



FCC LISTED, REGISTRATION  
NUMBER: 2764.01

ISED LISTED REGISTRATION  
NUMBER: 23595-1

Test Report No:  
**4892ERM.006**

### Test report

**USA FCC Part 15.207, 15.209, 15.247, 15.249, 15.31(h), 15.407, 22, 24, 27  
CANADA RSS-Gen, RSS-130, RSS-132, RSS-133, RSS-139, RSS-247**

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (*) Identification of item tested         | Wireless Alarm System with Integrated Home Automation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (*) Trademark                             | Qolsys                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| (*) Model and /or type reference          | IQPanel5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| (*) Derived model not tested              | IQ5 Hub, IQ5 NS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Other identification of the product       | FCC ID: 2AAJXQSIQP5<br>IC ID: 11205A-QSIQP5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (*) Features                              | LTE, BLE, Wi-Fi, Z-Wave, Power G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Manufacturer                              | Qolsys Inc.<br>1919 S Bascom Ave., Suite 600, Campbell, CA 95008,<br>USA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Test method requested, standard           | USA FCC Part 15.247, 06-1-20 Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz.<br>USA FCC Part 15.249 10-1-20 Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, 5725 - 5875 MHz, and 24.0 – 24.25 GHz.<br>USA FCC Part 15.407 03-8-24 Edition: Unlicensed National Information Infrastructure Devices. General technical requirements.<br>USA FCC Part 15.209 06-8-21 Edition: Radiated emission limits; general requirements.<br>FCC Part 22, 24 & 27 (10-1-21 Edition).<br>CANADA RSS-247 Issue 3, August 2023.<br>CANADA RSS-Gen Issue 5 amendment 1 (March 2019).<br>CANADA RSS-130 Issue 2, February 2019.<br>CANADA RSS-132 Issue 3, January 2013.<br>CANADA RSS-133 Issue 6, Amendment 1, January 2018.<br>CANADA RSS-139 Issue 4, September 2022.<br>FCC KDB 971168 D01 v03r01 Power Meas License Digital Systems<br>FCC KDB 558074 D01 15.247 Meas Guidance v05r02. Guidance for Compliance Measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under section §15.247 of the FCC Rules<br>ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices. |
| Summary                                   | IN COMPLIANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Approved by (name / position & signature) | Domingo Galvez<br>EMC&RF Lab Manager                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Date of issue                             | 02-21-2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Report template No                        | FDT08_23<br>(*) "Data provided by the client"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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## Acronyms

| Acronym ID     | Acronym Description                |
|----------------|------------------------------------|
| # of Tx Chains | Number of Transmission Chains      |
| BEL            | Band Edge Left                     |
| BER            | Band Edge Right                    |
| DC             | Duty Cycle                         |
| Freq           | Frequency                          |
| Freq Rng       | Frequency Range                    |
| Lvl Meas Pk    | Level Pre Measurement Peak         |
| MP             | Measurement Point                  |
| MU             | Medium Utilization Factor          |
| Max EIRP       | Maximum Burst EIRP                 |
| Max RMS        | Maximum Burst RMS                  |
| Max Tx Seq     | Maximum Transmission Sequence Time |
| Min Tx Gap     | Minimum Transmission Gap Time      |
| Mod            | Modulation                         |
| Occ Ch BW      | Occupied Channel Bandwidth         |
| PSD            | Power Spectrum Density             |
| Port           | Active Port                        |
| T              | Temperature                        |
| Unwanted Freq  | Unwanted Emissions Frequency       |
| Unwanted Lvl   | Unwanted Emissions Level           |

## Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

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The results presented in this Test Report apply only to the particular item under test established in this document.

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## General conditions

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1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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## Uncertainty

---

Uncertainty (factor k=2) was calculated according to the DEKRA Certification internal document PODT000.

| Test case                  | Frequency (MHz) | U (k=2) | Units |
|----------------------------|-----------------|---------|-------|
| Radiated Spurious Emission | 30-180          | 4.27    | dB    |
|                            | 180-1000        | 3.14    | dB    |
|                            | 1000-18000      | 3.30    | dB    |
|                            | 18000-40000     | 3.49    | dB    |

## Data provided by the client

---

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of IQPanel5 is a wireless alarm system that monitors protected premises and sends alarms via LTE cellular network or Wi-Fi to a compatible alarm receiver at the monitoring station. It receives alarms from PowerG fire/intrusion initiating devices, it has integral siren and touch screen display. It also contains Z-Wave interface for controlling home automation devices. It is powered via an external power adapter rated 12Vdc/1A and it has an internal back-up battery for 24h standby.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

## Usage of samples

Samples undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements, accessories and auxiliary equipment:

| Id   | Control Number | Description               | Manufacturer/ Model | Serial N°           | Date of Reception | Application        |
|------|----------------|---------------------------|---------------------|---------------------|-------------------|--------------------|
| S/01 | 4892/04        | Colocation (TX)(Radiated) | Qolsys/IQPanel5     | QP5017X062447G09149 | 02/03/2025        | Element Under Test |
| S/01 | 4892/09        | Laptop                    | DELL/ Latitude 5400 | 8H6J733             | 12/18/2024        | Accessory          |
| S/01 | 4892/12        | USB to Micro USB          | --                  | --                  | 12/18/2024        | Accessory          |

1. Sample S/01 was used for the test(s): All Radiated tests indicated in appendix A.

## Test sample description

|                                               |                                                    |                                               |                          |                                     |                          |                          |                          |
|-----------------------------------------------|----------------------------------------------------|-----------------------------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| Ports..... :                                  | Port name and description                          |                                               | Cable                    |                                     |                          |                          |                          |
|                                               |                                                    |                                               | Specified length [m]     | Attached during test                | Shielded                 | Coupled to patient       |                          |
|                                               | Ethernet (when EThernet card is populated)         |                                               |                          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                          |
|                                               |                                                    |                                               |                          | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |                          |
|                                               |                                                    |                                               |                          | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |                          |
|                                               |                                                    |                                               |                          | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |                          |
|                                               |                                                    |                                               |                          | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |                          |
|                                               |                                                    |                                               |                          | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |                          |
|                                               |                                                    |                                               |                          | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |                          |
| Supplementary information to the ports..... : |                                                    | No data provided                              |                          |                                     |                          |                          |                          |
| Rated power supply .....                      | Voltage and Frequency                              |                                               | Reference poles          |                                     |                          |                          |                          |
|                                               |                                                    |                                               | L1                       | L2                                  | L3                       | N                        | PE                       |
|                                               | <input checked="" type="checkbox"/>                | AC: 120Vac/60Hz/0.68A                         | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                               | <input type="checkbox"/>                           | AC:                                           | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                               | <input checked="" type="checkbox"/>                | DC: 12V/1A external adapter (part of the EUT) |                          |                                     |                          |                          |                          |
| <input checked="" type="checkbox"/>           | DC: rechargeable 3.7V, 3000mAh lithium-ion battery |                                               |                          |                                     |                          |                          |                          |
| Rated Power .....                             | 12W                                                |                                               |                          |                                     |                          |                          |                          |
| Clock frequencies.....                        | 24MHz, 39MHz, 38.4 MHz                             |                                               |                          |                                     |                          |                          |                          |
| Other parameters .....                        | No Data Provided                                   |                                               |                          |                                     |                          |                          |                          |
| Software version .....                        | 5.0.1                                              |                                               |                          |                                     |                          |                          |                          |
| Hardware version .....                        | QB9501 Rev. OA                                     |                                               |                          |                                     |                          |                          |                          |
| Dimensions in cm (W x H x D) .....            | 15.5 x 19.1 x 2.6                                  |                                               |                          |                                     |                          |                          |                          |
| Mounting position .....                       | <input checked="" type="checkbox"/>                | Table top equipment                           |                          |                                     |                          |                          |                          |
|                                               | <input checked="" type="checkbox"/>                | Wall/Ceiling mounted equipment                |                          |                                     |                          |                          |                          |
|                                               | <input type="checkbox"/>                           | Floor standing equipment                      |                          |                                     |                          |                          |                          |
|                                               | <input type="checkbox"/>                           | Hand-held equipment                           |                          |                                     |                          |                          |                          |
|                                               | <input type="checkbox"/>                           | Other:                                        |                          |                                     |                          |                          |                          |

|                                                                                      |                                                      |                                            |              |
|--------------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------|--------------|
| Modules/parts.....:                                                                  | Module/parts of test item                            | Type                                       | Manufacturer |
|                                                                                      | IQPanel5 Control Panel                               | Panel                                      | Qolsys       |
|                                                                                      | AC/DC Power adapter (use for conducted EMC)          | Power Supply                               | Sure-Power   |
|                                                                                      | Ethernet card (optional) (use for EMC testing)       | Card                                       | Qolsys       |
|                                                                                      | SRF319 security receiver card (optional)(use for EMC | Card                                       | Qolsys       |
| Accessories (not part of the test item) .....                                        | Description                                          | Type                                       | Manufacturer |
|                                                                                      | No data provided                                     |                                            |              |
| Documents as provided by the applicant .....                                         | Description                                          | File name                                  | Issue date   |
|                                                                                      | Block Diagram and Operational description            | FDT30_18 Declaration Equipment Data signed | 01/28/2025   |
|                                                                                      | Schematic/Parts Lists/PCB                            |                                            |              |
|                                                                                      | Internal/External photos                             |                                            |              |
|                                                                                      | Manual/Labels                                        |                                            |              |
|                                                                                      |                                                      |                                            |              |
| <b>Copy of marking plate:</b>                                                        |                                                      |                                            |              |
|  |                                                      |                                            |              |

## Identification of the client

Qolsys Inc.,  
1919 S Bascom Ave., Suite 600, Campbell, CA 95008,  
USA

## Testing period and place

|                      |                          |
|----------------------|--------------------------|
| <b>Test Location</b> | DEKRA Certification Inc. |
| <b>Date (start)</b>  | 02-03-2025               |
| <b>Date (finish)</b> | 02-04-2025               |

## Document history

| Report number | Date       | Description   |
|---------------|------------|---------------|
| 4892ERM.006   | 02-21-2025 | First release |

## Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

|                   |                                     |
|-------------------|-------------------------------------|
| Temperature       | Min. = 15 °C<br>Max. = 35 °C        |
| Relative humidity | Min. = 30 %<br>Max. = 75 %          |
| Air pressure      | Min. = 860 mbar<br>Max. = 1060 mbar |

In the semi-anechoic chamber, the following limits were not exceeded during the test.

|                   |                                     |
|-------------------|-------------------------------------|
| Temperature       | Min. = 15 °C<br>Max. = 35 °C        |
| Relative humidity | Min. = 30 %<br>Max. = 75 %          |
| Air pressure      | Min. = 860 mbar<br>Max. = 1060 mbar |

In the chamber for conducted measurements, the following limits were not exceeded during the test:

|                   |                                     |
|-------------------|-------------------------------------|
| Temperature       | Min. = 15 °C<br>Max. = 35 °C        |
| Relative humidity | Min. = 30 %<br>Max. = 60 %          |
| Air pressure      | Min. = 860 mbar<br>Max. = 1060 mbar |

## Remarks and comments

The tests have been performed by the technical personnel: Madhava Gooduru, and Koji Nishimoto.

## Testing verdicts

|                |     |
|----------------|-----|
| Fail           | F   |
| Not applicable | N/A |
| Not measured   | N/M |
| Pass           | P   |

## Summary

| FCC PART 15 PARAGRAPH / RSS-247 (Bluetooth LE & Power G)                                  |         |         |
|-------------------------------------------------------------------------------------------|---------|---------|
| Requirement – Test case                                                                   | Verdict | Remark  |
| FCC 15.247 (a) (1) / RSS-247 5.1 (b) - 20 dB Bandwidth                                    | N/M     | Refer 1 |
| FCC 2.1049 / RSS-GEN 6.7 - 99dBw Occupied Channel Bandwidth 99%                           | N/M     | Refer 1 |
| FCC 15.247 (a) (1) / RSS-247 5.1 (b) - Carrier Frequency Separation                       | N/M     | Refer 1 |
| FCC 15.247 (a) (1) (iii) / RSS-247 5.1 (d) - Time of Occupancy (Dwell Time)               | N/M     | Refer 1 |
| FCC 15.247 (a) (1) (iii) / RSS-247 5.1 (d) - Number of hopping channels                   | N/M     | Refer 1 |
| FCC 15.247 (b) (3) / RSS-247 5.4 (d) - Maximum Peak Conducted output power & Antenna gain | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.5 - Band-edge emissions compliance (Transmitter) - Conducted   | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.2 (b) - Power Spectral Density                                 | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.5 - Emissions compliance (Transmitter) - Conducted             | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.5 - Emissions compliance (Transmitter) - Radiated              | Pass    | N/A     |
| <u>Supplementary information and remarks:</u>                                             |         |         |
| 1. Only multi-transmitter radiated spurious emission test was requested.                  |         |         |

| FCC PART 15 PARAGRAPH / RSS-247 (Z-Wave (long range) & Wi-Fi 2.4GHz)                      |         |         |
|-------------------------------------------------------------------------------------------|---------|---------|
| Requirement – Test case                                                                   | Verdict | Remark  |
| FCC 2.1049 / RSS-GEN 6.7 - 99dBw Occupied Channel Bandwidth 99%                           | N/M     | Refer 1 |
| FCC 15.247 (a) (2) / RSS-247 5.2 (a) - 6dB Bandwidth                                      | N/M     | Refer 1 |
| FCC 15.247 (b) (3) / RSS-247 5.4 (d) - Maximum Peak Conducted output power & Antenna gain | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.5 - Band-edge emissions compliance (Transmitter) - Conducted   | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.2 (b) - Power Spectral Density                                 | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.5 - Emissions compliance (Transmitter) - Conducted             | N/M     | Refer 1 |
| FCC 15.247 (d) / RSS-247 5.5 - Emissions compliance (Transmitter) - Radiated              | Pass    | N/A     |
| <u>Supplementary information and remarks:</u>                                             |         |         |
| 1. Only multi-transmitter radiated spurious emission test was requested.                  |         |         |

| FCC PART 15 PARAGRAPH / RSS-247 (Wi-Fi 5GHz)                                                                              |         |         |
|---------------------------------------------------------------------------------------------------------------------------|---------|---------|
| Requirement – Test case                                                                                                   | Verdict | Remark  |
| FCC 15.407 (a) / RSS-247 6.2 - Power Limits. Maximum Output Power                                                         | N/M     | Refer 1 |
| FCC 15.407 (a) / RSS-247 6.2 - Maximum Power Spectral Density                                                             | N/M     | Refer 1 |
| FCC 2.1049 / RSS-Gen 6.7 - 99% Occupied Bandwidth                                                                         | N/M     | Refer 1 |
| FCC 15.403 / RSS-Gen 6.7 - 26 dB Emission Bandwidth                                                                       | N/M     | Refer 1 |
| FCC 15.407 (b) / RSS-247 6.2 - Band-edge Conducted Emissions                                                              | N/M     | Refer 1 |
| FCC 15.407 (e) / RSS 247 6.2.4.1 - 6 dB Emission Bandwidth                                                                | N/M     | Refer 1 |
| FCC 15.407 (b), 15.205 & 15.209 / RSS-Gen 8.9 & 8.10 - Undesirable radiated emissions                                     | Pass    | N/A     |
| <u>Supplementary information and remarks:</u><br>1. Only multi-transmitter radiated spurious emission test was requested. |         |         |

| FCC PART 22/ IC RSS-132 PARAGRAPH - Public Mobile Services                                                                |         |         |
|---------------------------------------------------------------------------------------------------------------------------|---------|---------|
| Requirement – Test case                                                                                                   | Verdict | Remark  |
| FCC 2.1046 & 22.913/ RSS-132 Clause 5.4 RF Output power                                                                   | N/M     | Refer 1 |
| FCC 2.1047 /RSS-132 Clause 5.2 Modulation characteristics                                                                 | N/M     | Refer 1 |
| FCC 2.1055 & 22.355/ RSS-132 Clause 5.3 Frequency stability                                                               | N/M     | Refer 1 |
| FCC 2.1049 Occupied Bandwidth                                                                                             | N/M     | Refer 1 |
| FCC 2.1051 & 22.917/ RSS-132 Clause 5.5 Spurious emissions at antenna terminals                                           | N/M     | Refer 1 |
| FCC 22.917/ RSS-132 Clause 5.5 Radiated Emissions                                                                         | Pass    | N/A     |
| <u>Supplementary information and remarks:</u><br>1. Only multi-transmitter radiated spurious emission test was requested. |         |         |

| FCC PART 24/ IC RSS-133 PARAGRAPH - Personal Communications Services                                                      |         |         |
|---------------------------------------------------------------------------------------------------------------------------|---------|---------|
| Requirement – Test case                                                                                                   | Verdict | Remark  |
| FCC 24.232/ RSS-133 Clause 6.4 RF Output power                                                                            | N/M     | Refer 1 |
| FCC 2.1047/ RSS-133 Clause 6.2 Modulation characteristics                                                                 | N/M     | Refer 1 |
| FCC 24.235/ RSS-133 Clause 6.3 Frequency stability                                                                        | N/M     | Refer 1 |
| FCC 2.1049 Occupied Bandwidth                                                                                             | N/M     | Refer 1 |
| FCC 24.238/ RSS-133 Clause 6.5 Spurious emissions at antenna terminals                                                    | N/M     | Refer 1 |
| FCC 24.238/ RSS-133 Clause 6.5 Radiated Emissions                                                                         | Pass    | N/A     |
| <u>Supplementary information and remarks:</u><br>1. Only multi-transmitter radiated spurious emission test was requested. |         |         |

| FCC PART 27/ IC RSS-139/ IC RSS-130 PARAGRAPH – Miscellaneous Wireless Communications Services |         |         |
|------------------------------------------------------------------------------------------------|---------|---------|
| Requirement – Test case                                                                        | Verdict | Remark  |
| FCC 27.50/ RSS-139 Clause 6.5/ RSS-130 Clause 4.4 RF Output power                              | N/M     | Refer 1 |
| FCC 2.1047/ RSS-139 Clause 6.2/ RSS-130 Clause 4.1 Modulation characteristics                  | N/M     | Refer 1 |
| FCC 27.54/ RSS-139 Clause 6.4/ RSS-130 Clause 4.3 Frequency stability                          | N/M     | Refer 1 |
| FCC 2.1049 Occupied Bandwidth                                                                  | N/M     | Refer 1 |
| FCC 27.53/ RSS-139 Clause 6.6/ RSS-130 Clause 4.6 Spurious emissions at antenna terminals      | N/M     | Refer 1 |
| FCC 27.53/ RSS-139 Clause 6.6/ RSS-130 Clause 4.6 Radiated Emissions                           | Pass    | N/A     |
| Supplementary information and remarks:                                                         |         |         |
| 1. Only multi-transmitter radiated spurious emission test was requested.                       |         |         |

## List of equipment used during the test

### Radiated Measurements

| CONTROL NUMBER | DESCRIPTION                                 | MANUFACTURER    | MODEL          | LAST CALIBRATION | NEXT CALIBRATION |
|----------------|---------------------------------------------|-----------------|----------------|------------------|------------------|
| 981            | RF pre-amplifier                            | Bonn Elektronik | BLMA0118-2A    | 2024-02-21       | 2026-02-21       |
| 1014           | FSV40 Signal Analyzer 40GHz                 | Rohde & Schwarz | FSV40          | 2024-10-04       | 2026-10-04       |
| 1056           | 3116C Double-Ridged Waveguide Horn Antennas | ETS Lindgren    | 3116C          | 2024-07-01       | 2027-07-01       |
| 1057           | Double-ridge Waveguide Horn antenna         | ETS Lindgren    | 3115           | 2023-07-18       | 2026-07-18       |
| 1064           | Biconical Log antenna                       | ETS Lindgren    | 3142E          | 2021-12-16       | 2025-2-16        |
| 1108           | Ethernet SNMP Thermometer- CR Room          | HW Group        | HWg-STE Plain  | 2022-10-18       | 2025-10-18       |
| 1111           | Ethernet SNMP T Thermometer                 | HW Group        | HWg-STE Plain  | 2022-10-18       | 2025-10-18       |
| 1179           | Semi anechoic Absorber Lined Chamber        | Frankonia       | SAC 3 plus "L" | N/A              | N/A              |
| 1314           | Wireless Measurement Software R&S EMC32     | Rohde & Schwarz | N/A            | N/A              | N/A              |
| 1374           | EMI Test Receiver                           | Rohde & Schwarz | ESR7           | 2024-06-05       | 2026-06-05       |

## Appendix A: FCC Multi-transmitters Test Results

## Appendix A Content

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|                                                             |    |
|-------------------------------------------------------------|----|
| PRODUCT INFORMATION .....                                   | 14 |
| TEST CONDITIONS .....                                       | 15 |
| TEST A.1: EMISSION LIMITATIONS RADIATED (TRANSMITTER) ..... | 16 |

## PRODUCT INFORMATION

The following information is provided by the supplier

| Information                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Modulation                                 | Cellular LTE: QPSK, 16QAM<br>BLE 2.4GHz: GFSK<br>PowerG: GFSK<br>Z-Wave (normal): FSK, GFSK<br>Z-Wave (long range): FSK, GFSK<br>Wi-Fi 2.4GHz: DSSS, OFDM, MIMO-OFDM<br>Wi-Fi 5GHz: DSSS, OFDM, MIMO-OFDM                                                                                                                                                                                                                                                                      |
| Operation mode 1: Single Antenna Equipment |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| - Operating Frequency Range                | Cellular LTE: 2,4,5,7,12,13,14,25,26,66,71<br>BLE 2.4GHz: 2400 - 2483.5 MHz<br>PowerG: 912.75 - 919.107MHz<br>Z-Wave (normal): 908.4MHz, 916MHz<br>Z-Wave (long range): 912MHz, 920MHz<br>Wi-Fi 2.4GHz: 2402 - 2483.5 MHz<br>Wi-Fi 5GHz: 5150 - 5250 MHz, 5250 – 5350 MHz, 5470 – 5725 MHz, 5725 – 5875 MHz                                                                                                                                                                    |
| - RF Output Power                          | Cellular LTE: +23dBm +/-2dB<br>BLE 2.4GHz: +7dBm +/-3dB<br>PowerG: +14dBm<br>Z-Wave (normal): +14dBm<br>Z-Wave (long range): +20dBm<br>Wi-Fi 2.4GHz: +16.5dBm +/-3dB<br>Wi-Fi 5GHz: +15.5dBm +/-3dB                                                                                                                                                                                                                                                                            |
| Antenna type                               | chip antenna (ANT3, Vigorconn P/N 3.N101.0770) on the main board                                                                                                                                                                                                                                                                                                                                                                                                               |
| Antenna gain                               | Cellular LTE:<br>Band 71: 617-698 MHz -1.1 dBi<br>Band 12: 699-746 MHz -0.9 dBi<br>Band 13: 746-787 MHz +1.5 dBi<br>Band 14: 758-798 MHz +2.4 dBi<br>Bands 5, 26: 814-894 MHz +1.7 dBi<br>Bands 4, 66: 1710-1780 MHz +4.1 dBi<br>Bands 2, 25: 1850-1995 MHz +3.0 dBi<br>Band 7: 2500-2690 MHz +0.4 dBi<br>BLE 2.4GHz: 3dBi<br>PowerG: 0.41dBi<br>Z-Wave (normal): -2.16dBi (908.4MHz), -0.66dBi (916MHz)<br>Z-Wave (long range): N/A<br>Wi-Fi 2.4GHz: 3dBi<br>Wi-Fi 5GHz: 4dBi |
| Nominal Voltage                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| - Supply Voltage                           | 12 Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| - Type of power source                     | DC Voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Equipment type                             | Cellular LTE, BLE 2.4GHz, PowerG, Z-wave (long range), Wi-Fi 2.4 GHz, Wi-Fi 5 GHz                                                                                                                                                                                                                                                                                                                                                                                              |

## TEST CONDITIONS

| TEST CONDITIONS                                                                                                                                                                                                                                                                                | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------|------------|------------|------|--------------|--------|----|------|--------|---------------------|-----|-----|------|----|--------|--------|-------|------|----|---------------|------|----|------|---------|
| TC/01 <sup>(1)</sup>                                                                                                                                                                                                                                                                           | <u>Power supply (V):</u><br>12 Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | <u>Test Frequencies for Radiated tests:</u>                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | <table><tr><th>Technology</th><th>Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>Cellular LTE</td><td>1732.5</td><td>10</td><td>QPSK</td><td>Band 4</td></tr><tr><td>Z-Wave (long range)</td><td>920</td><td>1.5</td><td>GFSK</td><td>--</td></tr><tr><td>PowerG</td><td>919.12</td><td>0.118</td><td>GFSK</td><td>--</td></tr><tr><td>Wi-Fi 2.4 GHz</td><td>2412</td><td>20</td><td>OFDM</td><td>g mode</td></tr></table> | Technology             | Tested Frequency (MHz) | BW (MHz)   | Modulation | Mode | Cellular LTE | 1732.5 | 10 | QPSK | Band 4 | Z-Wave (long range) | 920 | 1.5 | GFSK | -- | PowerG | 919.12 | 0.118 | GFSK | -- | Wi-Fi 2.4 GHz | 2412 | 20 | OFDM | g mode  |
|                                                                                                                                                                                                                                                                                                | Technology                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Tested Frequency (MHz) | BW (MHz)               | Modulation | Mode       |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | Cellular LTE                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1732.5                 | 10                     | QPSK       | Band 4     |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | Z-Wave (long range)                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 920                    | 1.5                    | GFSK       | --         |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | PowerG                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 919.12                 | 0.118                  | GFSK       | --         |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| Wi-Fi 2.4 GHz                                                                                                                                                                                                                                                                                  | 2412                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20                     | OFDM                   | g mode     |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| The test was performed with the equipment transmitting with Cellular LTE, Z-wave, PowerG and Wi-Fi 2.4GHz radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| TEST CONDITIONS                                                                                                                                                                                                                                                                                | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| TC/02 <sup>(1)</sup>                                                                                                                                                                                                                                                                           | <u>Power supply (V):</u><br>12 Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | <u>Test Frequencies for Radiated tests:</u>                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | <table><tr><th>Technology</th><th>Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>Cellular LTE</td><td>1732.5</td><td>10</td><td>QPSK</td><td>Band 4</td></tr><tr><td>Z-Wave (long range)</td><td>920</td><td>1.5</td><td>GFSK</td><td>--</td></tr><tr><td>PowerG</td><td>919.12</td><td>0.118</td><td>GFSK</td><td>--</td></tr><tr><td>BTLE</td><td>2440</td><td>1</td><td>GFSK</td><td>1 mbps</td></tr></table>           | Technology             | Tested Frequency (MHz) | BW (MHz)   | Modulation | Mode | Cellular LTE | 1732.5 | 10 | QPSK | Band 4 | Z-Wave (long range) | 920 | 1.5 | GFSK | -- | PowerG | 919.12 | 0.118 | GFSK | -- | BTLE          | 2440 | 1  | GFSK | 1 mbps  |
|                                                                                                                                                                                                                                                                                                | Technology                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Tested Frequency (MHz) | BW (MHz)               | Modulation | Mode       |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | Cellular LTE                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1732.5                 | 10                     | QPSK       | Band 4     |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | Z-Wave (long range)                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 920                    | 1.5                    | GFSK       | --         |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | PowerG                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 919.12                 | 0.118                  | GFSK       | --         |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| BTLE                                                                                                                                                                                                                                                                                           | 2440                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1                      | GFSK                   | 1 mbps     |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| The test was performed with the equipment transmitting with Cellular LTE, Z-wave, PowerG and BTLE radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| TEST CONDITIONS                                                                                                                                                                                                                                                                                | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| TC/03 <sup>(1)</sup>                                                                                                                                                                                                                                                                           | <u>Power supply (V):</u><br>12 Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | <u>Test Frequencies for Radiated tests:</u>                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | <table><tr><th>Technology</th><th>Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>Cellular LTE</td><td>1732.5</td><td>10</td><td>QPSK</td><td>Band 4</td></tr><tr><td>Z-Wave (long range)</td><td>920</td><td>1.5</td><td>GFSK</td><td>--</td></tr><tr><td>PowerG</td><td>919.12</td><td>0.118</td><td>GFSK</td><td>--</td></tr><tr><td>Wi-Fi 5 GHz</td><td>5755</td><td>40</td><td>OFDM</td><td>ac mode</td></tr></table>  | Technology             | Tested Frequency (MHz) | BW (MHz)   | Modulation | Mode | Cellular LTE | 1732.5 | 10 | QPSK | Band 4 | Z-Wave (long range) | 920 | 1.5 | GFSK | -- | PowerG | 919.12 | 0.118 | GFSK | -- | Wi-Fi 5 GHz   | 5755 | 40 | OFDM | ac mode |
|                                                                                                                                                                                                                                                                                                | Technology                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Tested Frequency (MHz) | BW (MHz)               | Modulation | Mode       |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | Cellular LTE                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1732.5                 | 10                     | QPSK       | Band 4     |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | Z-Wave (long range)                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 920                    | 1.5                    | GFSK       | --         |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                | PowerG                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 919.12                 | 0.118                  | GFSK       | --         |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| Wi-Fi 5 GHz                                                                                                                                                                                                                                                                                    | 5755                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 40                     | OFDM                   | ac mode    |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
| The test was performed with the equipment transmitting with Cellular, Z-wave, PowerG and Wi-Fi 5GHz radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |
|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                        |            |            |      |              |        |    |      |        |                     |     |     |      |    |        |        |       |      |    |               |      |    |      |         |

Note (1): The following tables and plots show the results for the worst case in Cellular LTE, Z-Wave (long range), Power G, BTLE, Wi-Fi 2.4 GHz, and Wi-Fi 5 GHz

## TEST A.1: EMISSION LIMITATIONS RADIATED (TRANSMITTER)

|                |                   |                                                                                                                                                                                                                                        |
|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LIMITS:</b> | Product standard: | USA FCC Part 15.207, 15.209, 15.247, 15.249, 15.407, Part 22,24,27<br>CANADA RSS-247, RSS-132,133,139,130, RSS-Gen                                                                                                                     |
|                | Test standard:    | Part 15 Subpart C §15.247 (d), 15.407 (b), FCC §2.1053 and §22.917,<br>FCC §2.1046 and §24.232, FCC §2.1046 and §27.50 and RSS-Gen<br>8.9 and 8.10, RSS-132 Clause 5.5, RSS-133 Clause 6.4, RSS-139<br>Clause 6.6, RSS-130 Clause 4.6. |

### LIMITS

According to specification. the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. P in watts.

At  $P_o$  transmitting power. the specified minimum attenuation becomes  $43+10\log (P_o)$ . and the level in dBm relative  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in mwatts}) - 30] = -13 \text{ dBm}$$

### TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz (Double ridge horn antenna), and 1m for the frequency range 18 GHz- 40 GHz (Double ridge horn antenna).

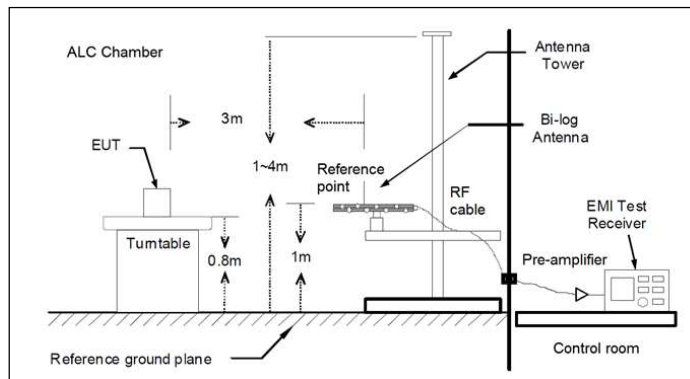
For radiated emissions in the range 18 - 40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

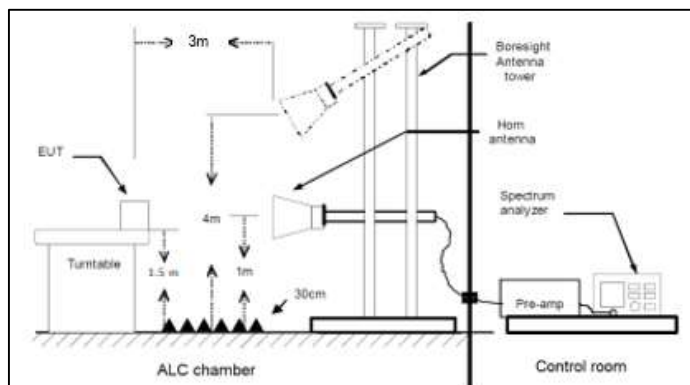
Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

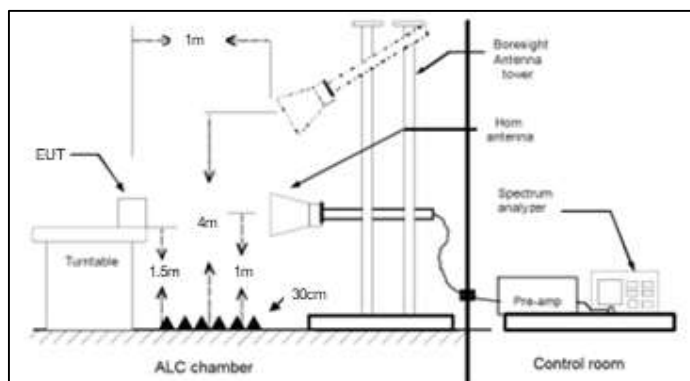
## TEST SETUP (CONT.)



Radiated measurements Setup  $f < 1$  GHz

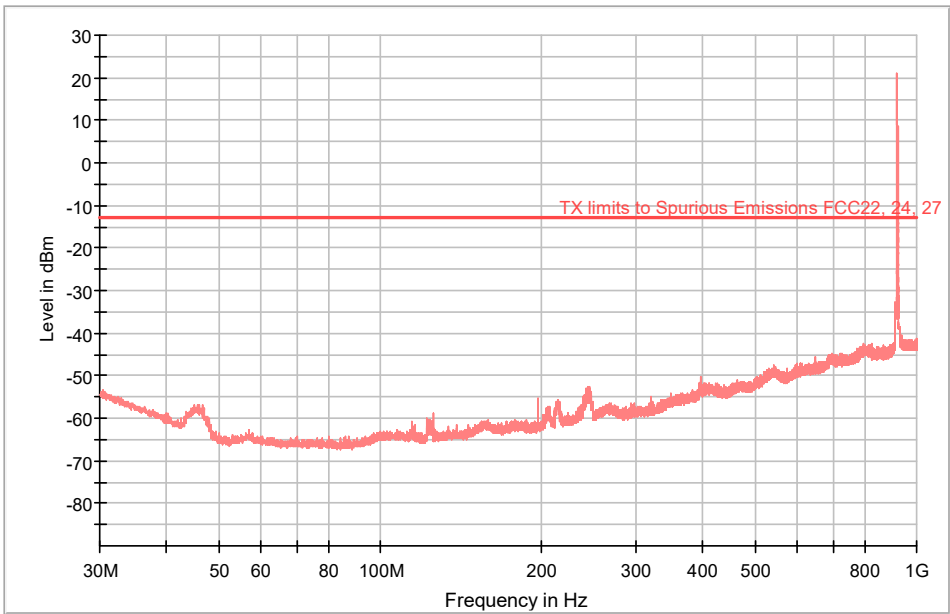


Radiated measurements setup  $1 < f < 18$  GHz



Radiated measurements setup  $f > 18$  GHz

|                          |               |
|--------------------------|---------------|
| TESTED SAMPLES:          | S/01          |
| TESTED CONDITIONS MODES: | TC/01         |
| TEST RESULTS :           | 0.030 - 1 GHz |
| VERDICT:                 | PASS          |

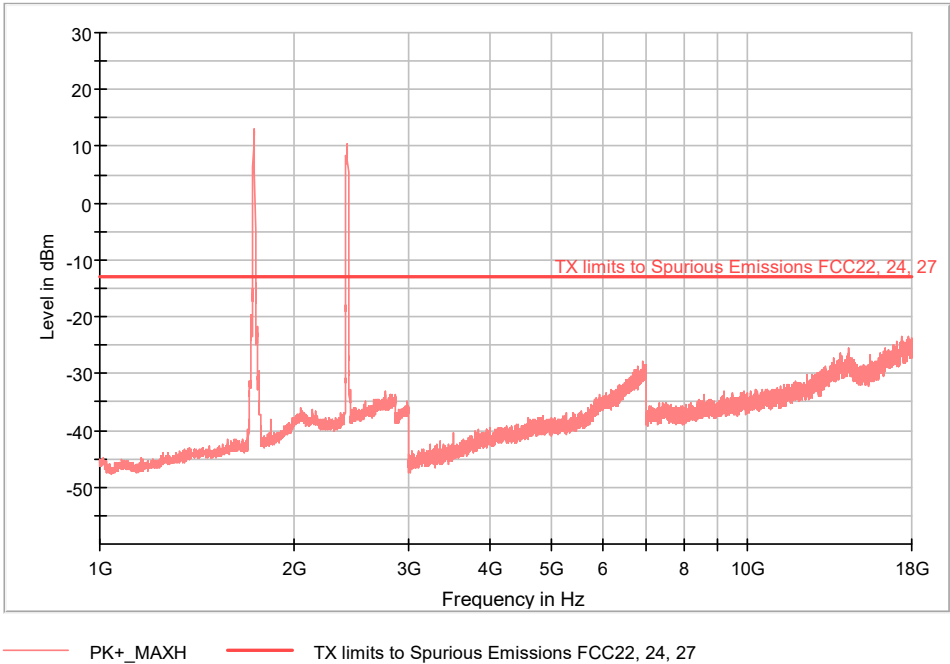


PK+\_MAXH TX limits to Spurious Emissions FCC22, 24, 27

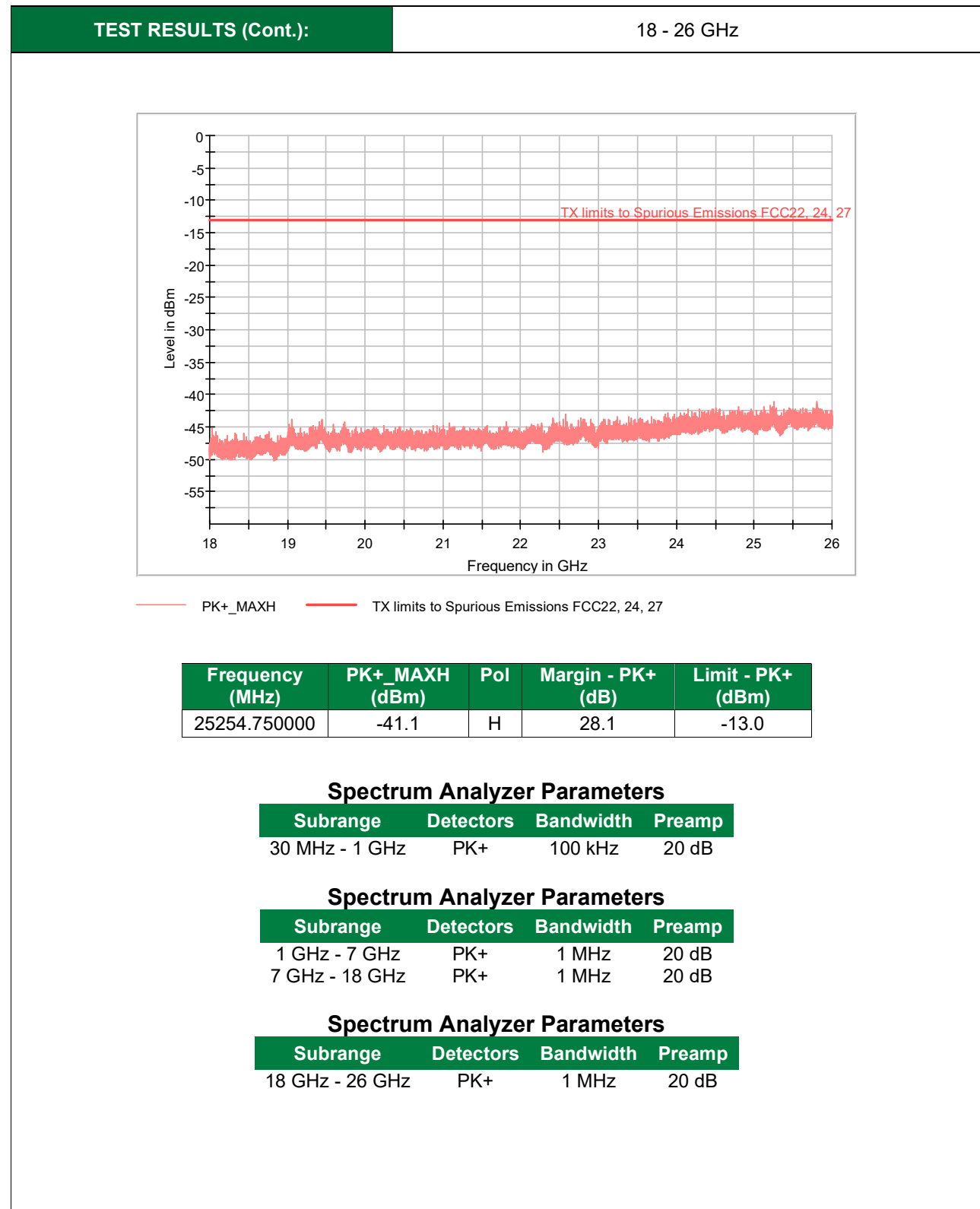
| Frequency (MHz) | PK+_MAXH (dBm) | Pol | Margin - PK+ (dB) | Limit - PK+ (dBm) | Comment                         |
|-----------------|----------------|-----|-------------------|-------------------|---------------------------------|
| 45.908000       | -56.9          | V   | 43.9              | -13.0             |                                 |
| 197.454333      | -55.4          | V   | 42.4              | -13.0             |                                 |
| 243.400000      | -52.6          | V   | 39.6              | -13.0             |                                 |
| 394.881667      | -50.1          | V   | 37.1              | -13.0             |                                 |
| 919.716333      | 20.8           | V   | ---               | ---               | PowerG Fundamental              |
| 920.169000      | 20.7           | V   | ---               | ---               | Z-Wave (long range) Fundamental |

TEST RESULTS (Cont.):

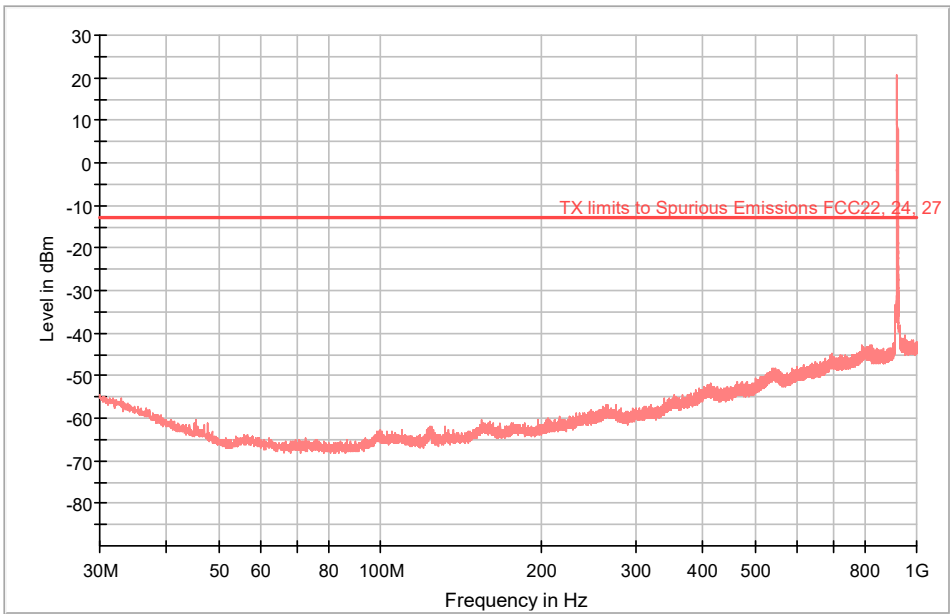
1 - 18 GHz



| Frequency (MHz) | PK+_MAXH (dBm) | PoI | Margin - PK+ (dB) | Limit - PK+ (dBm) | Comment                  |
|-----------------|----------------|-----|-------------------|-------------------|--------------------------|
| 1731.500000     | 12.9           | V   | ---               | -13.0             | Fundamental LTE-UL       |
| 1838.000000     | -38.2          | H   | 25.2              | -13.0             |                          |
| 2043.000000     | -36.1          | V   | 23.1              | -13.0             |                          |
| 2133.000000     | -36.3          | H   | 23.3              | -13.0             | Fundamental LTE-DL       |
| 2413.500000     | 10.5           | H   | ---               | -13.0             | Fundamental Wi-Fi 2.4GHz |
| 14404.500000    | -25.4          | V   | 12.4              | -13.0             |                          |

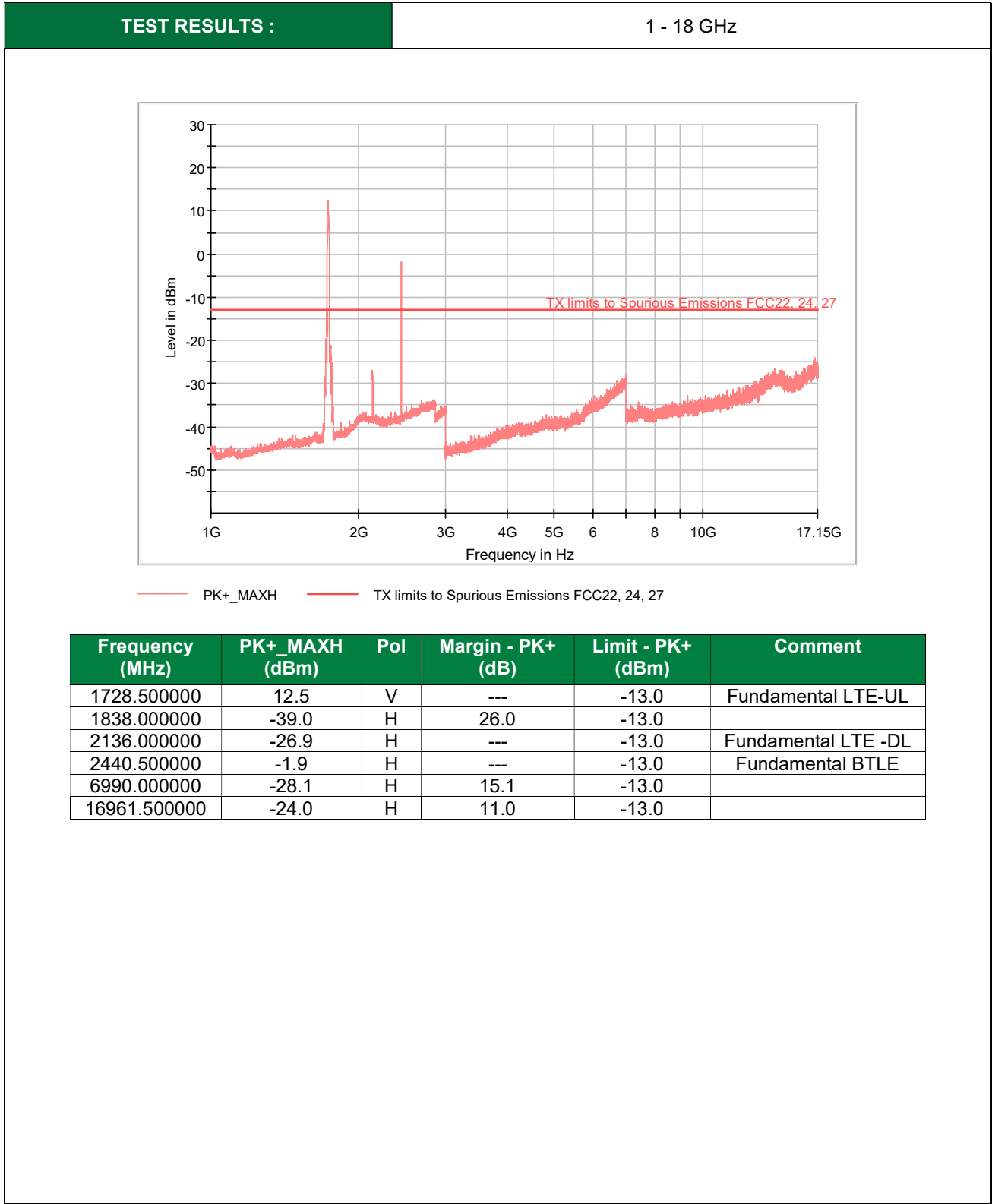


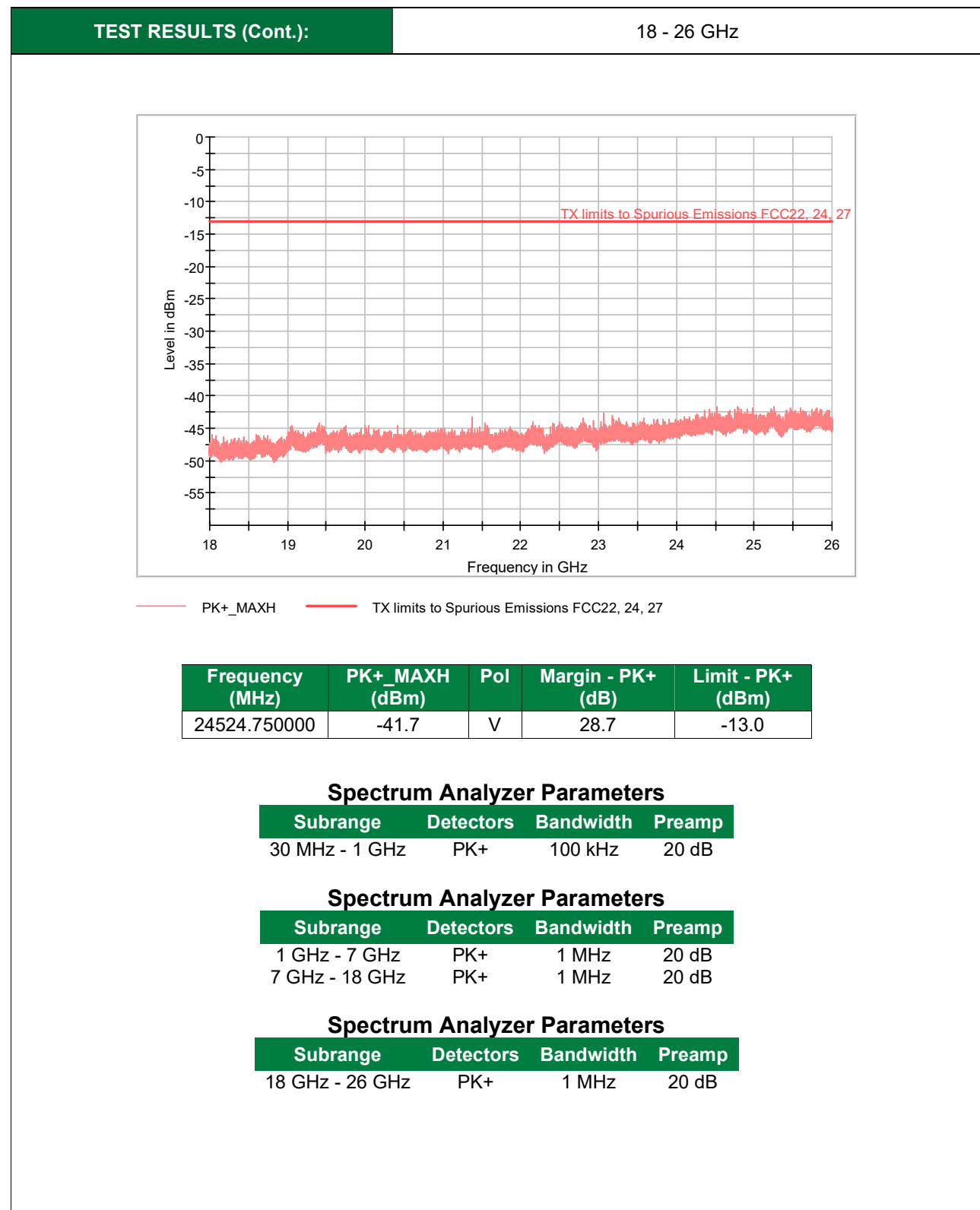
|                          |               |
|--------------------------|---------------|
| TESTED SAMPLES:          | S/01          |
| TESTED CONDITIONS MODES: | TC/02         |
| TEST RESULTS :           | 0.030 - 1 GHz |
| VERDICT:                 | PASS          |



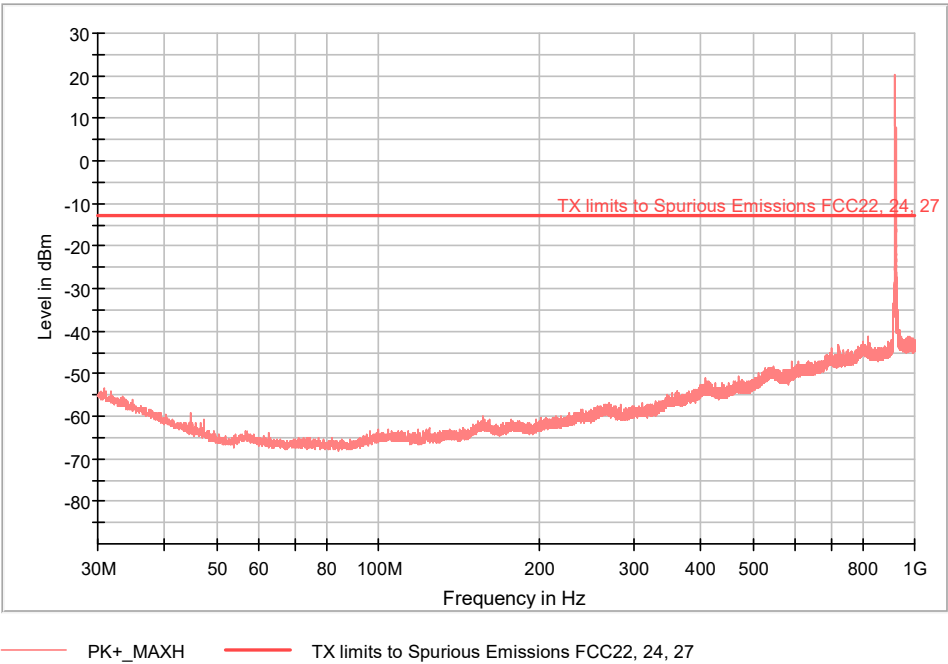
PK+\_MAXH TX limits to Spurious Emissions FCC22, 24, 27

| Frequency (MHz) | PK+_MAXH (dBm) | Pol | Margin - PK+ (dB) | Limit - PK+ (dBm) | Comment                         |
|-----------------|----------------|-----|-------------------|-------------------|---------------------------------|
| 45.261333       | -60.4          | V   | 47.4              | -13.0             |                                 |
| 100.260333      | -62.7          | V   | 49.7              | -13.0             |                                 |
| 131.785333      | -61.8          | V   | 48.8              | -13.0             |                                 |
| 413.602667      | -52.0          | H   | 39.0              | -13.0             |                                 |
| 919.748667      | 20.6           | V   | ---               | ---               | PowerG Fundamental              |
| 920.201333      | 20.4           | V   | ---               | ---               | Z-Wave (long range) Fundamental |

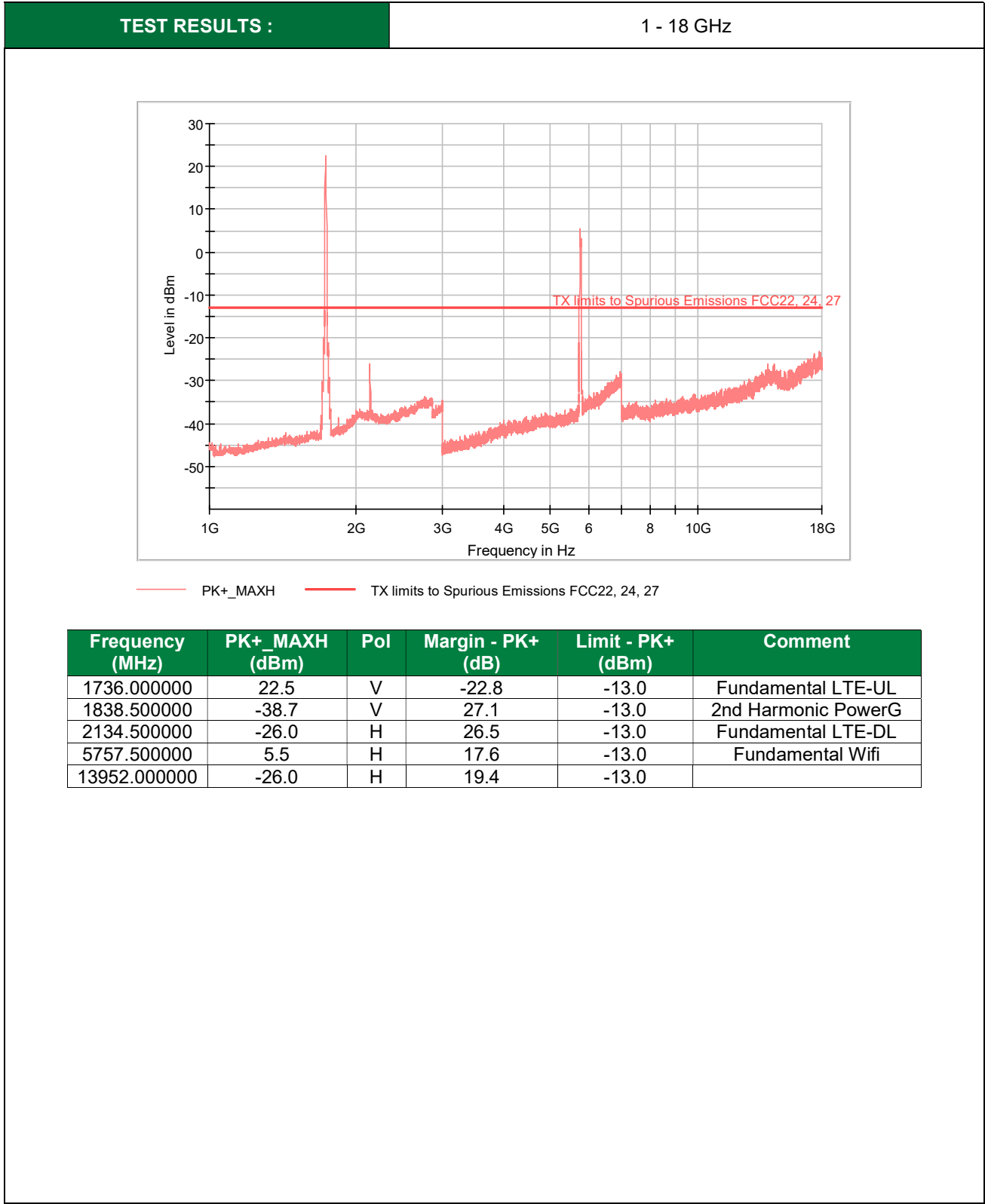




|                          |               |
|--------------------------|---------------|
| TESTED SAMPLES:          | S/01          |
| TESTED CONDITIONS MODES: | TC/03         |
| TEST RESULTS :           | 0.030 - 1 GHz |
| VERDICT:                 | PASS          |



| Frequency (MHz) | PK+_MAXH (dBm) | PoI | Margin - PK+ (dB) | Limit - PK+ (dBm) | Comment                         |
|-----------------|----------------|-----|-------------------|-------------------|---------------------------------|
| 44.841000       | -59.3          | V   | 46.3              | -13.0             |                                 |
| 157.231667      | -60.1          | H   | 47.1              | -13.0             |                                 |
| 406.198333      | -51.0          | H   | 38.0              | -13.0             |                                 |
| 723.032667      | -43.2          | H   | 30.2              | -13.0             |                                 |
| 919.748667      | 20.3           | V   | ---               | ---               | PowerG Fundamental              |
| 920.201333      | 20.2           | V   | ---               | ---               | Z-Wave (long range) Fundamental |



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