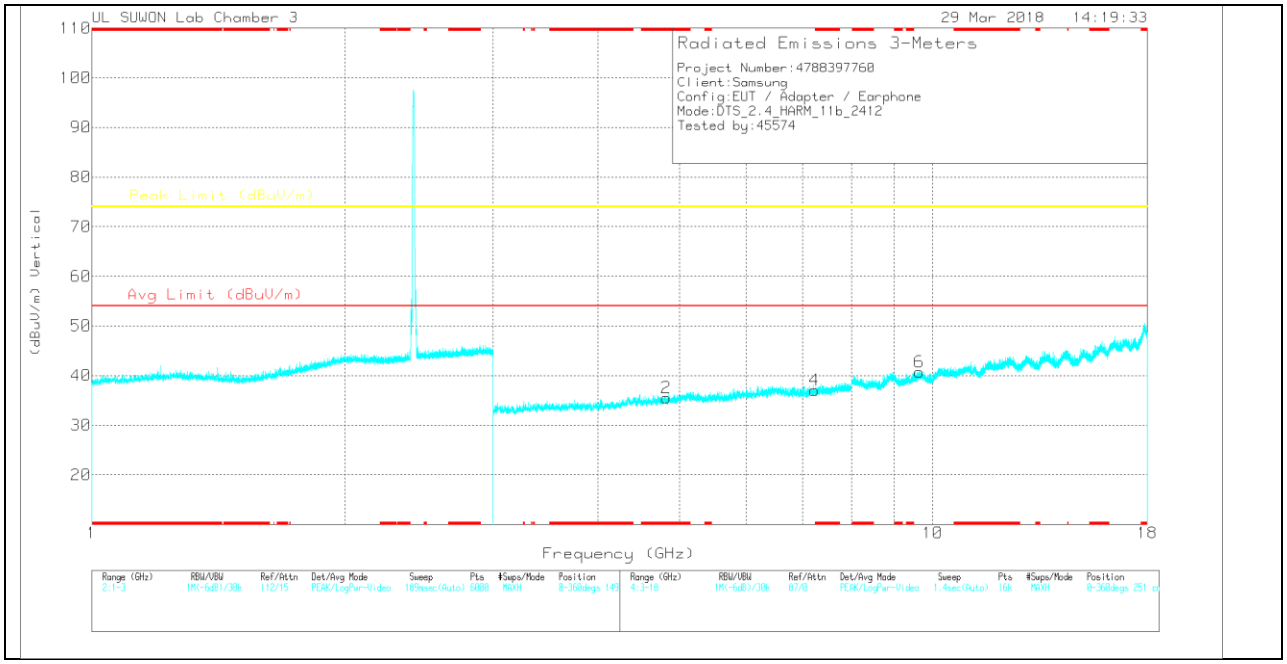
# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL HORIZONTAL




## LOW CHANNEL VERTICAL




Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.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## LOW CHANNEL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 3117[00205959] | 3GHz_HP[dB] | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 4.824 | 29.75 | PK | 34 | -28.3 | 0 | 35.45 | - | - | 74 | -38.55 | 0-360 | 150 | H |
| 3 | 7.228 | 25.65 | PK | 35.6 | -23.9 | 0 | 37.35 | - | - | 74 | -36.65 | 0-360 | 150 | H |
| 5 | 9.643 | 23.86 | PK | 36.7 | -19.8 | 0 | 40.76 | - | - | 74 | -33.24 | 0-360 | 150 | H |
| 2 | * 4.824 | 29.82 | PK | 34 | -28.3 | 0 | 35.52 | - | - | 74 | -38.48 | 0-360 | 149 | V |
| 4 | 7.232 | 25.37 | PK | 35.6 | -23.9 | 0 | 37.07 | - | - | 74 | -36.93 | 0-360 | 149 | V |
| 6 | 9.644 | 23.79 | PK | 36.7 | -19.8 | 0 | 40.69 | - | - | 74 | -33.31 | 0-360 | 149 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).


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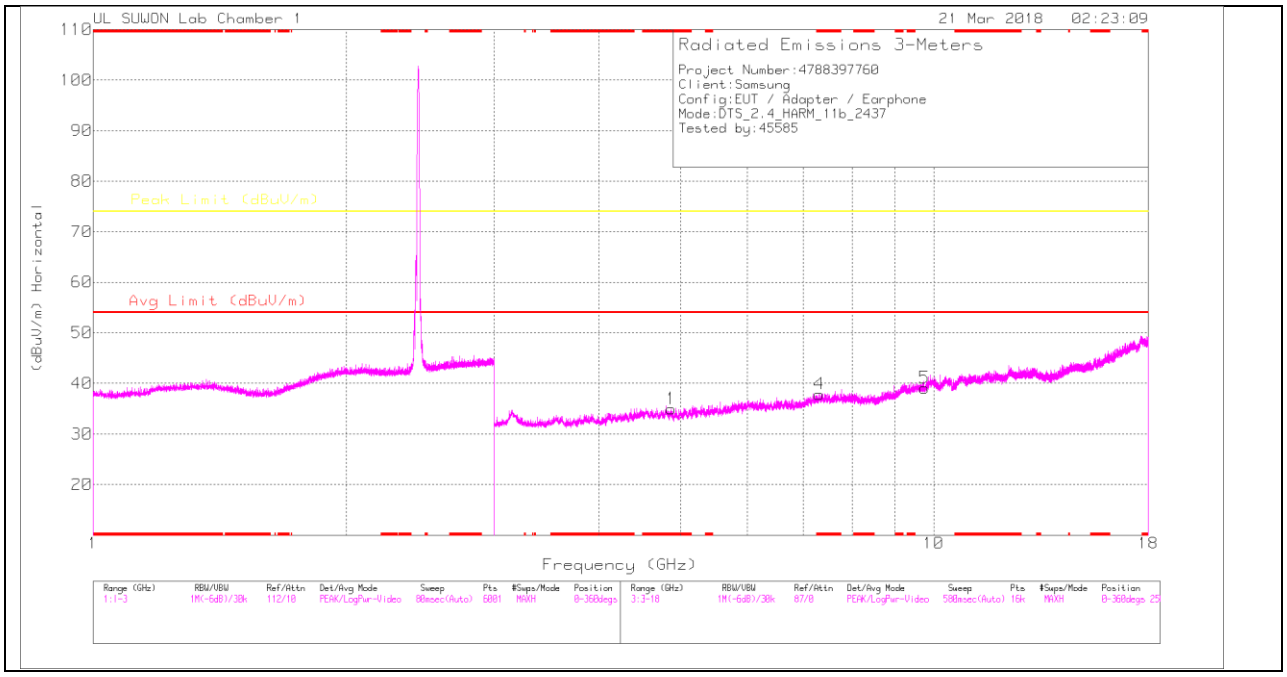
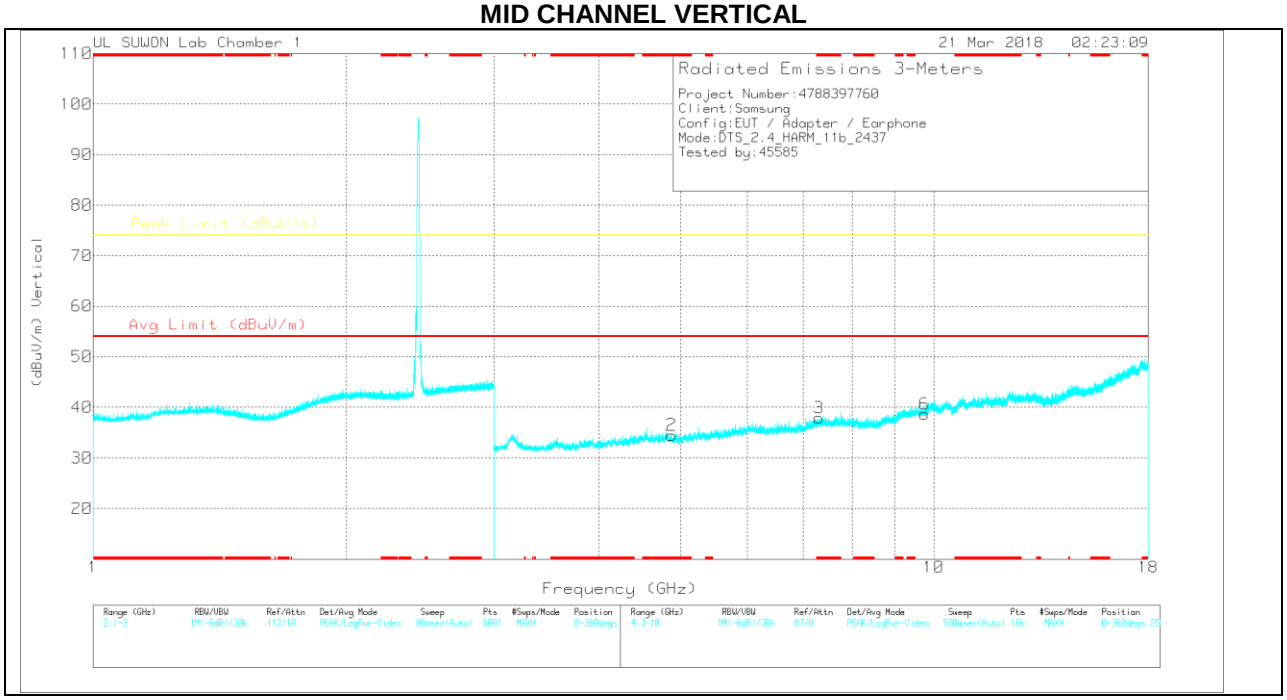
**MID CHANNEL HORIZONTAL**




**MID CHANNEL VERTICAL**




Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.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## MID CHANNEL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 20170531_3117_00168717 | 3GHz_HP(dB)_170809 | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 4.873 | 32.86 | PK | 33.8 | -31.7 | 0 | 34.96 | - | - | 74 | -39.04 | 0-360 | 150 | H |
| 4 | * 7.308 | 29.67 | PK | 35.9 | -27.7 | 0 | 37.87 | - | - | 74 | -36.13 | 0-360 | 250 | H |
| 5 | 9.749 | 26.39 | PK | 36.9 | -24.2 | 0 | 39.09 | - | - | 74 | -34.91 | 0-360 | 150 | H |
| 2 | * 4.877 | 32.39 | PK | 33.8 | -31.7 | 0 | 34.49 | - | - | 74 | -39.51 | 0-360 | 250 | V |
| 3 | * 7.308 | 29.74 | PK | 35.9 | -27.7 | 0 | 37.94 | - | - | 74 | -36.06 | 0-360 | 250 | V |
| 6 | 9.749 | 25.96 | PK | 36.9 | -24.2 | 0 | 38.66 | - | - | 74 | -35.34 | 0-360 | 250 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).


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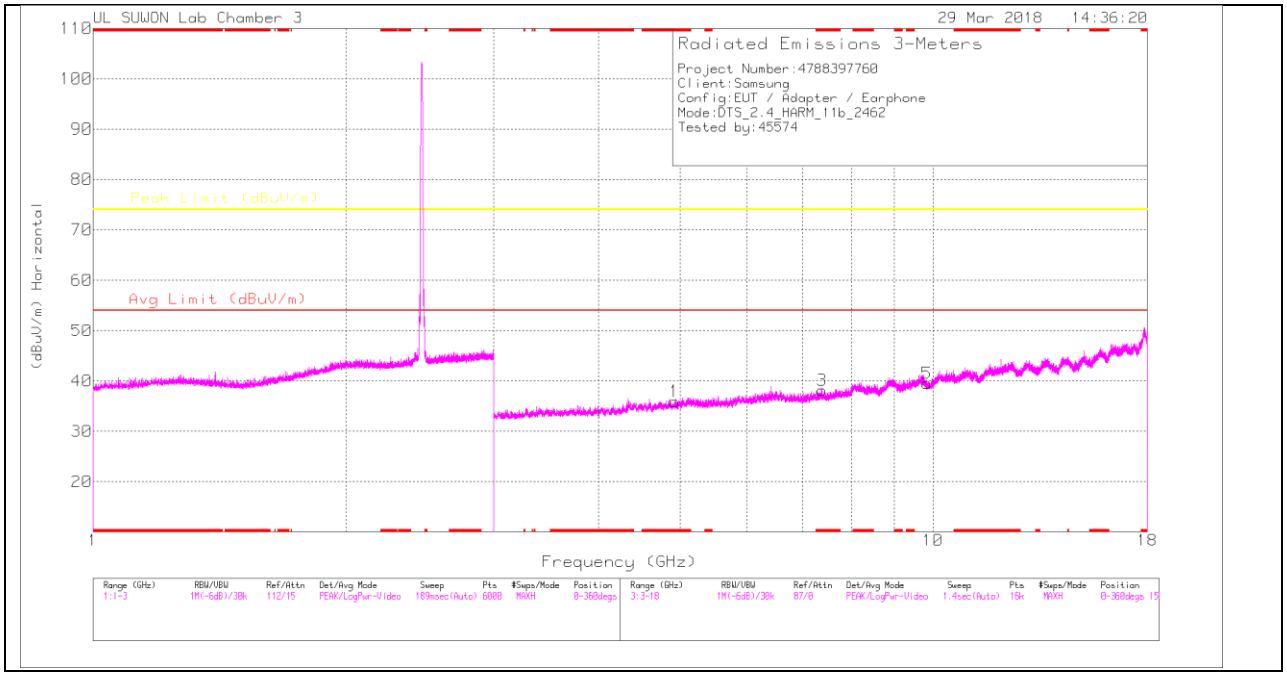
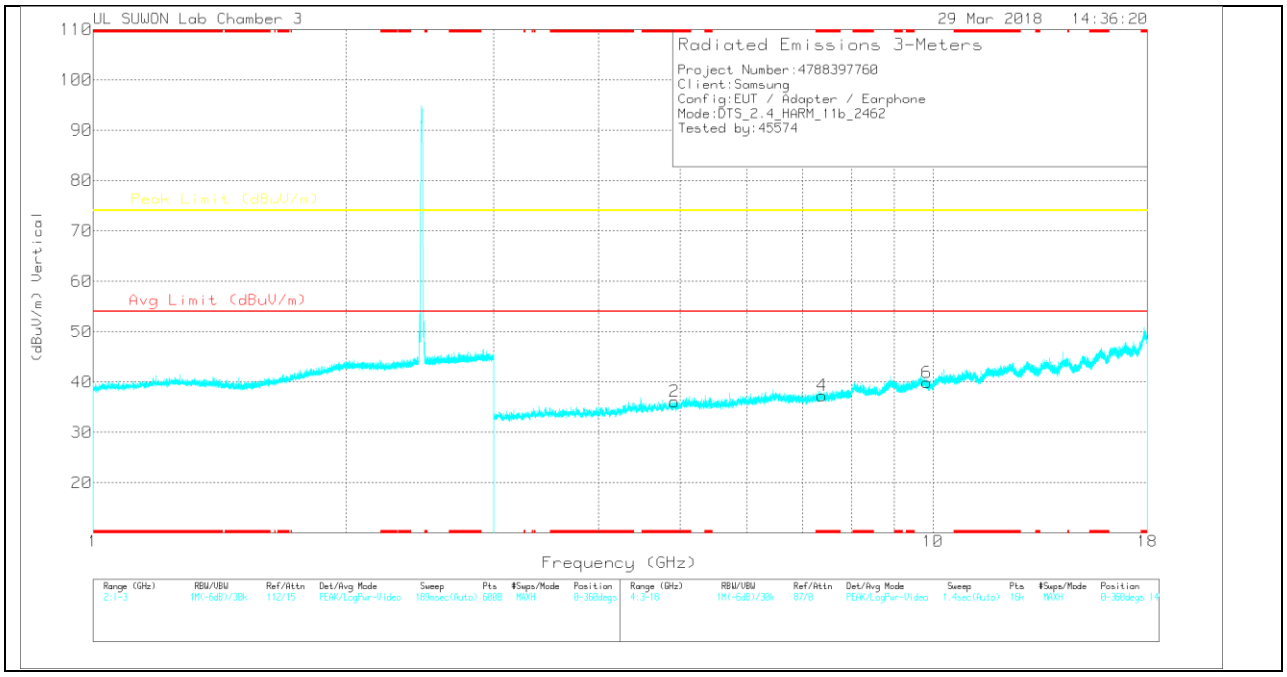
**HIGH CHANNEL HORIZONTAL**




**HIGH CHANNEL VERTICAL**




Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.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## HIGH CHANNEL DATA

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 3117[00205959] | 3GHz_HP[dB] | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 4.928 | 30.72 | PK | 34 | -28.8 | 0 | 35.92 | - | - | 74 | -38.08 | 0-360 | 150 | H |
| 3 | * 7.38 | 25.55 | PK | 35.6 | -23 | 0 | 38.15 | - | - | 74 | -35.85 | 0-360 | 250 | H |
| 5 | 9.842 | 22.11 | PK | 37 | -19.6 | 0 | 39.51 | - | - | 74 | -34.49 | 0-360 | 250 | H |
| 2 | * 4.923 | 31 | PK | 34 | -28.9 | 0 | 36.1 | - | - | 74 | -37.9 | 0-360 | 250 | V |
| 4 | * 7.383 | 24.71 | PK | 35.6 | -23 | 0 | 37.31 | - | - | 74 | -36.69 | 0-360 | 149 | V |
| 6 | 9.841 | 22.59 | PK | 37 | -19.7 | 0 | 39.89 | - | - | 74 | -34.11 | 0-360 | 250 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).


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