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# TEST REPORT

**Eurofins KCTL Co.,Ltd.**
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eurofins | KCTL

**1. Client**

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2023-03-23

**2. Use of Report** : Certification

**3. Name of Product / Model** : Smart wearable / SM-R930

**4. Manufacturer / Country of Origin** : Samsung Electronics Co., Ltd. / Vietnam

**5. FCC ID** : A3LSMR930

**6. IC Certificate No.** : 649E-SMR930

**7. Date of Test** : 2023-04-18 to 2023-05-17

**8. Location of Test** : ■ Permanent Testing Lab ☐ On Site Testing
(Address:65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

**9. Test method used** : FCC Part 15 Subpart C, 15.247
RSS-247 Issue 2 February 2017
RSS-Gen Issue 5 February 2021

**10. Test Result** : Refer to the test result in the test report

| | | |
|---|---|---|
| Affirmation | Tested by<br>Name : Kwonse Kim (Signature) | Technical Manager<br>Name : Seungyong Kim (Signature) |

2023-05-19

**Eurofins KCTL Co.,Ltd.**

As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by Eurofins KCTL Co.,Ltd.

## REPORT REVISION HISTORY

| Date | Revision | Page No |
|---|---|---|
| 2023-05-19 | Originally issued | - |
| | | |
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## General remarks for test reports

**Statement concerning the uncertainty of the measurement systems used for the tests**

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

**Procedure number, issue date and title:**

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ **Statement not required by the standard or client used for type testing**

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# 1. General information

| | | |
|---|---|---|
| Client | : | Samsung Electronics Co., Ltd. |
| Address | : | 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea |
| Manufacturer | : | Samsung Electronics Co., Ltd. |
| Address | : | 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea |
| Factory 1 | : | AG TECH CO.,LTD |
| Address | : | Lot G3, Que Vo Industrial Park(Expanded Area), Nam son Ward, Bac Ninh Province, Vietnam |
| Factory 2 | : | ALMUS VINA |
| Address | : | Lot CN07A, Phu Ha Industrial Park, Ha Thach Commune, Phu Tho Town, Phu Tho Province, Vietnam |
| Laboratory | : | Eurofins KCTL Co.,Ltd. |
| Address | : | 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea |
| Accreditations | : | FCC Site Designation No: KR0040, FCC Site Registration No: 687132<br>VCCI Registration No. : R-20080, G-20078, C-20059, T-20056<br>CAB Identifier: KR0040<br>ISED Number: 8035A<br>KOLAS No.: KT231 |

# 2. Device information

| | | | | |
|---|---|---|---|---|
| Equipment under test | : | Smart wearable | | |
| Model | : | SM-R930 | | |
| Modulation technique | : | GFSK, π/4DQPSK, 8DPSK [Bluetooth(BDR/EDR)] | | |
| Number of channels | : | 79 ch | | |
| Power source | : | DC 3.88 V | | |
| Antenna specification | : | LDS Antenna | | |
| Antenna gain | : | -7.60 dBi | | |
| Frequency range | : | 2 402 ㎒ ~ 2 480 ㎒ | | |
| Software version | : | R930.001 | | |
| Hardware version | : | REV1.0 | | |
| Test device serial No. | : | Conducted | : | R3AW200HS6E |
| | | Radiated | : | R3AW403BNQJ, R3AW403BNSA |
| Operation temperature | : | -20 ℃ ~ 50 ℃ | | |

## 2.1. Accessory information

| Equipment | Manufacturer | Model | Serial No. | Power source | FCC ID & IC |
|---|---|---|---|---|---|
| Wireless charger | Samsung Electronics Co., Ltd. | EP-OR900 | - | 5.0 V, 2.0 A | FCC ID : A3LEPOR900<br>IC : 649E-EPOR900 |

## 2.2. Frequency/channel operations

This device contains the following capabilities:
WLAN (11a/b/g/n), Bluetooth (BDR/EDR/BLE)

| Ch. | Frequency (㎒) |
|---|---|
| 00 | 2 402 |
| . | . |
| 39 | 2 441 |
| . | . |
| 78 | 2 480 |

Table 2.2.1. Bluetooth(BDR/EDR) mode

15.247 Requirements for Bluetooth transmitter:

- This Bluetooth module has been tested by a Bluetooth Qualification Lab, and we confirm the following:
  1) This system is hopping pseudo-randomly.
  2) Each frequency is used equally on the average by each transmitter.
  3) The receiver input bandwidths that match the hopping channel bandwidths of their corresponding transmitters
  4) The receiver shifts frequencies in synchronization with the transmitted signals.
- 15.247(g): The system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this Section 15.247 should the transmitter be presented with a continuous data (or information) stream.
- 15.247(h): The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

# 3. Antenna requirement

**Requirement of FCC part 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

**Requirement of RSS-Gen Section 6.8:**

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

- The transmitter has permanently attached LDS Antenna (Internal antenna) on board.
- The EUT Complies with the requirement of §15.203, §15.247.

# 4. Introduction

This report referenced from the FCC ID : A3LSMR935 and IC : 649E-SMR935.
Based on their similarity, the FCC Part 15C and RSS-247 (equipment class: DSS) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 v01.
And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID and IC.

## 4.1 Difference

The FCC ID: A3LSMR930 and IC: 649E-SMR930 share the same enclosure and circuit board as FCC ID: A3LSMR935 and IC: 649E-SMR935. The WIFI/BT/BLE antenna and surrounding circuitry and layout are identical between these two units.
As for all bands, they have been verified and the parent model test results under FCC ID: A3LSMR935 and IC: 649E-SMR935 shall remain representative of FCC ID: A3LSMR930 and IC: 649E-SMR930.

**Note.** The difference between the parent and variant is that the RF circuit for WCDMA/LTE bands in the parent model SM-R935U is removed from the variant model SM-R930.

## 4.2 Spot check verification data (Band-edge & Spurious emission)

| Test band | Test item | Test mode | Channel | Measured frequency (MHz) | SM-R935U (dBμV) | | SM-R930 (dBμV) | | Deviation (dB) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Avg. | Peak | Avg. | Peak | Avg. | Peak |
| BT | Band edge | DH-1 | 78 | 2 483.5 ~ 2 500 | - | 45.45 | - | 45.85 | - | 0.40 |
| | RSE | | 0 | 7 271.93 | - | 47.19 | - | 47.81 | - | 0.62 |
| | Band edge | 3DH-1 | 78 | 2 483.5 ~ 2 500 | - | 49.95 | - | 50.55 | - | 0.60 |
| | RSE | | 78 | 7 375.37 | - | 47.55 | - | 46.81 | - | -0.74 |

**Notes:**
1. FCC ID: A3LSMR930 and IC: 649E-SMR930 have been verified the performance as for Bluetooth identical with the FCC ID: A3LSMR935 and IC: 649E-SMR935.
2. Comparison of two models, the variant model emissions are less than 3 dB higher than the parent model, and all test results are under FCC/ISED technical limits.
3. The test procedure(s) in this report were performed in accordance as following.
   - KDB 484596 D01 v01

## 4.3 Reference Detail

Reference application that contains the reused reference data in the individual test reports.

| Equipment Class | Reference FCC ID & IC | Application Type | Reference Test report Number | Exhibit Type | Variant Test Report Number | Data Re-used |
|---|---|---|---|---|---|---|
| DTS | A3LSMR935<br>649E-SMR935 | Original | KR23-SRF0118<br>(802.11b/g/n) | Test report | KR23-SRF0126 | All |
| | | | KR23-SRF0117<br>(Bluetooth LE) | Test report | KR23-SRF0125 | All |
| DSS | A3LSMR935<br>649E-SMR935 | Original | KR23-SRF0116<br>(Bluetooth) | Test report | KR23-SRF0124 | All |
| NII | A3LSMR935<br>649E-SMR935 | Original | KR23-SRF0119<br>(802.11a/n) | Test report | KR23-SRF0127 | All |

# 5. Summary of tests

| FCC Part section(s) | IC Rule reference | Parameter | Test Condition | Test results |
|---|---|---|---|---|
| 15.205(a), 15.209(a) | RSS-Gen (8.9), (8.10) | Spurious emission | Radiated | Pass |
| | | Band-edge, restricted band | | Pass |

**Notes:**

1. All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2. According to exploratory test no any obvious emission were detected from 9 ㎑ to 30 ㎒. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
3. The maximum production power and tolerance are not impacted by the change. So only spot-check test was done against the worst case from the original model.

| Band | Strap | With charger | Without charger | | |
|---|---|---|---|---|---|
| | | X-axis | X-axis | Y-axis | Z-axis |
| Bluetooth | With strap | - | - | O | - |
| | Without strap | - | - | - | - |

4. The worst-case data rate were: BDR Packet type DH-1
   EDR Packet type 3DH-1
5. The test procedure(s) in this report were performed in accordance as following.
   - ANSI C63.10-2013
   - KDB 558074 D01 v05r02

# 6. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k$=2 to indicated a 95 % level of confidence. The measurement data shown herein meets of exceeds the $U_{CISPR}$ measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

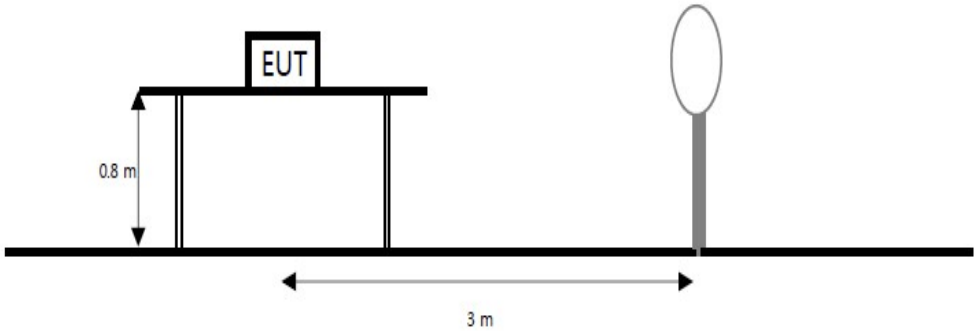
| Parameter | Expanded uncertainty (±) | |
|---|---|---|
| Radiated spurious emissions | 9 ㎑ ~ 30 ㎒: | 2.3 ㏈ |
| | 30 ㎒ ~ 1 000 ㎒ | 2.5 ㏈ |
| | 1 000 ㎒ ~ 18 000 ㎒ | 4.7 ㏈ |
| | Above 18 000 ㎒ | 4.8 ㏈ |

# 7 Test results

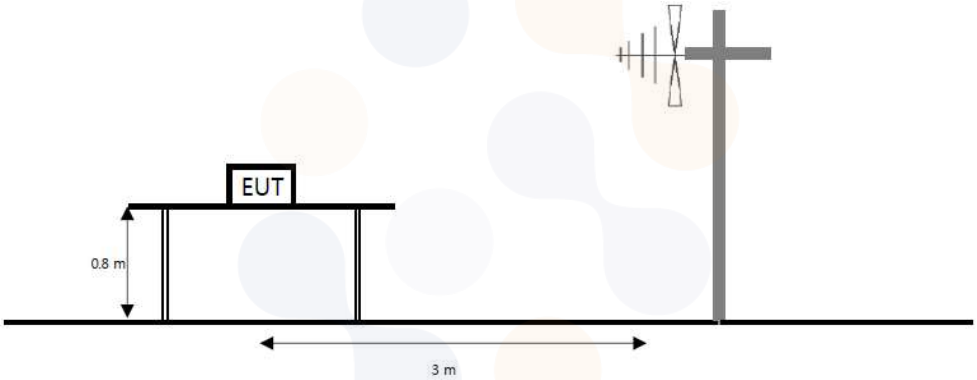
## 7.1. Radiated spurious emissions & band edge

**Test setup**

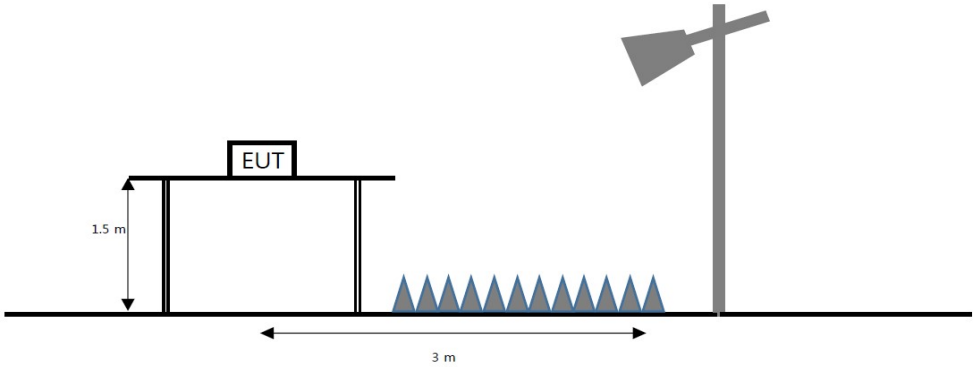
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒ Emissions




The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ emissions.




The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to the tenth harmonic of the highest fundamental frequency or to 40 ㎓ emissions, whichever is lower.



**Limit**

**FCC**

According to section 15.209(a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (㎒) | Field strength (㎛/m) | Measurement distance (m) |
|---|---|---|
| 0.009 - 0.490 | 2 400/F(㎑) | 300 |
| 0.490 - 1.705 | 24 000/F(㎑) | 30 |
| 1.705 - 30 | 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 ㎒, 76–88 ㎒, 174–216 ㎒ or 470–806 ㎒. However, operation within these frequency bands is permitted under other sections of this part, e.g., Section15.231 and 15.241.

According to section 15.205(a) and (b), only spurious emissions are permitted in any of the frequency bands listed below:

| ㎒ | ㎒ | ㎒ | ㎓ |
|---|---|---|---|
| 0.009 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| 0.495 - 0.505 | 16.694 75 - 16.695 25 | 608 - 614 | 5.35 - 5.46 |
| 2.173 5 - 2.190 5 | 16.804 25 - 16.804 75 | 960 – 1 240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1 300 – 1 427 | 8.025 - 8.5 |
| 4.177 25 - 4.177 75 | 37.5 - 38.25 | 1 435 – 1 626.5 | 9.0 - 9.2 |
| 4.207 25 - 4.207 75 | 73 - 74.6 | 1 645.5 – 1 646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1 660 – 1 710 | 10.6 - 12.7 |
| 6.267 75 - 6.268 25 | 108 - 121.94 | 1 718.8 – 1 722.2 | 13.25 - 13.4 |
| 6.311 75 - 6.312 25 | 123 - 138 | 2 200 – 2 300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2 310 – 2 390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.524 75 - 156.525 25 | 2 483.5 – 2 500 | 17.7 - 21.4 |
| 8.376 25 - 8.386 75 | | 2 690 – 2 900 | 22.01 - 23.12 |
| 8.414 25 - 8.414 75 | 156.7 - 156.9 | 3 260 – 3 267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 162.012 5 - 167.17 | 3 332 – 3 339 | 31.2 - 31.8 |
| 12.519 75 - 12.520 25 | 167.72 - 173.2 | 3 345.8 – 3 358 | 36.43 - 36.5 |
| 12.576 75 - 12.577 25 | 240 - 285 | 3 600 – 4 400 | Above 38.6 |
| 13.36 - 13.41 | 322 - 335.4 | | |

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in section 15.209. At frequencies equal to or less than 1 000 ㎒, compliance with the limits in section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 ㎒, compliance with the emission limits in section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in section 15.35 apply to these measurements.

**IC**

According to RSS-247(5.5), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

According to RSS-Gen(8.9), Except where otherwise indicated in the applicable RSS, radiated emissions shall comply with the field strength limits shown in table 5 and table 6. Additionally, the level of any transmitter unwanted emission shall not exceed the level of the transmitter's fundamental emission.

**Table 5- General field strength limits at frequencies above 30 MHz**

| Frequency(㎒) | Field strength (μV/m at 3 m) |
|---|---|
| 30 to 88 | 100 |
| 88 to 216 | 150 |
| 216 to 960 | 200 |
| Above 960 | 500 |

**Table 6- General field strength limits at frequencies below 30 MHz**

| Frequency | Magnetic field strength (H-Field) (㎛ A/m) | Measurement distance(m) |
|---|---|---|
| 9 – 490 ㎑ 1) | 6.37/F (F in ㎑) | 300 |
| 490 – 1705 ㎑ | 63.7/F (F in ㎑) | 30 |
| 1.705 - 30 ㎒ | 0.08 | 30 |

**Note 1:** The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

According to RSS-Gen(8.10), Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

(a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).
(b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.
(c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

**Table 7- Restricted frequency bands***

| MHz | MHz | GHz |
|---|---|---|
| 0.090 - 0.110 | 149.9 - 150.05 | 9.0 - 9.2 |
| 0.495 - 0.505 | 156.52475 - 156.52525 | 9.3 - 9.5 |
| 2.1735 - 2.1905 | 156.7 - 156.9 | 10.6 - 12.7 |
| 3.020 - 3.026 | 162.0125 - 167.17 | 13.25 - 13.4 |
| 4.125 - 4.128 | 167.72 - 173.2 | 14.47 - 14.5 |
| 4.17725 - 4.17775 | 240 - 285 | 15.35 - 16.2 |
| 4.20725 - 4.20775 | 322 - 335.4 | 17.7 - 21.4 |
| 5.677 - 5.683 | 399.9 - 410 | 22.01 - 23.12 |
| 6.215 - 6.218 | 608 - 614 | 23.6 - 24.0 |
| 6.26775 - 6.26825 | 960 - 1427 | 31.2 - 31.8 |
| 6.31175 - 6.31225 | 1435 - 1626.5 | 36.43 - 36.5 |
| 8.291 - 8.294 | 1645.5 - 1646.5 | Above 38.6 |
| 8.362 - 8.366 | 1660 - 1710 | |
| 8.37625 - 8.38675 | 1718.8 - 1722.2 | |
| 8.41425 - 8.41475 | 2200 - 2300 | |
| 12.29 - 12.293 | 2310 - 2390 | |
| 12.51975 - 12.52025 | 2483.5 - 2500 | |
| 12.57675 - 12.57725 | 2655 - 2900 | |
| 13.36 - 13.41 | 3260 - 3267 | |
| 16.42 - 16.423 | 3332 - 3339 | |
| 16.69475 - 16.69525 | 3345.8 - 3358 | |
| 16.80425 - 16.80475 | 3500 - 4400 | |
| 25.5 - 25.67 | 4500 - 5150 | |
| 37.5 - 38.25 | 5350 - 5460 | |
| 73 - 74.6 | 7250 - 7750 | |
| 74.8 - 75.2 | 8025 - 8500 | |
| 108 - 138 | -- | |

* Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

**Test procedure**
ANSI C63.10-2013

**Test settings**
**Peak field strength measurements**
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in table
3. VBW ≥ (3×RBW)
4. Detector = peak
5. Sweep time = auto
6. Trace mode = max hold
7. Allow sweeps to continue until the trace stabilizes

**Table. RBW as a function of frequency**

| Frequency | RBW |
|---|---|
| 9 ㎑ to 150 ㎑ | 200 ㎐ to 300 ㎐ |
| 0.15 ㎒ to 30 ㎒ | 9 ㎑ to 10 ㎑ |
| 30 ㎒ to 1 000 ㎒ | 100 ㎑ to 120 ㎑ |
| > 1 000 ㎒ | 1 ㎒ |

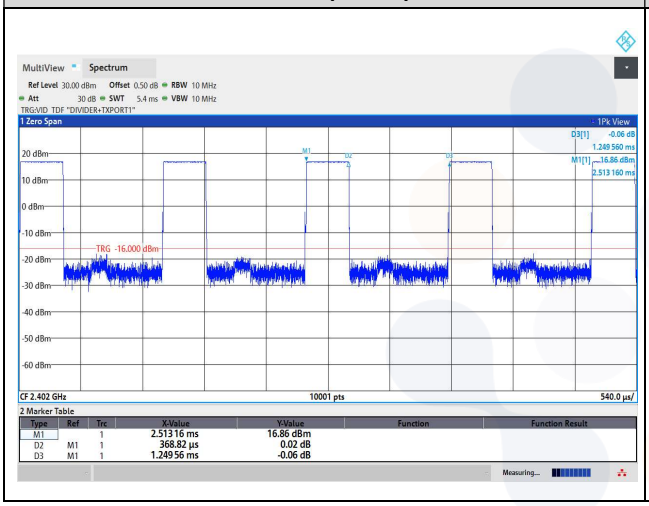
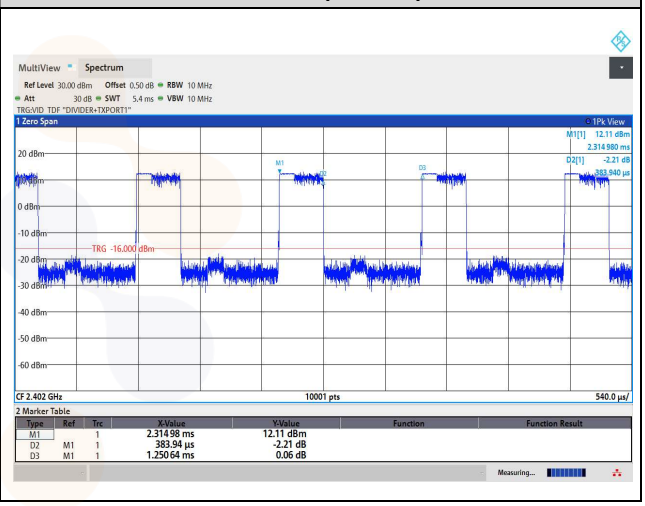
**Average field strength measurements**
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1 ㎒
3. VBW = 1/T ≥ 1 ㎐
4. Averaging type was set to RMS to ensure that video filtering was applied in the power domain
5. Detector = peak
6. Sweep time = auto
7. Trace mode = max hold
8. Trace was allowed to run for at least 50 times(1/duty cycle) traces

**Notes:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 ㎒ for Peak detection and frequency above 1 ㎓. The resolution bandwidth of test receiver/spectrum analyzer is 1 ㎒ and the video bandwidth is 3 ㎑(≥1/T) for Average detection (AV) at frequency above 1 ㎓.

   According to ANSI C63.10-2013, for average measurement during radiation test, Reduced VBW shall be greater than [1/(minimum transmitter on time)] and no less than 1 ㎐.

| Test mode | Period (㎳) | On time (㎳) | Reduced VBW (㎐) |
|---|---|---|---|
| **GFSK** | 1.249 6 | 0.368 8 | 2711.349 7 |
| **8DPSK** | 1.250 6 | 0.383 9 | 2604.573 6 |

| GFSK (DH-1) | 8DPSK (3DH-1) |
|---|---|
|  |  |

2. $f$ <30 ㎒, extrapolation factor of 40 ㏈/decade of distance. $F_d = 40\log(D_m/D_s)$
   $f$ ≥30 ㎒, extrapolation factor of 20 ㏈/decade of distance. $F_d = 20\log(D_m/D_s)$
   Where:
   $F_d$= Distance factor in ㏈
   $D_m$= Measurement distance in meters
   $D_s$= Specification distance in meters
3. Factors(㏈) = Antenna factor(㏈/m) + Cable loss(㏈) + or Amp. gain(㏈) + or $F_d$(㏈)
4. The worst-case emissions are reported however emissions whose levels were not within 20 ㏈ of respective limits were not reported.
5. Average test would be performed if the peak result were greater than the average limit.
6. 1) means restricted band.
7. Below 30 ㎒ frequency range, In order to search for the worst result, all orientations about parallel, perpendicular, and ground-parallel were investigated then reported. when the emission level was higher than 20 ㏈ of the limit, then the following statement shall be made: "No spurious emissions were detected within 20 ㏈ of the limit."
8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X ㎑ resulted in a level of Y ㏈㎶/m, which is equivalent to Y - 51.5 = Z ㏈㎂/m, which has the same margin, W ㏈, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

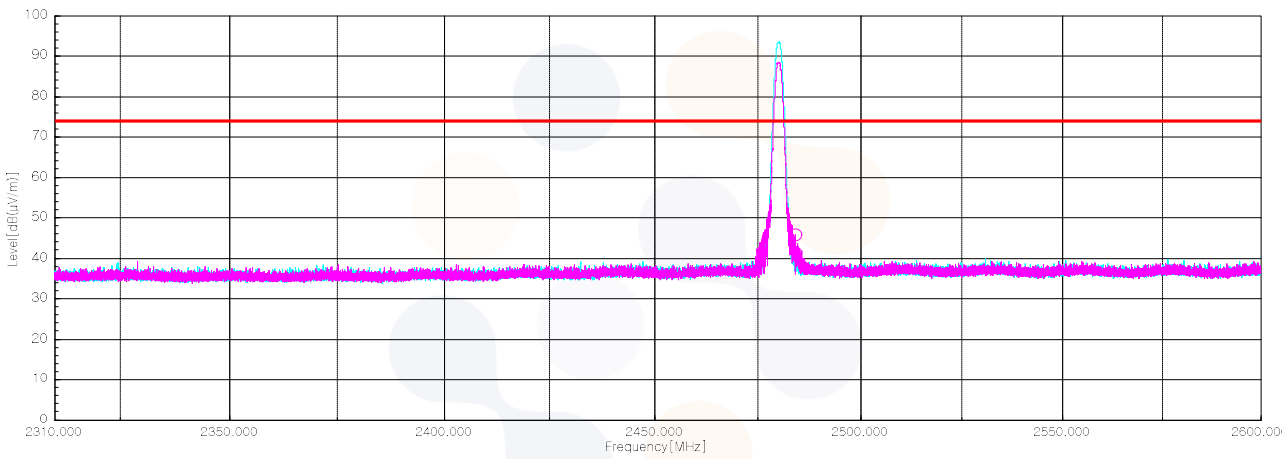
## Spot-check Test results

## GFSK / Band-edge

### Highest Channel

| Frequency | Pol. | Reading | Ant. Factor | Amp. + Cable | DCCF | Result | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| (MHz) | (V/H) | (dB(μV)) | (dB) | (dB) | (dB) | (dB(μV/m)) | (dB(μV/m)) | (dB) |
| **Peak data** | | | | | | | | |
| 2 483.95[1)] | H | 50.60 | 27.84 | -32.59 | - | 45.85 | 74.00 | 28.15 |
| **Average Data** | | | | | | | | |
| No spurious emissions were detected within 20 dB of the limit. | | | | | | | | |

**Horizontal/Vertical for Band-edge**

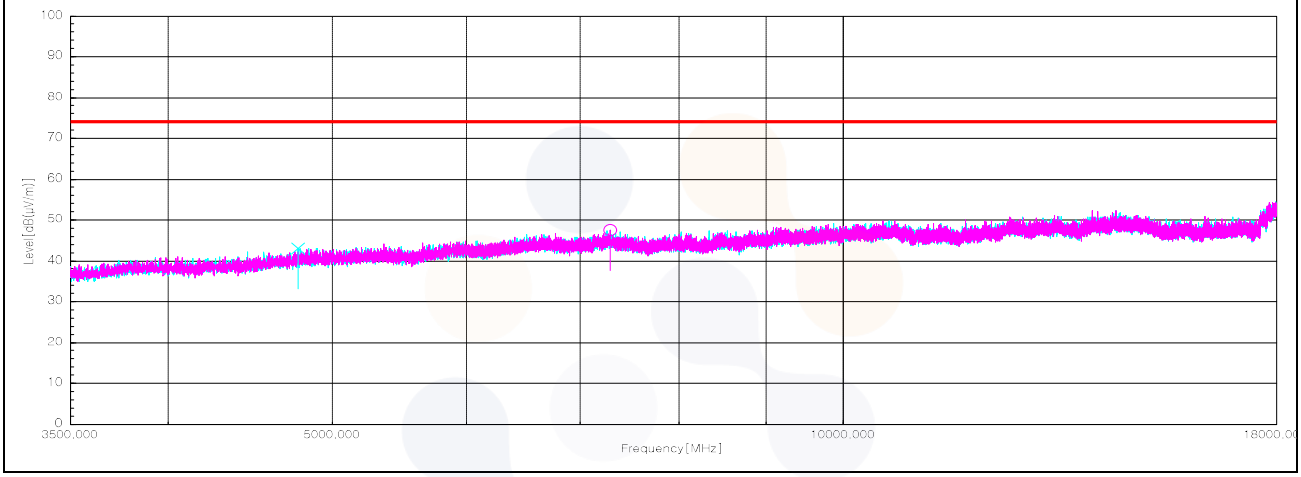


## GFSK / Harmonic

### Lowest Channel

| Frequency | Pol. | Reading | Ant. Factor | Amp. + Cable | DCCF | Result | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| (㎒) | (V/H) | (dB(㎶)) | (dB) | (dB) | (dB) | (dB(㎶/m)) | (dB(㎶/m)) | (dB) |
| **Peak data** | | | | | | | | |
| 7 288.37[1)] | H | 52.00 | 36.98 | -41.17 | - | 47.81 | 74.00 | 26.19 |
| **Average Data** | | | | | | | | |
| No spurious emissions were detected within 20 ㏈ of the limit. | | | | | | | | |

**Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓**

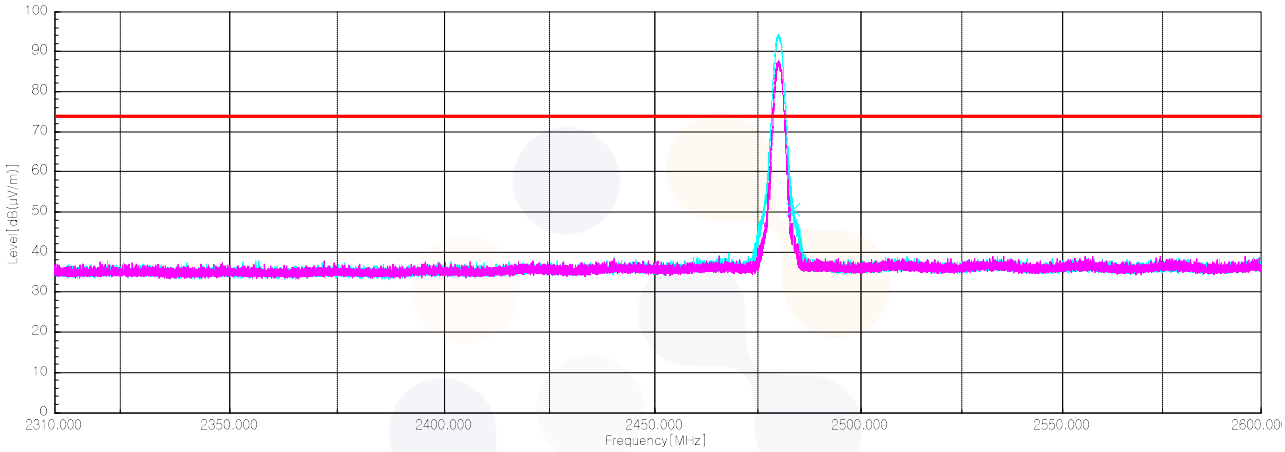


## 8DPSK / Band-edge

### Highest Channel

| Frequency | Pol. | Reading | Ant. Factor | Amp. + Cable | DCCF | Result | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| (㎒) | (V/H) | (dB(㎶)) | (dB) | (dB) | (dB) | (dB(㎶/m)) | (dB(㎶/m)) | (dB) |
| **Peak data** | | | | | | | | |
| 2 483.63[1)] | V | 55.30 | 27.84 | -32.59 | - | 50.55 | 74.00 | 23.45 |
| **Average Data** | | | | | | | | |
| No spurious emissions were detected within 20 ㏈ of the limit. | | | | | | | | |

**Horizontal/Vertical for Band-edge**

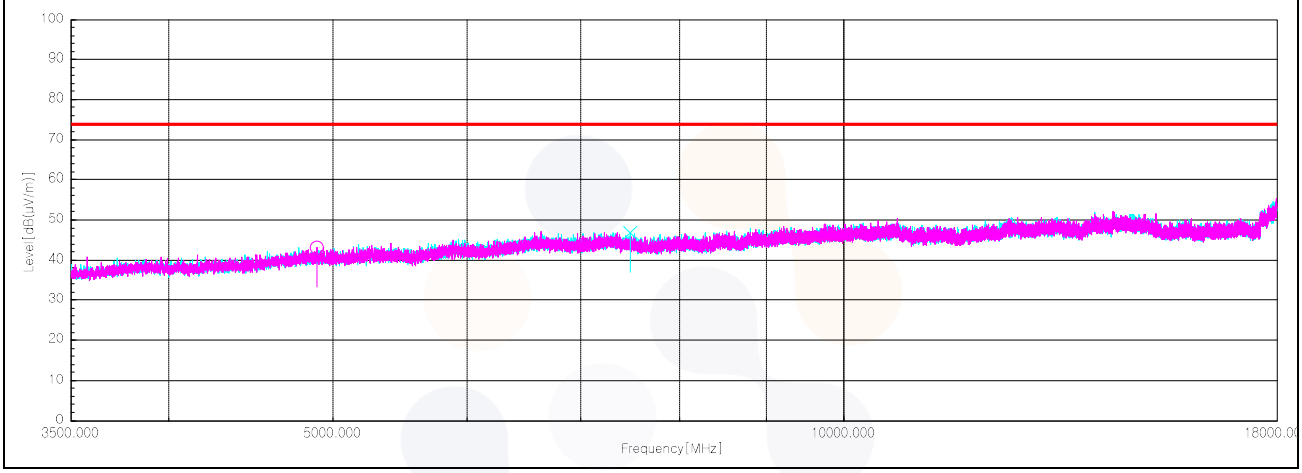


## 8DPSK / Harmonic

### Highest Channel

| Frequency | Pol. | Reading | Ant. Factor | Amp. + Cable | DCCF | Result | Limit | Margin |
|---|---|---|---|---|---|---|---|---|
| (㎒) | (V/H) | (dB(㎶)) | (dB) | (dB) | (dB) | (dB(㎶/m)) | (dB(㎶/m)) | (dB) |
| **Peak data** | | | | | | | | |
| 7 484.60[1)] | V | 52.00 | 36.16 | -41.35 | - | 46.81 | 74.00 | 27.19 |
| **Average Data** | | | | | | | | |
| No spurious emissions were detected within 20 ㏈ of the limit. | | | | | | | | |

**Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓**



## 8. Measurement equipment

| Equipment Name | Manufacturer | Model No. | Serial No. | Next Cal. Date |
|---|---|---|---|---|
| Spectrum Analyzer | R&S | FSV3044 | 101427 | 24.03.28 |
| Attenuator | HUBER+SUHNER | 6610_SK-50-1 /199_NE | ATT10 | 24.04.10 |
| DC Power Supply | AGILENT | E3632A | MY40000265 | 24.04.27* |
| Power Divider | Aeroflex/ Weinschel,Inc | 1580-1 | NX380 | 23.07.12 |
| Bluetooth Tester | TESCOM | TC-3000C | 3000C000427 | 24.04.24* |
| Spectrum Analyzer | R&S | FSV40 | 100988 | 23.07.11 |
| PSA Spectrum Analyzer | Agilent | E4440A | MY46186407 | 24.03.22 |
| Broadband Pre Amplifier | SCHWARZBECK | BBV9718D | 53 | 24.03.17 |
| Low Noise Amplifier | TESTEK | TK-PA18H | 220123-L | 23.12.02 |
| Low Noise Amplifier | TESTEK | TK-PA1840H | 220133-L | 23.12.02 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 2764 | 23.12.06 |
| Horn Antenna | SCHWARZBECK | BBHA9170 | 1267 | 23.12.05 |
| High Pass Filter | Wainwright Instruments GmbH | WHKX12-2805-3000-18000-40SS | SN59 | 23.12.14 |
| Signal Generator | R&S | SMB100A | 176206 | 24.01.19 |

* Tests related to this equipment were progressed after the calibration was completed.

**End of test report**