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RADIO TEST REPORT

Type of assessment:

Transmitter's co-location

Applicant:

SolidRun Ltd.

Model (HVIN):

SRG0400

PMN:

SolidSense Compact

Product:

IoT Gateway

Transmitter:

LTE

Wi-Fi/Bluetooth

BLE

FCC ID:

XMR201903EG25G

2BA24LBEE5HY1MW

2BA24-SRG0400

ISED Certification number:

10224A-201903EG25G

12107A-LBEE5HY1MW

12107A-SRG0400

Specifications:

- ◆ 47 CFR Part 15, Subpart C
- ◆ 47 CFR Part 27, Subpart C
- ◆ 47 CFR Part 22 subpart H
- ◆ 47 CFR Part 24 subpart E
- ◆ 47 CFR Part 90 subpart S

Date of issue: September 8, 2023

Hossein Zamani Zardehsavari, Senior
Wireless/EMC Specialist

Reported by

Signature

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ANAB File Number: AT-3195 (Ottawa/Almonte); AT-3193 (Pointe-Claire); AT-3194 (Cambridge)



Company name	Nemko Canada Inc.			
Facilities	Ottawa site: 303 River Road Ottawa, Ontario Canada K1V 1H2 Tel: +1 613 737 9680 Fax: +1 613 737 9691	Montréal site: 292 Labrosse Avenue Pointe-Claire, Québec Canada H9R 5L8 Tel: +1 514 694 2684 Fax: +1 514 694 3528	Cambridge site: 1-130 Saltsman Drive Cambridge, Ontario Canada N3E 0B2 Tel: +1 519 650 4811	Almonte site: 1500 Peter Robinson Road West Carleton, Ontario Canada K0A 1L0 Tel: +1 613 256-9117 Fax: +1 613 256-8848
Test site registration	Organization FCC/ISED	Recognition numbers and location FCC: CA2040; IC: 2040A-4 (Ottawa/Almonte); FCC: CA2041; IC: 2040G-5 (Montreal); CA0101 (Cambridge)		
Website	www.nemko.com			

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contained in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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Section 1. Report summary

1.1 Test specifications

FCC 47 CFR Part 27, Subpart C	Miscellaneous wireless communications services
47 CFR Part 22 subpart H	Cellular Radiotelephone Service
47 CFR Part 24 subpart E	Broadband PCS
47 CFR Part 90 subpart S	Regulations Governing Licensing and Use of Frequencies in the 806–824, 851–869, 896–901, and 935–940 MHz Bands
FCC 47 CFR Part 15, Subpart C, Clause 15.247	Operation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–585 MHz
FCC 47 CFR Part 15, Subpart E, Clause 15.407	Unlicensed National Information Infrastructure Devices operating in the 5.15–5.35 GHz, 5.47–5.725 GHz, 5.725–5.85 GHz, and 5.925–7.125 GHz bands.
RSS-247, Issue 2, Feb 2017, Section 6	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.
RSS-247, Issue 2, Feb 2017, Section 5	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
KDB 996369 v01	Modular transmitter Integration Guide

1.2 Test methods

ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
FCC 47 CFR Part 2, Subpart J	Equipment authorization procedures

1.3 Exclusions

None

1.4 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard except as noted in section 1.3 above. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See “Summary of test results” for full details.

1.5 Test report revision history

Table 1.5-1: Test report revision history

Revision #	Date of issue	Details of changes made to test report
Original	September 8, 2023	Original report issued

Section 2. Engineering considerations

2.1 Modifications incorporated in the EUT for compliance

There were no modifications performed to the EUT during this assessment.

2.2 Technical judgment

None

2.3 Technical judgment

None

2.4 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 3. Test conditions

3.1 Atmospheric conditions

Temperature	15 °C – 35 °C
Relative humidity	20 % – 75 %
Air pressure	86 kPa (860 mbar) – 106 kPa (1060 mbar)

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

3.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages $\pm 5\%$, for which the equipment was designed.

Section 4. Information provided by the applicant

4.1 Disclaimer

This section contains information provided by the applicant and has been utilized to support the test plan. Inaccurate information provided by the applicant can affect the validity of the results contained within this test report. Nemko accepts no responsibility for the information contained within this section and the impact it may have on the test plan and resulting measurements.

4.2 Applicant/Manufacture

Name	SolidRun Ltd.
Address	7262 Rue Marconi, Montréal, QC H2R 2Z5

4.3 EUT information

Product	IoT Gateway
Model (HVIN)	SRG0400
Serial number	SC224200001
Power supply requirements	DC: 12 V from external 100–240 V(AC) power adapter
Product description and theory of operation	The equipment will securely connect the Indoor Air quality sensors to the network cloud by sending data via ETP. It will use a default wirepas connectivity protocol.

4.4 Radio technical information

Operating band	B1: 2100 MHz B41: 2496 MHz BLE: 2402-2480 MHz BT: 2402-2480 MHz Wi-Fi 2.4G: 2401-2484 MHz Wi-Fi 5G: 5150–5850 MHz
Frequency Min (MHz)	2100
Frequency Max (MHz)	5850
Type of modulation	OFDM modulation for downlink and SC-FDMA for uplink QPSK
Emission classification	F1D, W7D
Antenna information	Quectel Wireless Solutions Co., Ltd. type Antenna pad through UF.L-R-SMA GSM850: 2.29 dBi; GSM1900:1.59 dBi WCDMA BAND II:1.59 dBi WCDMA BAND VI:2 dBi WCDMA BAND V:2.29 dBi LTE BAND 2:1.59 dBi; LTE BAND 4:2 dBi; LTE BAND 5:2.29 dBi; LTE BAND 7: 3 dBi; LTE BAND 12: 3.26 dBi; LTE BAND 13: 4.45 dBi; LTE BAND 25: 1.59 dBi; LTE BAND 26: 2.53 dBi; LTE BAND 38: 2.06 dBi; LTE BAND 41: 3dBi; 2.4/5GHz FPC antenna, gain: 3 dBi/ 4 dBi

4.5 EUT setup details

4.5.1 Radio exercise details

Operating conditions	Once unit powered, the PCB is connected to a laptop through UART/ USB to control Murata chip and Fujitsu Chip. Then Linux commands are sent through a Putty platform to set either the unit power on maximum or the baud rates and all other functionality of a radio module. For Quectel it the same procedure but using AT commands through Putty.
Transmitter state	Transmitter set in to continuous mode.
Receiver state	Receiver set in to continuous mode.

4.5.2 EUT setup configuration

Table 4.5-1: EUT sub assemblies

Description	Brand name	Model, Part number, Serial number, Revision level
AC adaptor	Power Supply	MN: ICP12-120-1000D, PN: ICP12-120-1000DSD4

Table 4.5-2: EUT interface ports

Description	Qty.
SMA	1
USB	1

Table 4.5-3: Support equipment

Description	Brand name	Model, Part number, Serial number, Revision level
Laptop	Lenovo	SN: PF39SXL6, MN: 20SU-S012N

Table 4.5-4: Inter-connection cables

Cable description	From	To	Length (m)
USB cable	EUT	Laptop	1
Power cord	EUT	AC main port	1

EUT setup configuration, continued

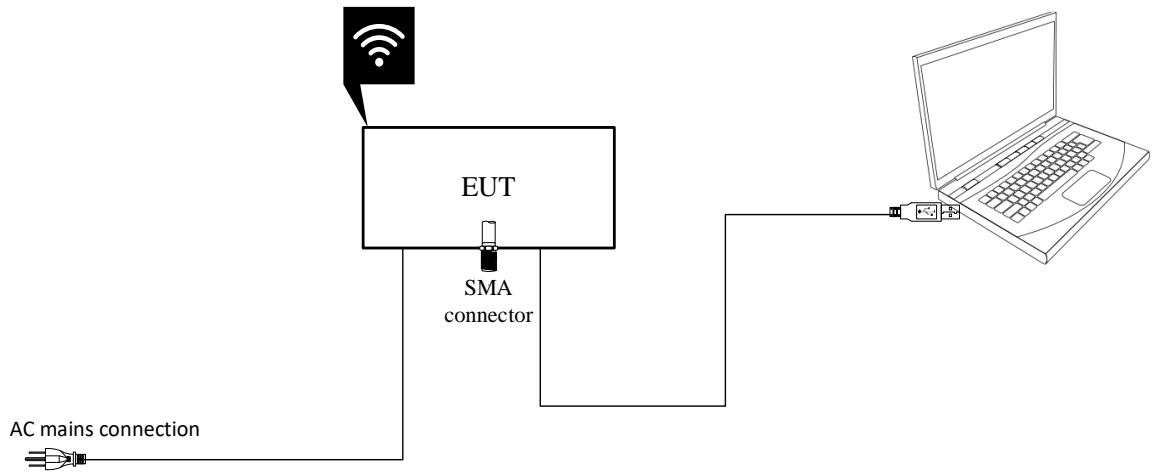


Figure 4.5-1: Radiated testing block diagram

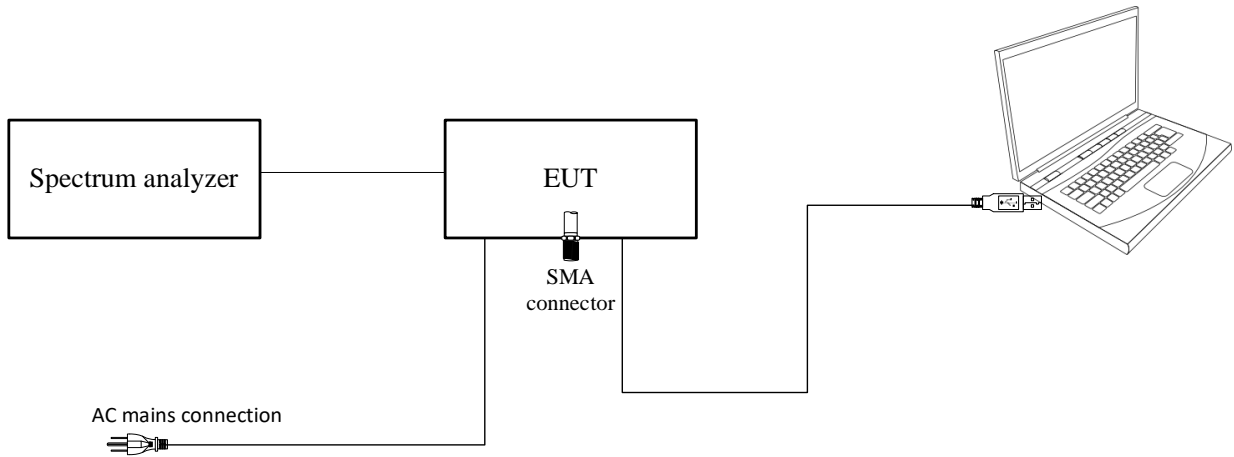


Figure 4.5-2: Antenna port testing block diagram

Section 5. Summary of test results

5.1 Testing location

Test location (s)	Montreal
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5.2 Testing period

Test start date	August 11, 2023	Test end date	August 14, 2023
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5.3 Sample information

Receipt date	May 10, 2023	Nemko sample ID number(s)	PRJ00333910001 and PRJ00333910002
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5.4 FCC Part 27, Subpart C and Part 2, Subpart J requirements test results

Table 5.4-1: Requirements results for FCC part 27.53 (c)(e)

Part	Test description	Verdict
§27.53 (c)(e)	Spurious emissions at antenna terminals	Pass
§27.53 (c)(e)	Field strength of spurious radiation	Pass

Notes: This document is provided for modular integration and except spurious emission, none of the applicable tests are performed.

Table 5.4-2: ISED requirements results for 2 GHz Personal Communications Services

Part	Test description	Verdict
RSS-133, 6.5	Transmitter Unwanted Emissions	Pass

Table 5.4-3: Requirements results for FCC 27.53(g)

Part	Test description	Verdict
§2.1051, 27.53(g)	Spurious emissions at antenna terminals	Pass
§2.1053, 27.53(g)	Field strength of spurious radiation	Pass

Notes: This document is provided for modular integration and except spurious emission, none of the applicable tests are performed.

Table 5.4-4: FCC requirements results for Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

Part	Test description	Verdict
§15.247(d)	Spurious emissions	Pass

Notes: None

Table 5.4-5: ISED requirements results for Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

Part	Test description	Verdict
RSS-247, 5.5	Unwanted emissions	Pass

Notes: None

Section 6. Test equipment

6.1 Test equipment list

Table 6.1-1: Equipment list

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
50 Ω coax cable	C.C.A.	None	FA002603	—	VOU
50 Ω coax cable	C.C.A.	None	FA002605	—	VOU
50 Ω coax cable	C.C.A.	None	FA002831	—	VOU
50 Ω coax cable	Huber + Suhner	None	FA002607	—	VOU
50 Ω coax cable	Sucoflex	None	FA002563	—	VOU
2.4 GHz band Notch Filter	Microwave Circuits	N0324413	FA002693	—	VOU
High Pass Filter (> 1100 MHz)	Microwave Circuits	H1G212G1	FA002689	—	VOU
Environmental Chamber	Espec	EPX-4H	FA002736	1 year	August 1, 2023
3 m EMI test chamber (Emissions)	TDK	SAC-3	FA002532e	1 year	March 8, 2024
Flush mount turntable	Sunol	FM2022	FA002550	—	NCR
Field probe	Narda	EHP-200A	FA003103	2 year	July 14, 2023
Antenna mast	Sunol	TLT2	FA002552	—	NCR
3 Phase AC Power Supply	apc AC Power	AFC-33045T	FA002677	—	VOU
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 26	FA002043	1 year	November 28, 2023
Bilog antenna (20–2000 MHz)	Sunol	JB1	FA002517	1 year	March 24, 2024
Horn antenna (1–18 GHz)	EMCO	3115	FA001451	1 year	March 10, 2023
Horn antenna (18–40 GHz)	EMCO	3116	FA002487	1 year	April 13, 2024

Note: NCR - no calibration required, VOU - verify on use

Table 6.1-2: Automation software details

Test description	Manufacturer of Software	Details
Radiated emissions as of January 29, 2021	Rohde & Schwarz	EMC32, Software for EMC Measurements, Version 10.60.20



Section 7. Testing data

7.1 Radiated spurious emissions

7.1.1 References, definitions and limits

FCC §27.53:

- (c) For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
- (1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
 - (2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
 - (3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations;
 - (4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;
 - (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
 - (6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

FCC §27.53:

- (e) For operations in the 775–776 MHz and 805–806 MHz bands, transmitters must comply with either paragraphs (d)(1) through (5) of this section or the ACP emission limitations set forth in paragraphs (d)(6) to (d)(9) of this section.
- (1) On all frequencies between 758–775 MHz and 788–805 MHz, the power of any emission outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations;
 - (2) On all frequencies between 758–775 MHz and 788–805 MHz, the power of any emission outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;
 - (3) On any frequency outside the 775–776 MHz and 805–806 MHz bands, the power of any emission shall be attenuated outside the band below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB;
 - (4) Compliance with the provisions of paragraphs (e)(1) and (e)(2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment;
 - (5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed.
 - (6) The adjacent channel power (ACP) requirements for transmitters designed for various channel sizes are shown in the tables in FCC §27.53, section (c)(6). Mobile station requirements apply to handheld, car mounted and control station units. The tables specify a value for the ACP as a function of the displacement from the channel center frequency and measurement bandwidth. In the tables, "(s)" indicates a swept measurement may be used.
 - (8) Out-of-band emission limit. On any frequency outside of the frequency ranges covered by the ACP tables in FCC §27.53, section (c)(6), the power of any emission must be reduced below the unmodulated carrier power (P) by at least $43 + 10 \log (P)$ dB.

FCC §27.53:

- (g) For operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.



FCC 22.917:

- (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

FCC 22.238:

- (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

FCC §15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

RSS-Gen, Clause 6.8:

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

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

7.1.2 Test summary

Verdict	Pass		
Test date	May 11, 2023	Temperature	22 °C
Tested by	Hossein Zamani	Air pressure	1021 mbar
Test location	Montreal	Relative humidity	30.1 %

7.1.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic.
 The output terminal of EUT is connected to RF dummy 50-Ω load for radiated measurement.
 The measurements were performed at the distance of 3 m.

Spectrum analyzer settings for conducted spurious emissions measurements:

Resolution bandwidth:	100 kHz (below 1 GHz); 1 MHz (above 1 GHz)
Video bandwidth:	300 kHz (below 1 GHz); 3 MHz (above 1 GHz)
Detector mode:	Peak
Trace mode:	Max Hold

Table 7.1-1: Measurement uncertainty calculations based on equipment list

Measurement	U_{CISPR} dB	U_{lab} dB
Radiated disturbance (30 MHz to 1 GHz)	6.3	5.8
Radiated disturbance (1 GHz to 6 GHz)	5.2	4.7
Radiated disturbance (6 GHz to 18 GHz)	5.5	4.7

Notes: Nemko Canada Inc. has calculated measurement uncertainty and is documented in EMC/MUC/001 "Uncertainty in EMC measurements." Measurement uncertainty was calculated using the methods described in CISPR 16-4-2 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modelling – Measurement instrumentation uncertainty. The expression of Uncertainty in EMC Testing. Measurement uncertainty calculations assume a coverage factor of K=2 with 95% certainty.

Compliance assessment:

If U_{lab} is less than or equal to U_{CISPR} then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit

If U_{lab} is greater than U_{CISPR} then:

- compliance is deemed to occur if no measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{CISPR}})$, exceeds the disturbance limit
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{\text{lab}} - U_{\text{CISPR}})$, exceeds the disturbance limit

7.1.2 Test data

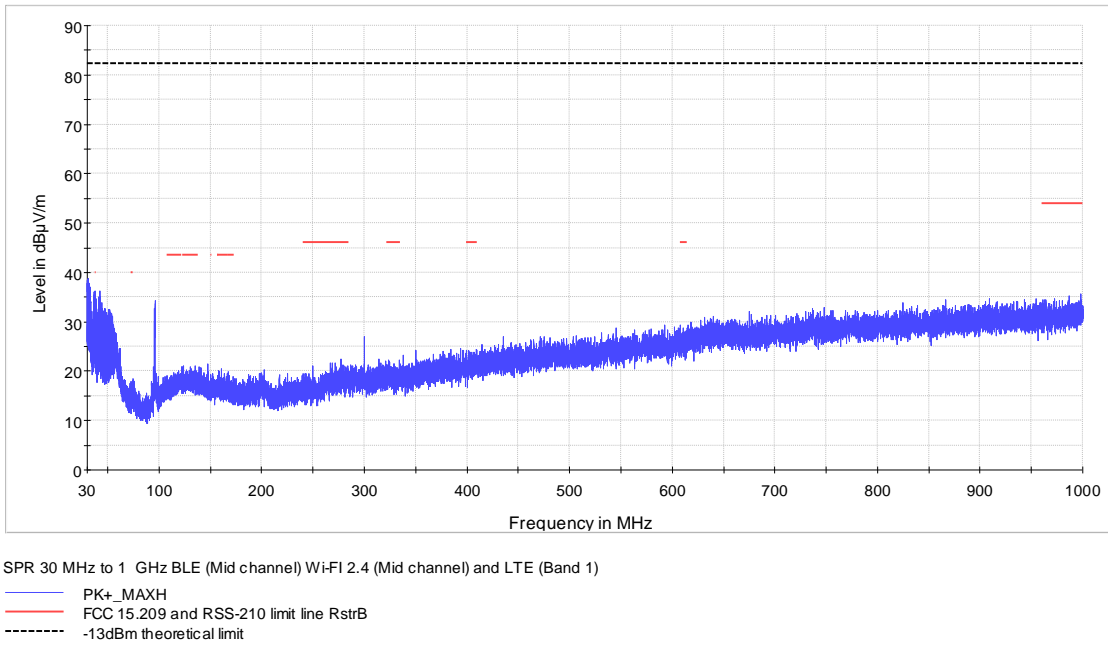


Figure 7.1-1: Radiated spurious emission 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 2.4 (Mid channel) and LTE (Band 1)

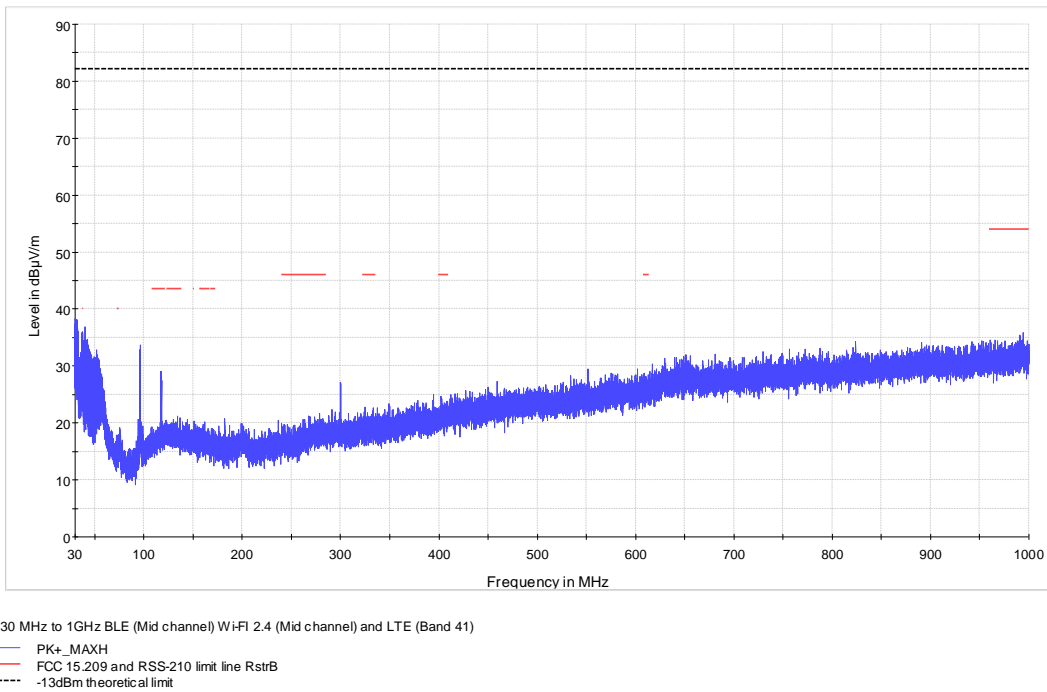
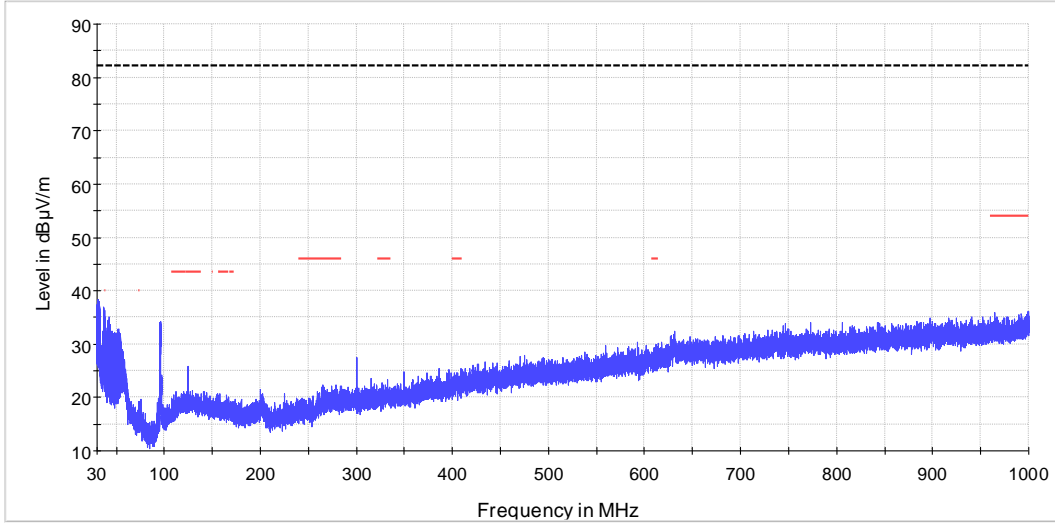


Figure 7.1-2: Radiated spurious emission 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 2.4 (Mid channel) and LTE (Band 41)

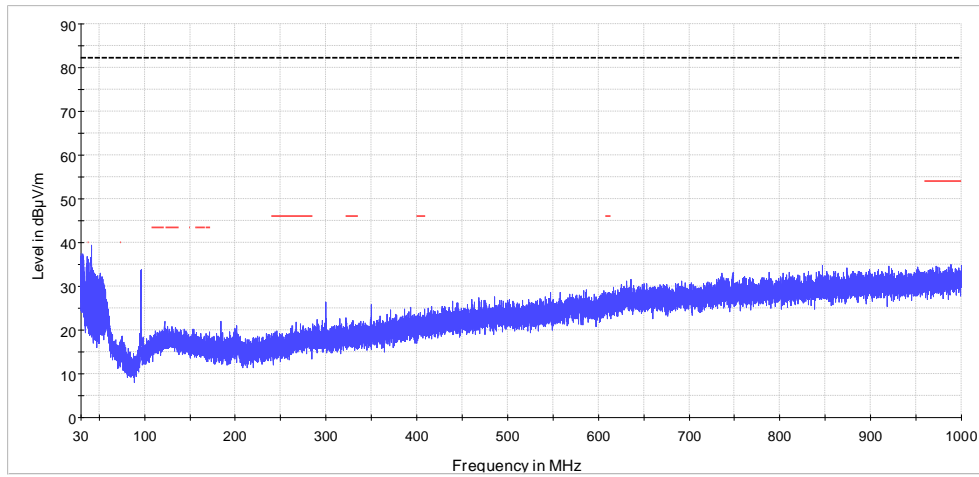
Test data, continued



SPR 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 1)

- PK+_MAXH
- FCC 15.209 and RSS-210 limit line RstrB
- - - - - -13dBm theoretical limit

Figure 7.1-3: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 1)

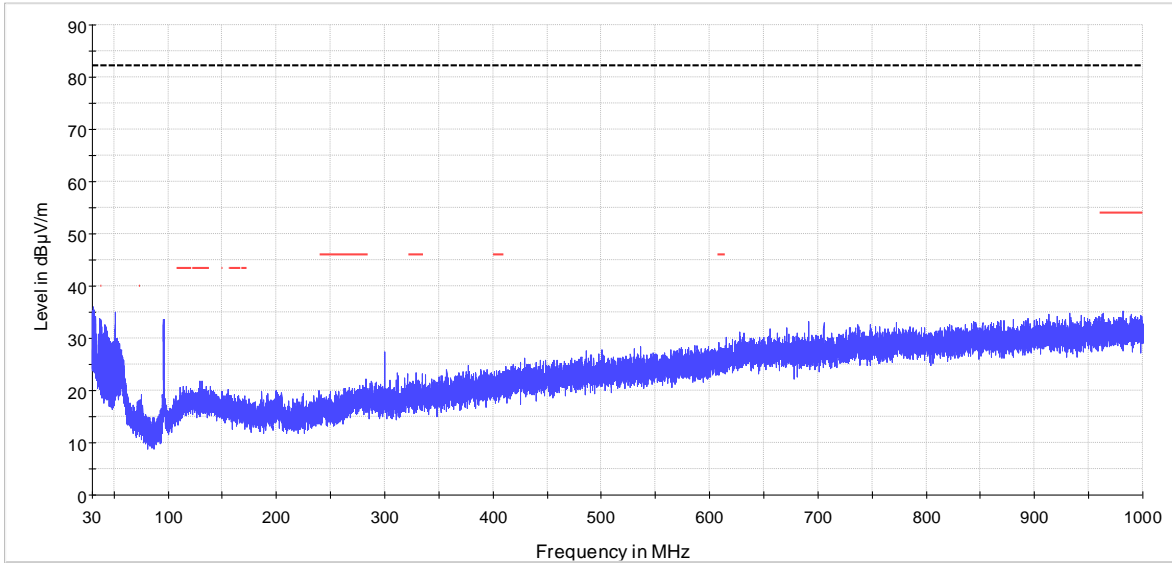


SPR 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 41)

- PK+_MAXH
- FCC 15.209 and RSS-210 limit line RstrB
- - - - - -13dBm theoretical limit

Figure 7.1-4: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 41)

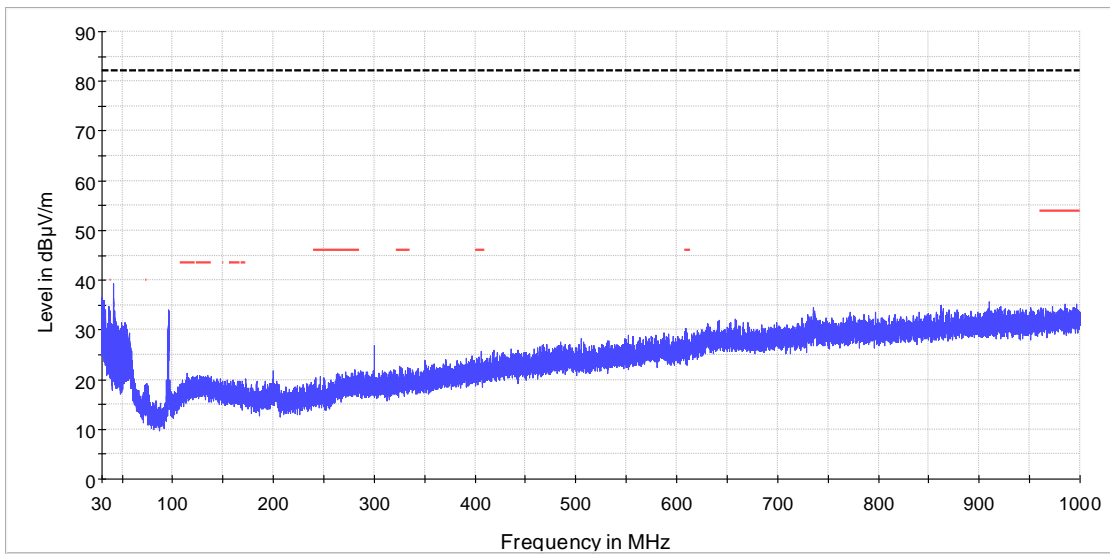
Test data, continued



SPR 30 MHz to 1 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 1)

- PK+ _MAXH
- FCC 15.209 and RSS-210 limit line RstrB
- -13dBm theoretical limit

Figure 7.1-5: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 1)

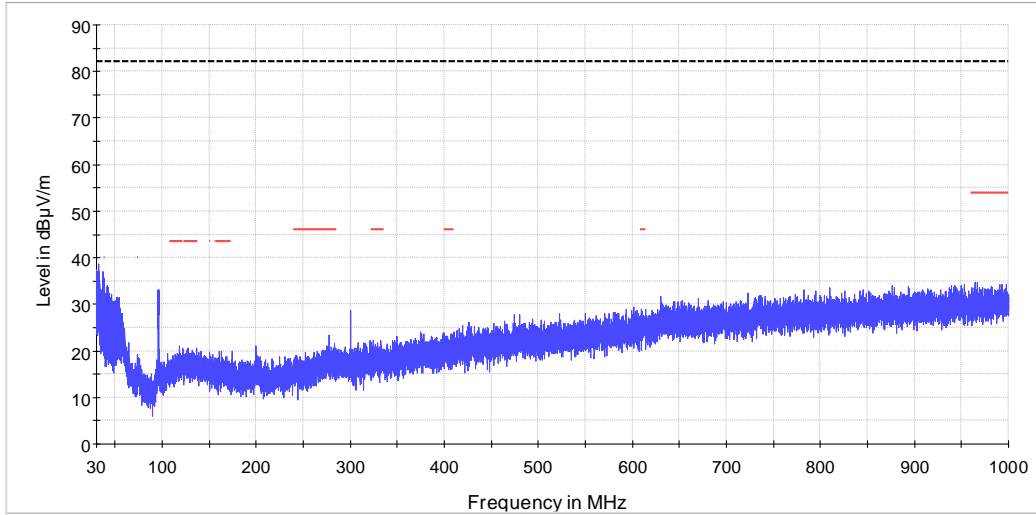


SPR 30 MHz to 1 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 41)

- PK+ _MAXH
- FCC 15.209 and RSS-210 limit line RstrB
- -13dBm theoretical limit

Figure 7.1-6: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 41)

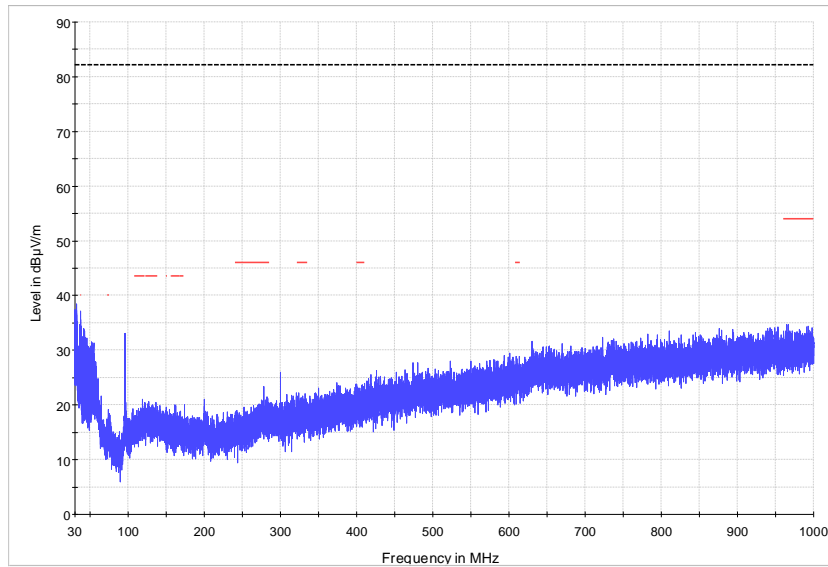
Test data, continued



SPR 30 MHz to 1 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 1)

- PK+_MAXH
- FCC 15.209 and RSS-210 limit line RstrB
- - - - - -13dBm theoretical limit

Figure 7.1-7: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 1)

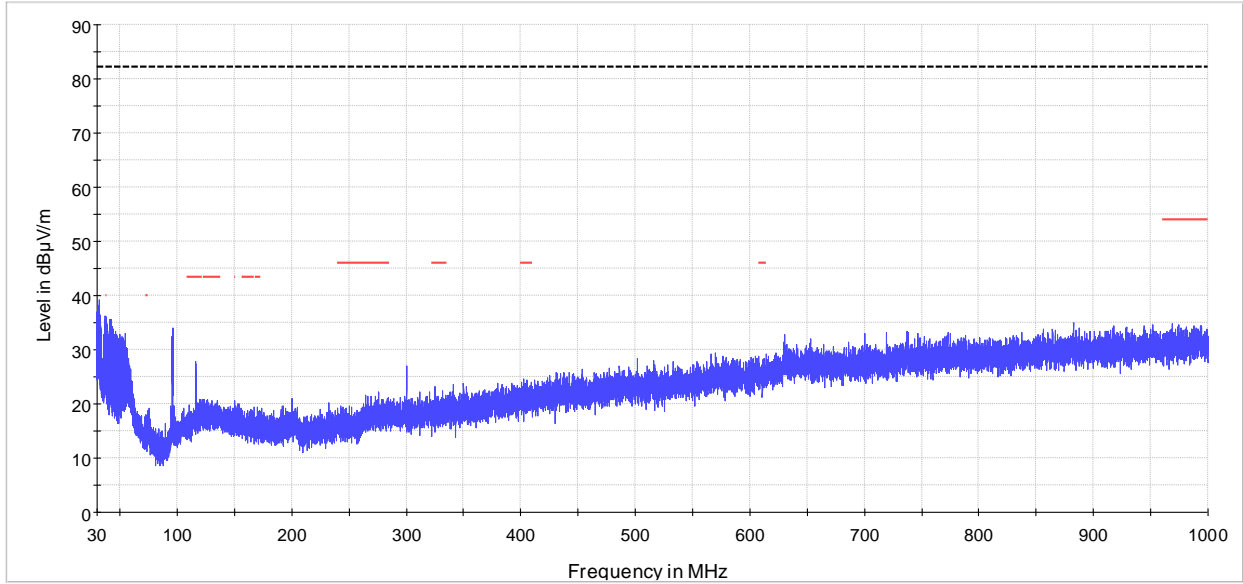


SPR 30 MHz to 1 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 41)

- PK+_MAXH
- FCC 15.209 and RSS-210 limit line RstrB
- - - - - -13dBm theoretical limit

Figure 7.1-8: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 41)

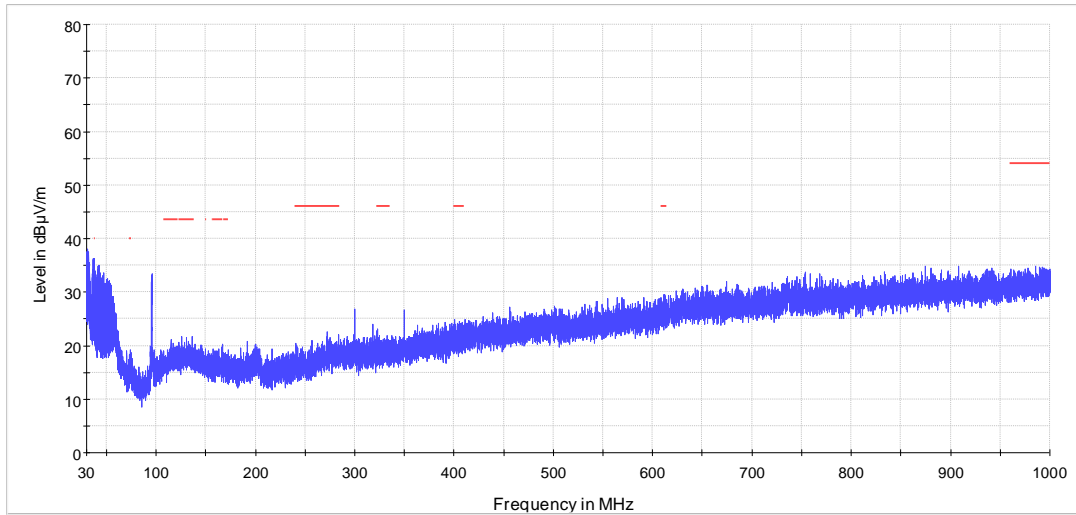
Test data, continued



SPR 30 MHz to 1 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 1)

- PK+ _MAXH
- - - - FCC 15.209 and RSS-210 limit line RstrB
- - - - - -13dBm theoretical limit

Figure 7.1-9: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 1)



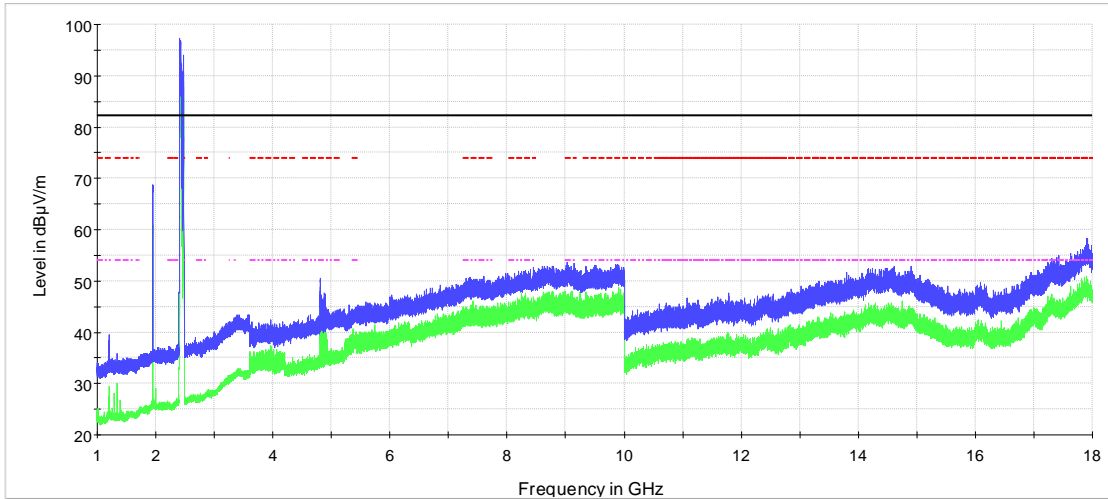
SPR 30 MHz to 1 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 41)

- PK+ _MAXH
- - - - FCC 15.209 and RSS-210 limit line RstrB
- - - - - -13dBm theoretical limit

Figure 7.1-10: Radiated spurious 30 MHz to 1GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 41)



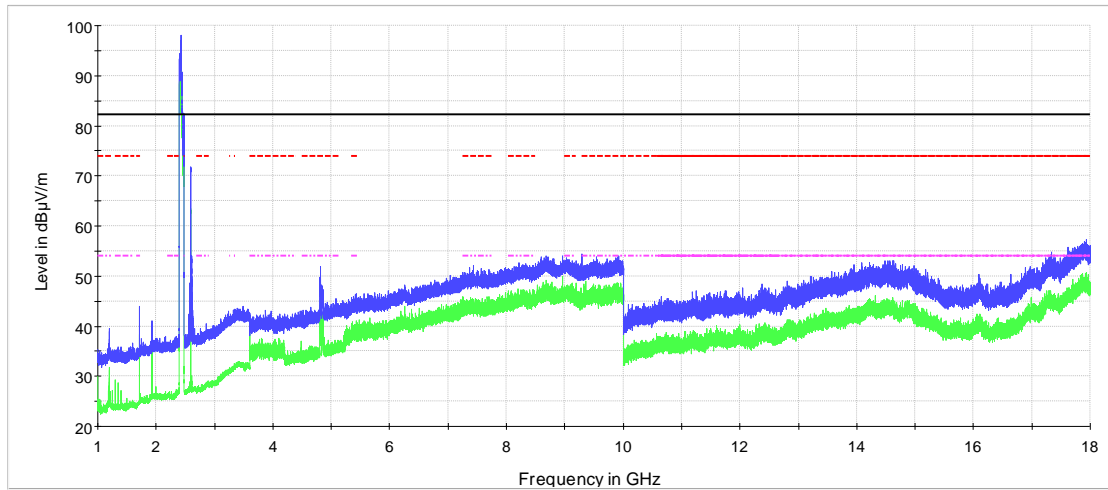
Test data, continued



SPR 1 GHz to 18 GHz BLE (Mid channel) BT (Low Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- - - - - FCC 15.209 and RSS-210 limit line RstrB
- - - - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-11: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) BT (Low Channel) and LTE (Band 1)

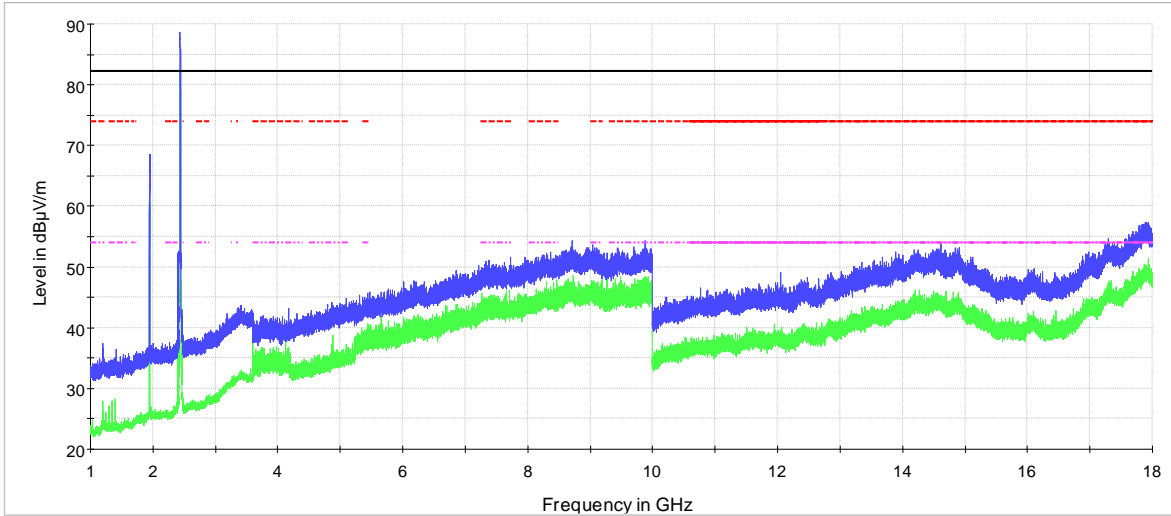


SPR 1 GHz to 18 GHz BLE (Mid channel) BT (Low Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- - - - - FCC 15.209 and RSS-210 limit line RstrB
- - - - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-12: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) BT (Low Channel) and LTE (Band 41)

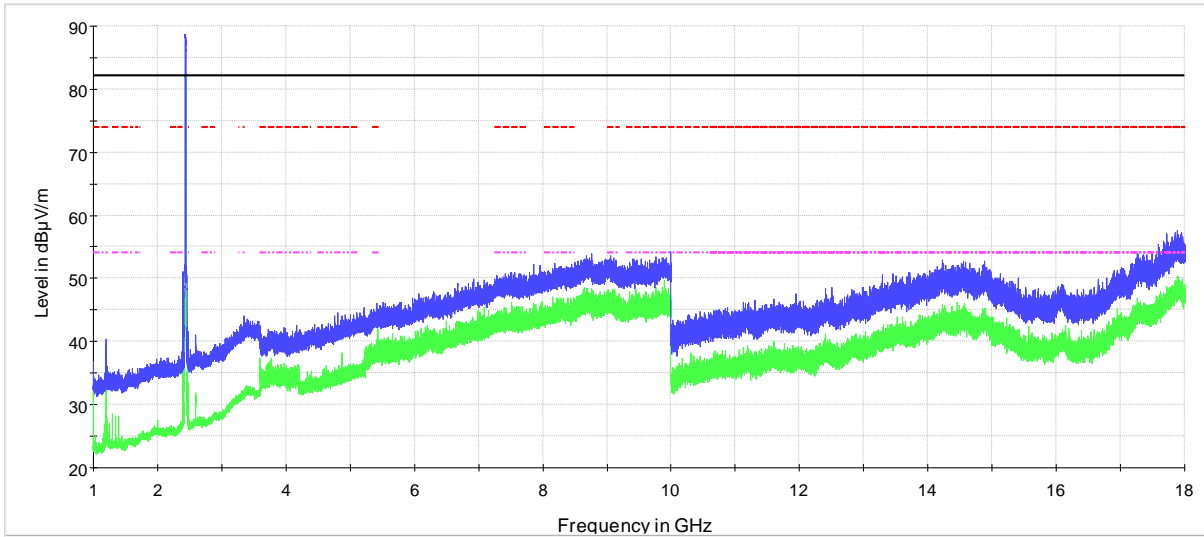
Test data, continued



SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 2.4 (Mid channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-13: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 2.4 (Mid channel) and LTE (Band 1)

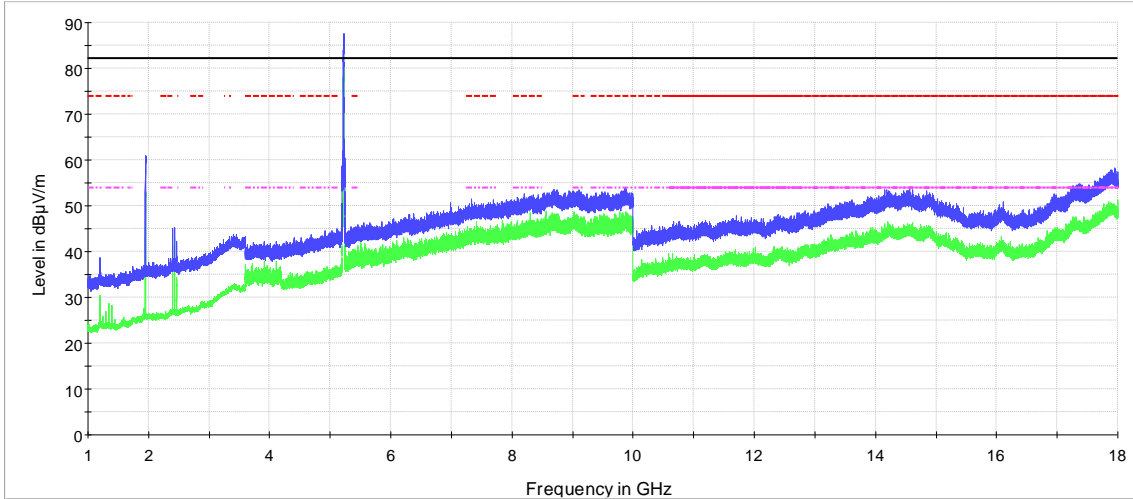


SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 2.4 (Mid channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-14: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 2.4 (Mid channel) and LTE (Band 41)

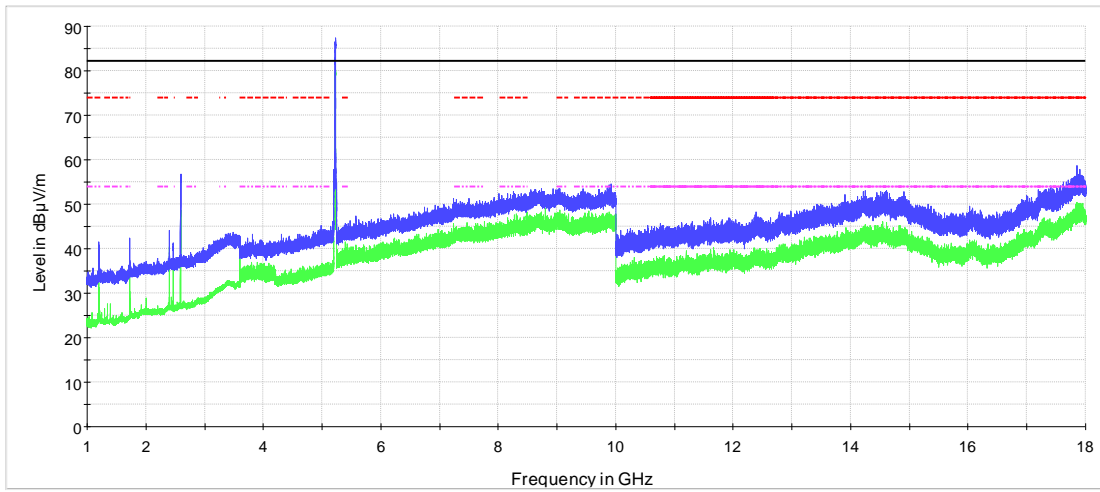
Test data, continued



SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- FCC 15.209 and RSS-210 limit line RstrB
- FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-15: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 1)

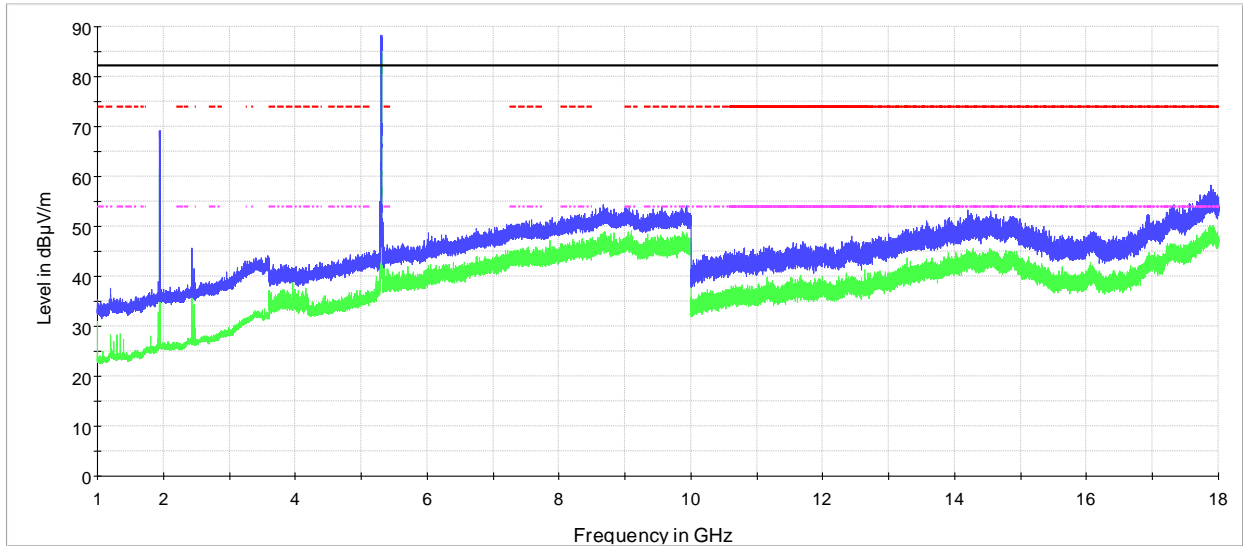


SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- FCC 15.209 and RSS-210 limit line RstrB
- FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-16: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 41)

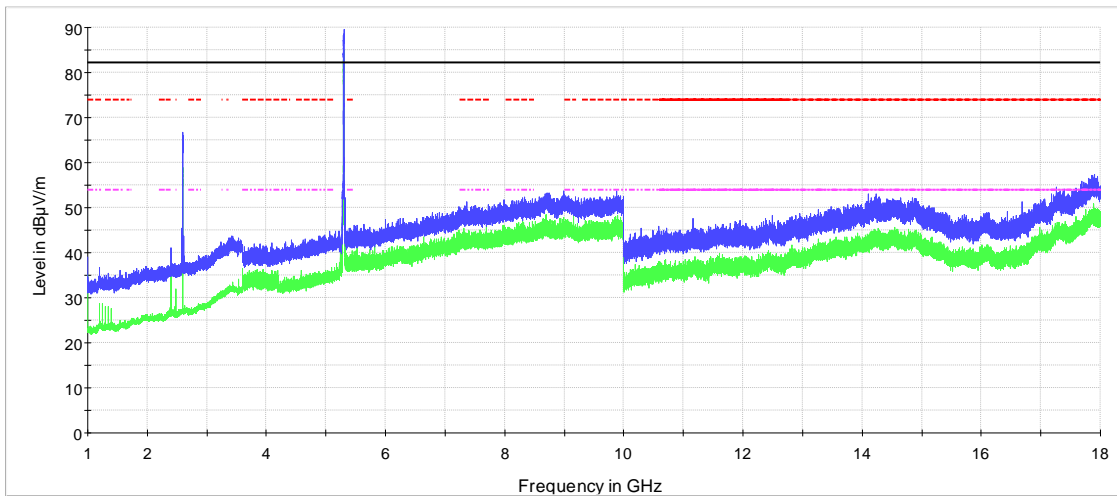
Test data, continued



SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - · - FCC 15.209 and RSS-210 limit line RstrB
- - - - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-17: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 1)

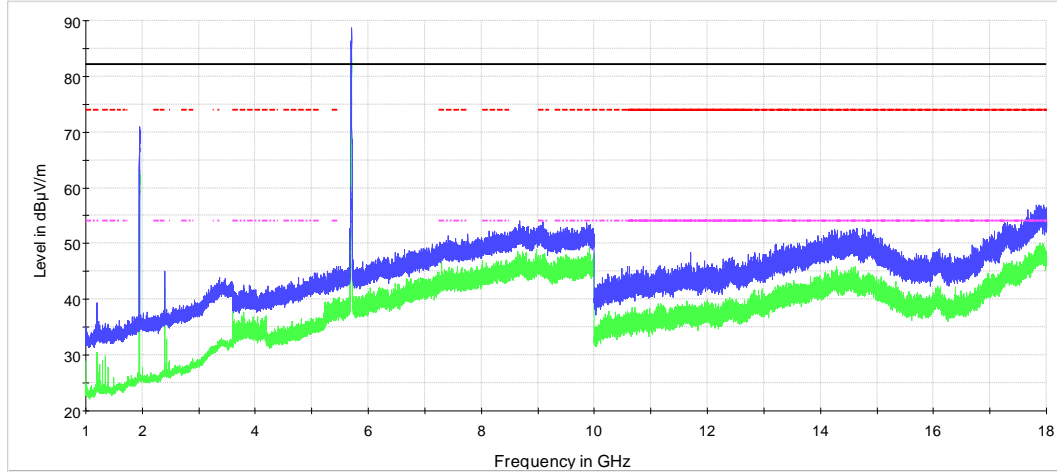


SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - · - FCC 15.209 and RSS-210 limit line RstrB
- - - - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-18: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 41)

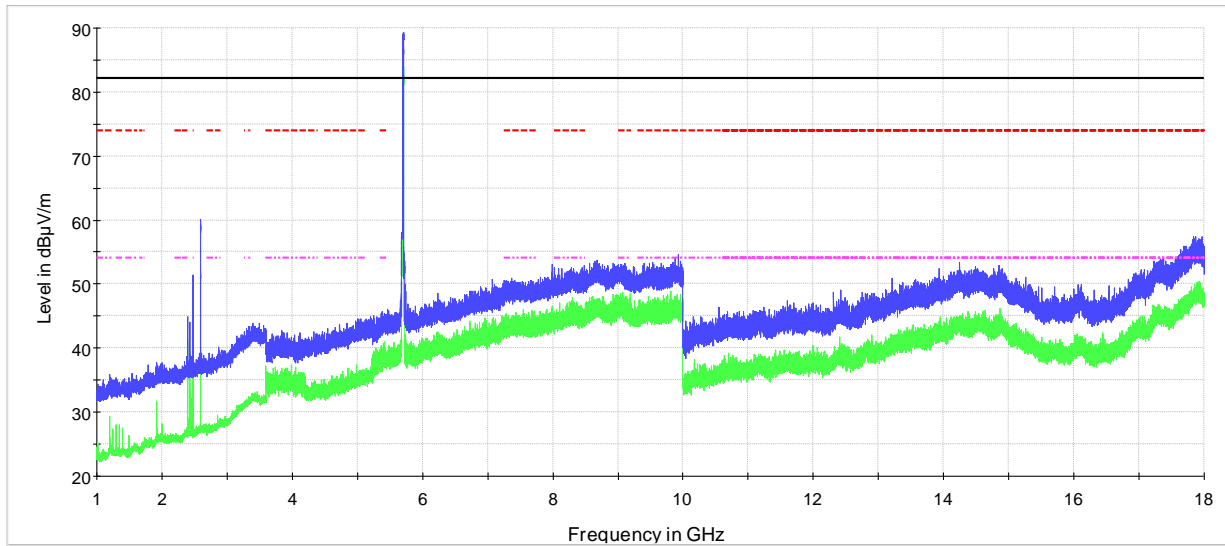
Test data, continued



SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - · FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-19: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 1)

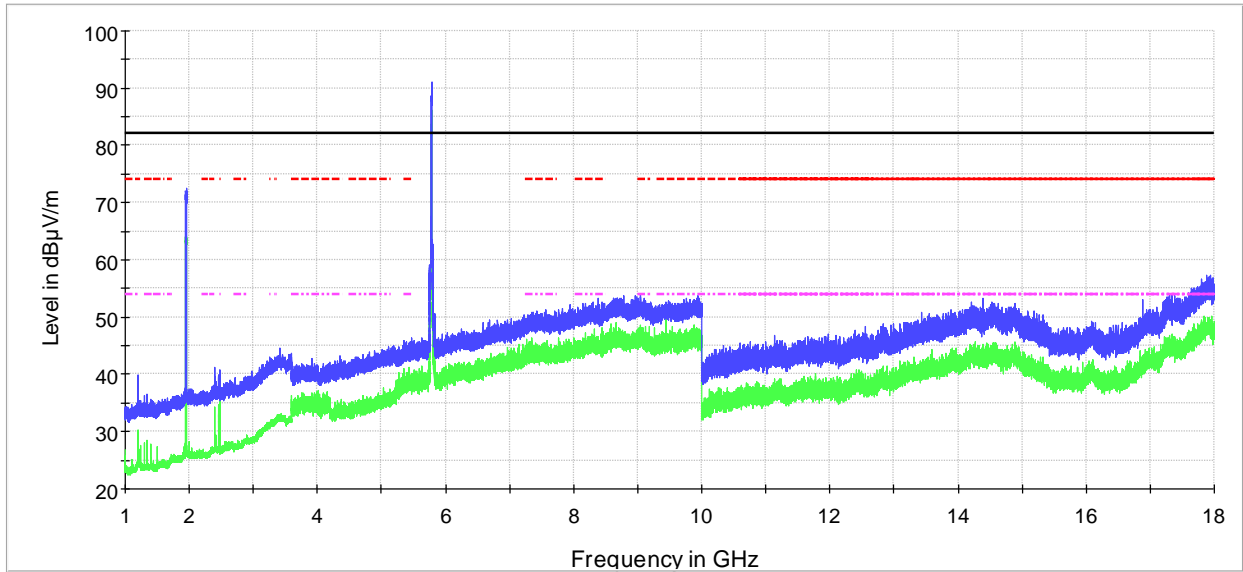


SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - · FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-20: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2c Mid Channel) and LTE (Band 41)

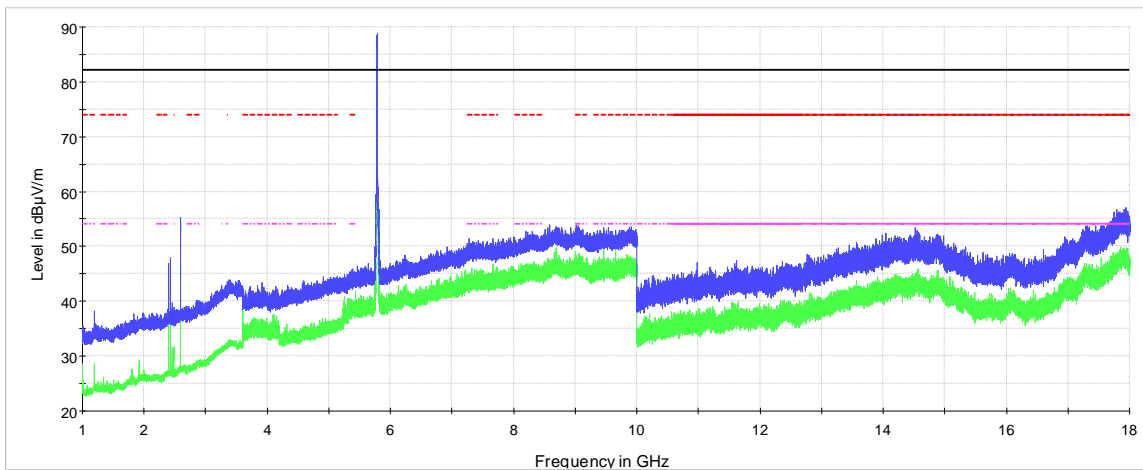
Test data, continued



SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- - - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-21: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 1)

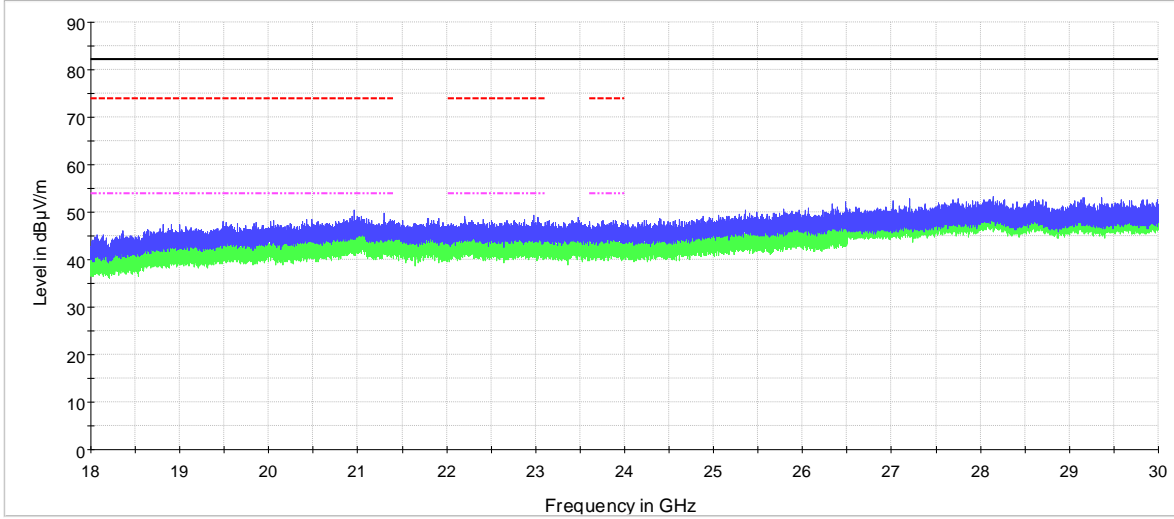


SPR 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretic al limit
- - - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-22: Radiated spurious 1 GHz to 18 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 41)

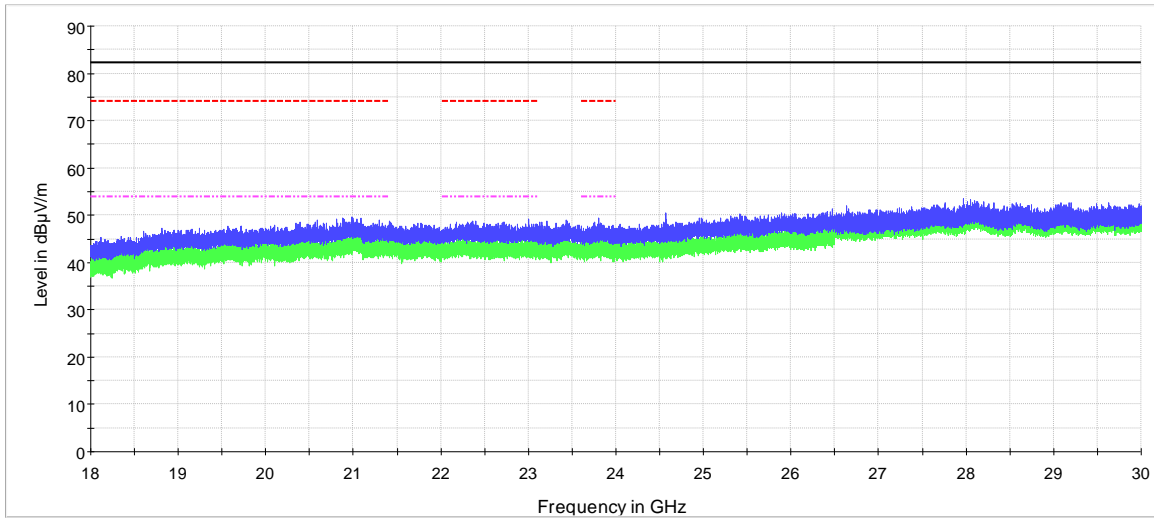
Test data, continued



SPR 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - · FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-23: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 1)

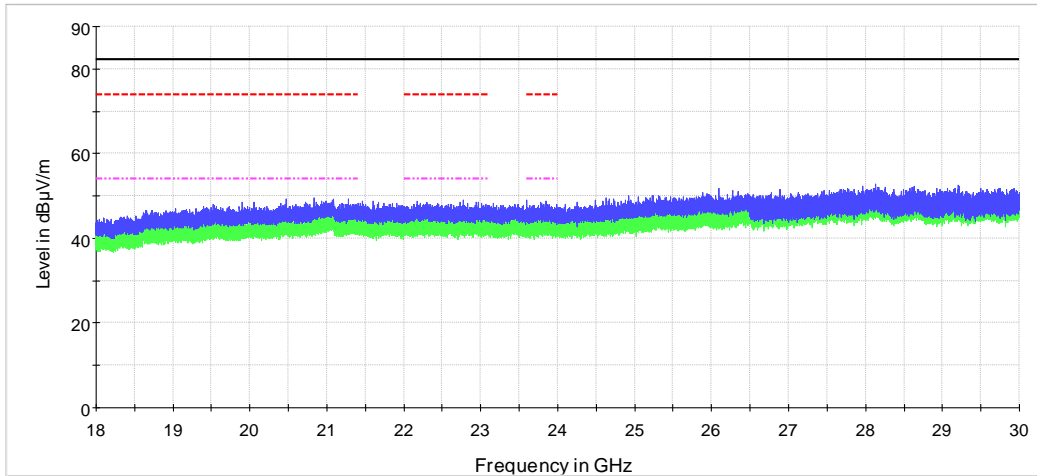


SPR 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- · - · FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-24: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 1 Mid Channel) and LTE (Band 41)

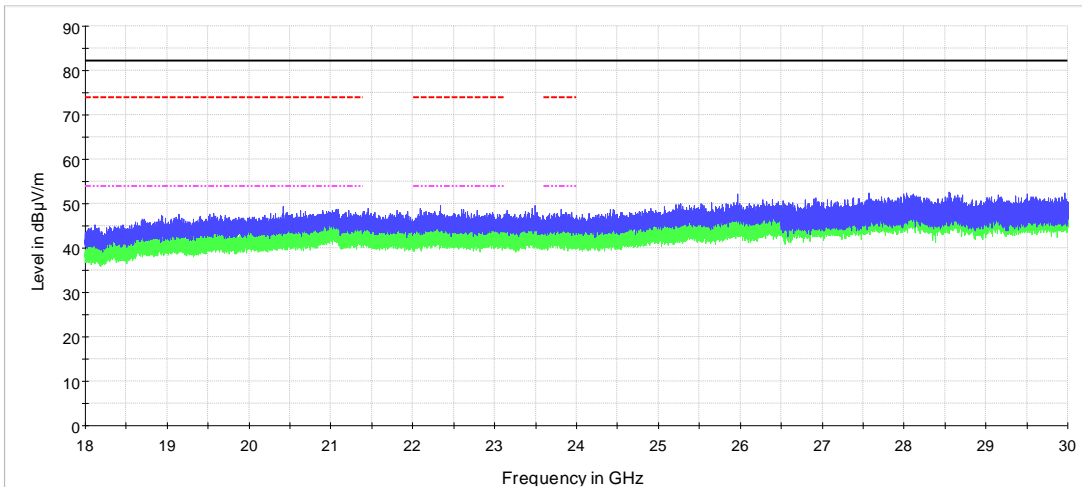
Test data, continued



SPR 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- - - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-25: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 1)



SPR 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- - - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-26: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2a Mid Channel) and LTE (Band 41)

Test data, continued

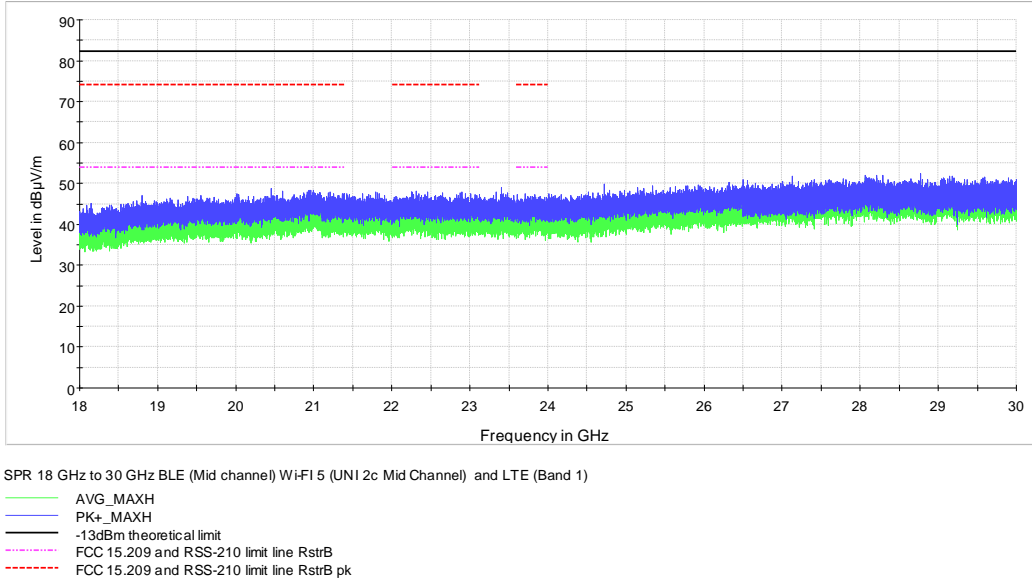


Figure 7.1-27: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2 Mid Channel) and LTE (Band 1)

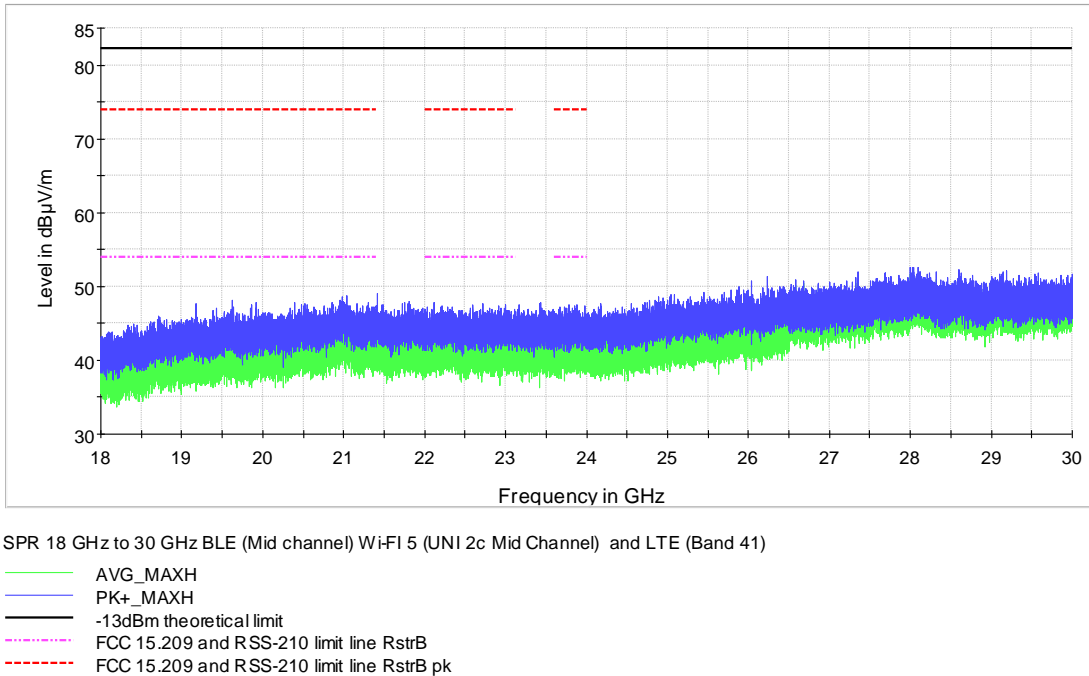
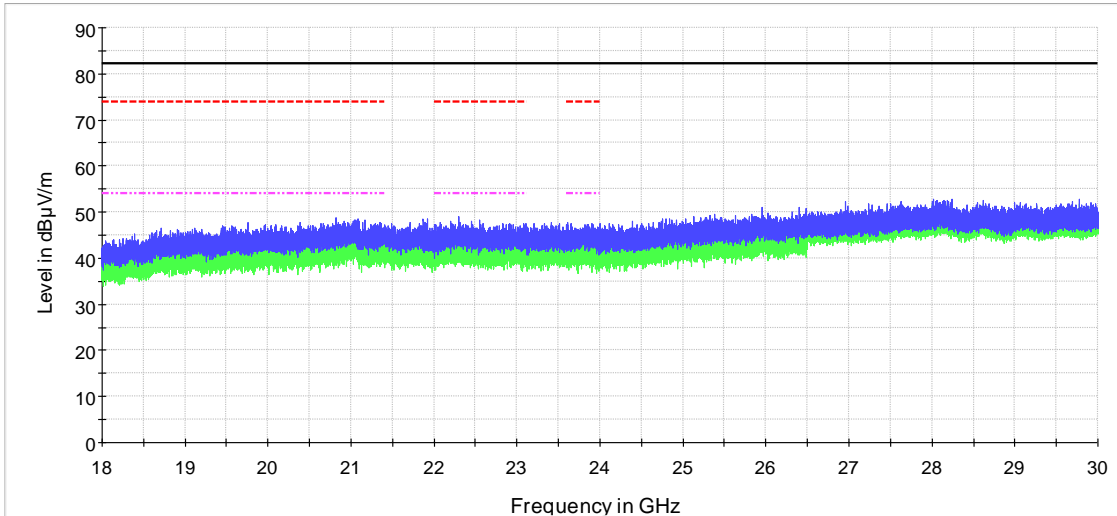


Figure 7.1-28: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 2 Mid Channel) and LTE (Band 41)

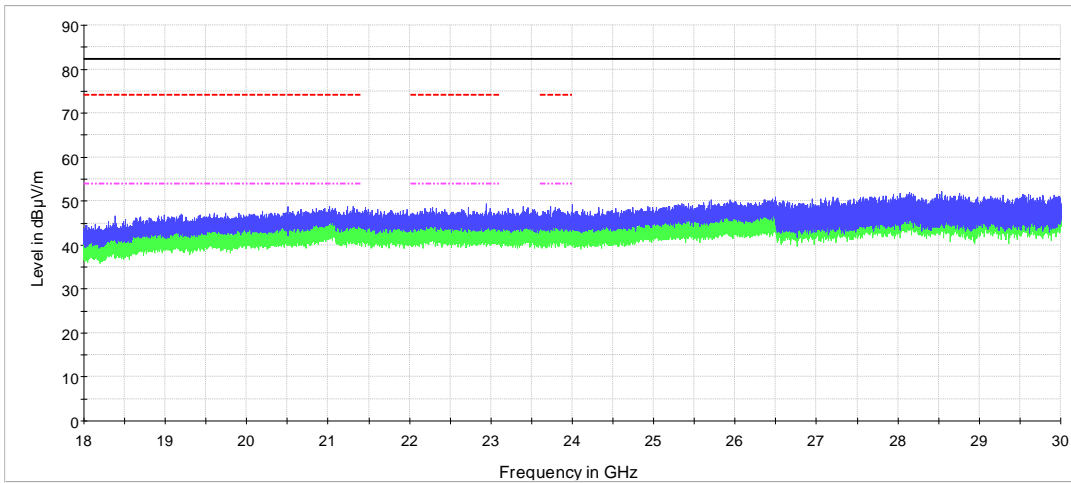
Test data, continued



SPR 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 1)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- - - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-29: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 1)



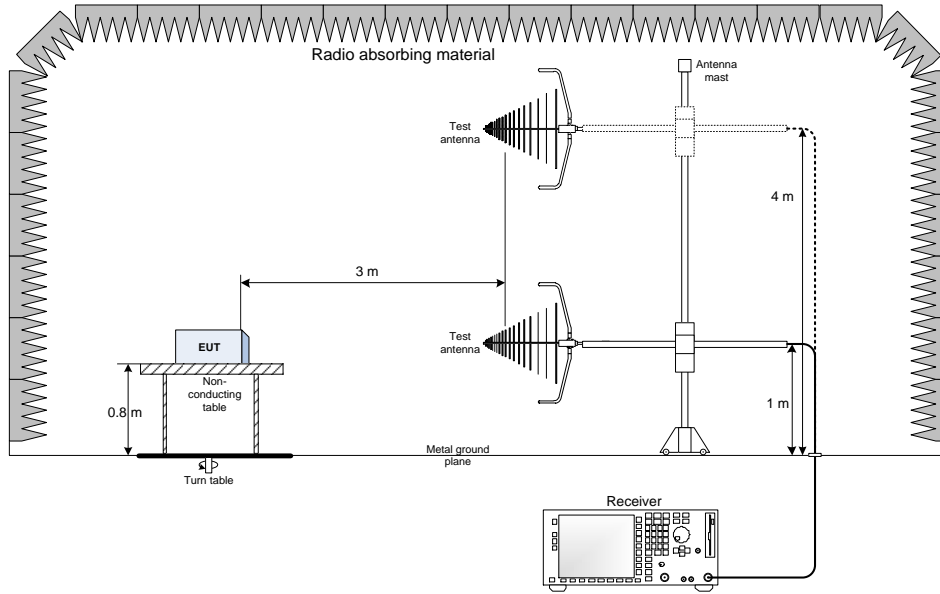
SPR 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 41)

- AVG_MAXH
- PK+_MAXH
- -13dBm theoretical limit
- - - FCC 15.209 and RSS-210 limit line RstrB
- - - FCC 15.209 and RSS-210 limit line RstrB pk

Figure 7.1-30: Radiated spurious 18 GHz to 30 GHz BLE (Mid channel) Wi-Fi 5 (UNI 3 Mid Channel) and LTE (Band 41)

Section 8. Block diagrams of test set-ups

8.1 Radiated emissions set-up for frequencies below 1 GHz



8.2 Radiated emissions set-up for frequencies above 1 GHz

