

TEST REPORT

Test Report No. : UL-RPT-RP14983490-416A

Manufacturer : Enigma Systemy Ochrony Informacji Sp.z o.o

Model No. : Quectel EG91

Contains FCC ID : 2BM9G-0044000901

Technology : LTE Band 2 / LTE Band 5

Test Standard(s) : FCC Parts 15.209(a), 22.917 & 24.238

Test Laboratory : UL International (UK) Ltd, Basingstoke, Hampshire, RG24 8AH,
United Kingdom

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2. The results in this report apply only to the sample(s) tested.
3. This sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 3.0 supersedes all previous versions.

Date of Issue: 22 July 2026

Checked by:



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Lead Project Engineer, Radio Laboratory

Company Signatory:



Sarah Williams
Staff Engineer, Radio Laboratory



5772

Customer Information

Company Name:	Enigma Systemy Ochrony Informacji Sp.z o.o
Address:	Jutrzenki 116, 02-230 Warszawa, Poland

Report Revision History

Version Number	Issue Date	Revision Details	Revised By
1.0	14/08/2025	Initial Version	Ben Mercer
2.0	24/06/2026	Updated model number and FCC ID, removed ISED references.	Ben Mercer
3.0	22/07/2026	Updated antenna gain, corrected cal due date for M236226, added note to section 1.3.	Ben Mercer

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1. Attestation of Test Results

1.1 Description of EUT

The equipment under test (EUT) was a cellular module integrated into curfew enforcement ankle bracelet OPT3+.

1.2. General Information

Specification Reference:	47CFR22
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 22 Subpart H (Public Mobile Services)
Specification Reference:	47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Section 15.209
Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 24 Subpart E (Personal Communication Services)
Site Registration:	685609
FCC Lab. Designation No.:	UK2011
Location of Testing:	Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	11 May 2024 to 31 May 2024

1.3. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.209(a) / 22.917	Transmitter Out of Band Radiated Emissions - LTE Band 5	
Part 15.209(a) / 22.917	Transmitter Band Edge Radiated Emissions - LTE Band 5	
Part 15.209(a) / 24.238	Transmitter Out of Band Radiated Emissions - LTE Band 2	
Part 15.209(a) / 24.238	Transmitter Band Edge Radiated Emissions – LTE Band 2	
Key to Results  = Complied  = Did not comply		

Notes:

1. LTE bands 2 and 5 were determined to be worst-case, therefore no testing was performed on other bands, including those falling under FCC Part 27.

1.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

2 Summary of Testing

2.1 Facilities and Accreditation

The test site and measurement facilities used to collect data are located at Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom. The following table identifies which facilities were utilised for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

Site 1	X
Site 2	-
Site 17	X
Site 32	-
Site 33	-

UL International (UK) Ltd is accredited by the United Kingdom Accreditation Service (UKAS). UKAS is one of the signatories to the International Laboratory Accreditation Co-operation (ILAC) Arrangement for the mutual recognition of test reports. The tests reported herein have been performed in accordance with its terms of accreditation.

2.2. Methods and Procedures

Reference:	ANSI C63.26-2015
Title:	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
Reference:	FCC KDB 971168 D01 v03r01, April 9 2018
Title:	Measurement Guidance for Certification of Licensed Digital Transmitters

2.3 Calibration and Uncertainty

Measuring Instrument Calibration

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

Measurement Uncertainty & Decision Rule

Overview

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

Decision Rule

Measurement system instrumentation shall be used with an accuracy specification meeting the accuracy specification limits according to IEC/IECEE OD-5014.

As applicable, unless specified otherwise in this report, the compliance "Decision Rule" is based on Simple Acceptance. If the measured value is on the limit, the result is defined as a pass. In this case the risk of a false positive is 50%. For further information regarding risk assessment refer to ILAC G8:09/2019.

Measurement Uncertainty

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±5.32 dB
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±3.30 dB
Radiated Spurious Emissions	1 GHz to 20 GHz	95%	±3.13 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

2.4 Test and Measurement Equipment

Test Equipment Used for Transmitter Radiated Emissions

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2003	Thermohygrometer	Testo	608-H1	45046641	27 Dec 2024	12
K0017	3m RSE Chamber	Rainford	N/A	N/A	09 Nov 2024	12
M1995	Test Receiver	Rohde & Schwarz	ESU40	100428	20 Nov 2024	12
M227319	Wideband Radio Communications Tester	Rohde & Schwarz	CMW500	171701	18 Dec 2024	12
A490	Antenna	Chase	CBL6111A	1590	06 Feb 2025	12
A2889	Antenna	Schwarzbeck	BBHA 9120 B	00653	06 Nov 2024	12
A2890	Antenna	Schwarzbeck	HWRD 750	014	06 Nov 2024	12
A3167	Pre-Amplifier	Com-Power	PAM-103	18020010	31 Oct 2024	12
A2863	Pre-Amplifier	Keysight	8449B	3008A02100	30 Oct 2024	12
A223628	Pre-Amplifier	Atlantic Microwave	A-LNAKX-380116-S5S5	210837001	14 Nov 2024	12
A2148	Attenuator	Atlan TecRF	AN18-06	09020206-06#2	06 Feb 2025	12
A2916	Attenuator	AtlanTecRF	AN18W5-10	832827#2	25 Jan 2025	12
A2914	High Pass Filter	AtlanTecRF	AFH-03000	2155	25 Jan 2025	12
A212038	High Pass Filter	Micro-Tronics	HPS20723	004	25 Jan 2025	12
K0001	3m RSE Chamber	Rainford	N/A	N/A	06 Sep 2024	12
M2040	Thermohygrometer	Testo	608-H1	45124934	27 Dec 2024	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	08 Jun 2024	12
M236226	Test Receiver	Rohde & Schwarz	ESW26	103134	06 May 2025	12
M227313	Signal Analyser	Rohde & Schwarz	FSW43	102471	30 Nov 2024	12
A3165	Magnetic Loop Antenna	ETS-Lindgren	6502	00224383	26 Mar 2025	12
A553	Antenna	Chase EMC Ltd	CBL6111A	1593	25 Sep 2024	12
A3138	Antenna	Schwarzbeck	BBHA 9120 B	00702	23 Aug 2024	12
A3139	Antenna	Schwarzbeck	HWRD750	00027	23 Aug 2024	12
A3154	Pre-Amplifier	Com-Power	PAM-103	18020012	21 Aug 2024	12
A3179	Pre-Amplifier	Hewlett Packard	8449B	3008A00934	21 Aug 2024	12
A3224	Pre-Amplifier	Schwarzbeck	BBV 9718 C	00071	28 Feb 2025	12
A3112	Attenuator	AtlanTecRF	AN18W5-06	219706#2	25 Sep 2024	12
A2523	Attenuator	AtlanTecRF	AN18W5-10	832827#1	23 Jan 2025	12
A3083	Low Pass Filter	AtlanTecRF	AFL-01000	18010900076	23 Jan 2025	12
A3093	High Pass Filter	AtlanTecRF	AFH-03000	18051800077	23 Jan 2025	12
A212041	High Pass Filter	Micro-Tronics	HPS20723	001	23 Jan 2025	12
A2895	Antenna	Schwarzbeck	BBHA 9170	9170-728	04 Mar 2025	12
A2896	Pre-Amplifier	Schwarzbeck	BBV 9721	9721-023	27 Feb 2025	12

Test Equipment Used for Transmitter Radiated Emissions Band Edge

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2003	Thermohygrometer	Testo	608-H1	45046641	27 Dec 2024	12
K0017	3m RSE Chamber	Rainford	N/A	N/A	09 Nov 2024	12
M1995	Test Receiver	Rohde & Schwarz	ESU40	100428	20 Nov 2024	12
M227319	Communications Tester	Rohde & Schwarz	CMW500	171701	18 Dec 2024	12
A490	Antenna	Chase	CBL6111A	1590	06 Feb 2025	12
A2916	Attenuator	AtlanTecRF	AN18W5-10	832827#2	25 Jan 2025	12
A2863	Pre-Amplifier	Keysight Technologies Inc	8449B	3008A02100	30 Oct 2024	12
K0001	3m RSE Chamber	Rainford	N/A	N/A	06 Sep 2024	12
M2040	Thermohygrometer	Testo	608-H1	45124934	27 Dec 2024	12
M227313	Signal Analyser	Rohde & Schwarz	FSW43	102471	30 Nov 2024	12
A3138	Antenna	Schwarzbeck	BBHA 9120 B	00702	23 Aug 2024	12
A3179	Pre-Amplifier	Hewlett Packard	8449B	3008A00934	21 Aug 2024	12
A2523	Attenuator	AtlanTecRF	AN18W5-10	832827#1	23 Jan 2025	12

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Enigma
Model Number:	Quectel EG91
Test Sample Serial Number:	04270026 (<i>Radiated Sample</i>)
Hardware Version Number:	12440603
Firmware Version Number:	1.0.8
Contains FCC ID:	2BM9G-0044000901
Date Sample Received:	27 March 2024

3.2. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.3. Additional Information Related to Testing

Tested Technology:	LTE Band 2		
Type of Equipment	Transceiver		
Channel Bandwidth(s):	1.4, 3, 5, 10, 15 & 20 MHz		
Modulation Type:	QPSK / 16QAM		
Power Supply Requirement(s):	3.7 VDC / 120 VAC		
Transmit Frequency Range:	1850 to 1910 MHz		
Channels Tested:	Channel Bandwidth (MHz)	N_{ul}	Frequency of Uplink (MHz)
Bottom Channel	1.4	18607	1850.7
	3	18615	1851.5
	5	18625	1852.5
	10	18650	1855.0
	15	18675	1857.5
	20	18700	1860.0
Middle Channel	All	18900	1880.0
Top Channel	1.4	19193	1909.3
	3	19185	1908.5
	5	19175	1907.5
	10	19150	1905.0
	15	19125	1902.5
	20	19100	1900.0

Additional Information Related to Testing (continued)

Technology Tested:	LTE - Band 5		
Type of Equipment:	Transceiver		
Channel Bandwidths:	1.4, 3, 5 & 10 MHz		
Modulation:	QPSK		
Power Supply Requirement(s):	3.7 VDC / 120 VAC		
Transmit Frequency Range:	824 MHz to 849 MHz		
Channels Tested:	Channel Bandwidth (MHz)	N_{ul}	Frequency of Uplink (MHz)
Bottom Channel	1.4	20407	824.7
	3	20415	825.5
	5	20425	826.5
	10	20450	829.0
Middle Channel	All	20525	836.5
Top Channel	1.4	20643	848.3
	3	20635	847.5
	5	20625	846.5
	10	20600	844.0

3.4 Description of Available Antennas

The radio utilizes an integrated antenna. The antenna has the following maximum gain:

Frequency MHz)	Gain (dBi)
824 MHz to 849 MHz	2.53
1850 to 1910 MHz	2.53

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Test Laptop
Brand Name:	Dell
Model Name or Number:	Latitude 3520
Serial Number:	BHVJXL3

Description:	Optical UART Strap
Brand Name:	Enigma
Model Name or Number:	Not marked or stated
Serial Number:	00254316

Description:	Optical UART Strap
Brand Name:	Enigma
Model Name or Number:	Not marked or stated
Serial Number:	00204784

Description:	USB Charger / Adaptor
Brand Name:	Pos Power
Model Name or Number:	TS65F
Serial Number:	T22302

3.6. Description of Test Setup

Operating Modes

The EUT was tested in the following operating mode(s):

- Constantly transmitting at full power on bottom, middle and top channels as required.

Configuration and Peripherals

The EUT was tested in the following configuration(s):

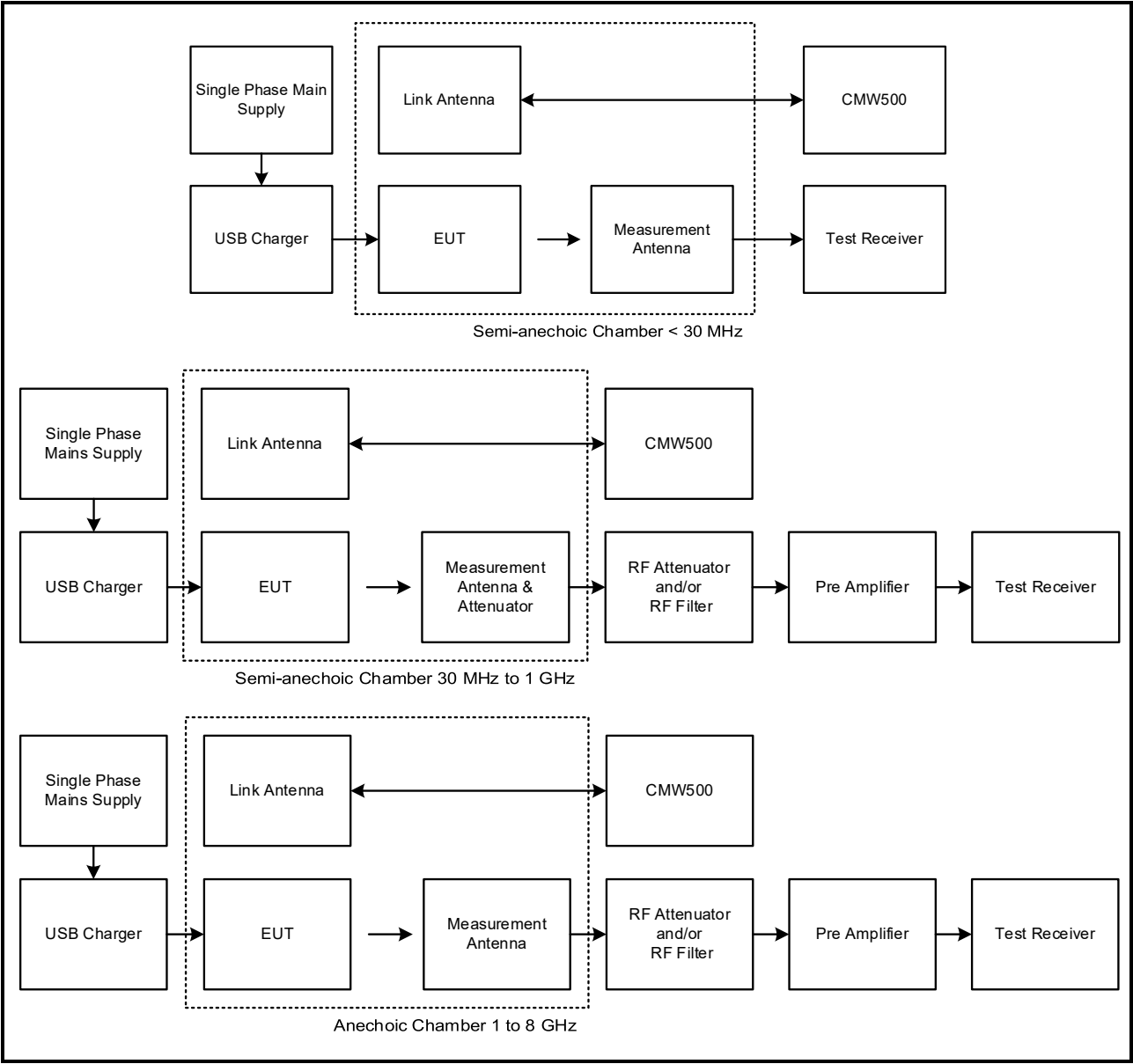
- The EUT was connected via a radiated link to a Rohde & Schwarz CMW500 communications tester. The CMW500 was used to configure the EUT operating mode.
- The customer supplied a document containing the setup instructions "ul.02.01.opt_plus_standard_operating_procedure.pdf".
- The EUT was powered from a 120 VAC 60 Hz single phase mains supply via its USB charger.
- There were no active ports to terminate.
- Transmitter radiated band edge emissions tests were performed with the EUT transmitting in the following worst-case modes, as determined from the module test report:
 - LTE Band 2: QPSK / 1.4 MHz / 2 & Full RB
 - LTE Band 2: QPSK / 3 MHz / 2 & Full RB
 - LTE Band 2: QPSK / 5 MHz / 2 & Full RB
 - LTE Band 2: QPSK / 10 MHz / 2 & Full RB
 - LTE Band 2: QPSK / 15 MHz / 2 & Full RB.
 - LTE Band 2: QPSK / 20 MHz / 2 & Full RB
 - LTE Band 5: QPSK / 1.4 MHz / 2 & Full RB
 - LTE Band 5: QPSK / 3 MHz / 2 & Full RB
 - LTE Band 5: QPSK / 5 MHz / 2 & Full RB
 - LTE Band 5: QPSK / 10 MHz / 2 & Full RB

Note –it was not possible to maintain a stable connection with 1 RB, therefore 2 RB configuration was used.
- The EUT was placed in three orthogonal orientations X, Y and Z to determine the worst-case orientation for radiated spurious emissions and radiated band edge tests. This was determined to be the X position for both LTE band 2 and Z position for band 5. All pre-scans and final measurements were performed in these orientations.

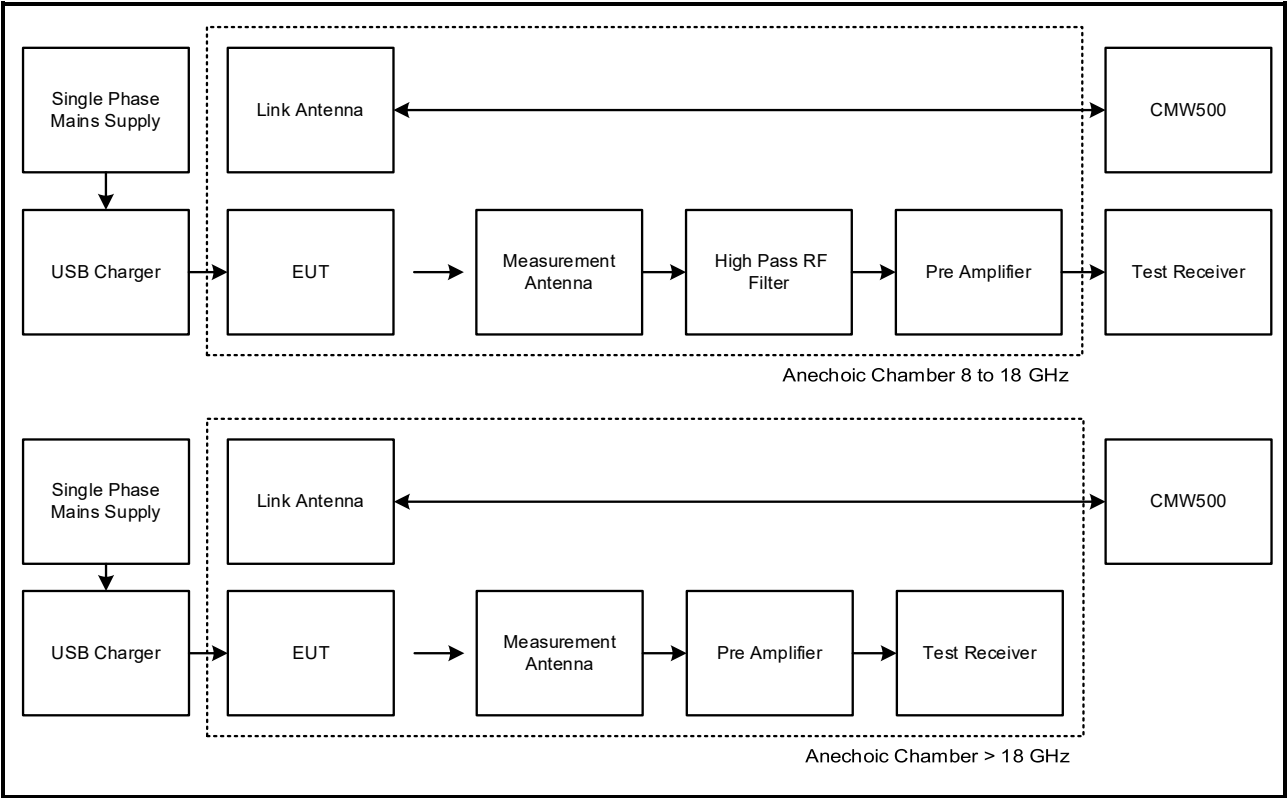
Test Setup Diagrams

Radiated Tests:

Test Setup for Transmitter Radiated Emissions



Test Setup Diagrams (continued)



4. Test Results

4.1 Transmitter Out of Band Radiated Emissions - LTE Band 2

Test Summary:

Test Engineer:	Vi Van	Test Dates:	11 May 2024 to 26 May 2024
Test Sample Serial Number:	04270026		

FCC Reference:	Parts 15.209(a) & 24.238(a)
Test Method Used:	KDB 971168 Section 6.1 referencing ANSI C63.26 Section 5.5 & 5.7
Frequency Range	9 kHz to 20 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	44 to 46

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. All other emissions shown on the pre-scan plot were investigated and found to be ambient, >20 dB below the appropriate limit or below the measurement system noise floor.
3. The emission seen on the 1 GHz to 3 GHz plot at approximately 1880.0 MHz is the EUT uplink.
4. Measurements below 30 MHz were performed in a semi-anechoic chamber (Asset Number K0001) at 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. The measurement was extrapolated in accordance with ANSI C63.10 clause 6.4.3 using the method described in clause 6.4.4.2. ANSI C63.10 clause 5.2 states an alternative test site that can demonstrate equivalence to an open area test site may be used for measurements below 30 MHz. Therefore, measurements were performed in a semi-anechoic chamber. The correlation data between semi-anechoic chamber and an open field test site is available upon request.
5. The measured values at 3 metres were extrapolated to the required measurement distances of 300 metres and 30 metres and compared to the specified limits at those distances:
 - 9 kHz to 490 kHz: measured value extrapolated from 3 metres to 300 metres by subtracting 80 dB at 40 dB / decade
 - 490 kHz to 30 MHz: measured value extrapolated from 3 metres to 30 metres by subtracting 40 dB at 40 dB / decade
6. Measurements from 30 MHz to 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
7. Measurements above 1 GHz were performed in a fully-anechoic chamber (Asset Number K0001 and Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Out of Band Radiated Emissions - LTE Band 2 (continued)**Results: Bottom Channel**

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3701.290	-32.5	-13.0	19.5	Complied
5552.290	-36.4	-13.0	23.4	Complied
7402.900	-40.1	-13.0	27.1	Complied
9251.780	-34.0	-13.0	21.0	Complied

Results: Middle Channel

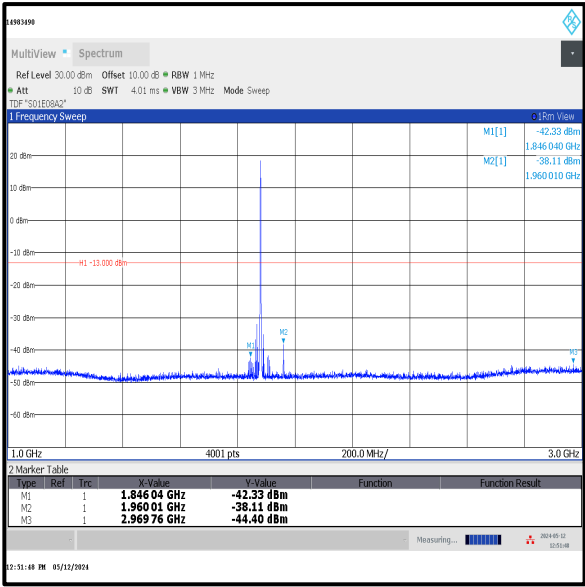
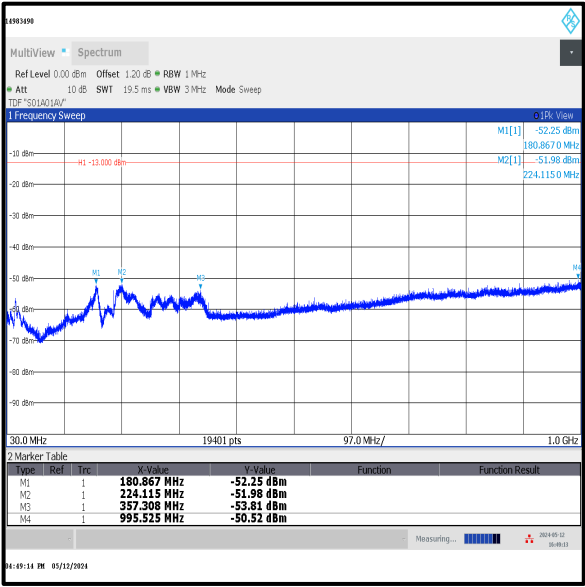
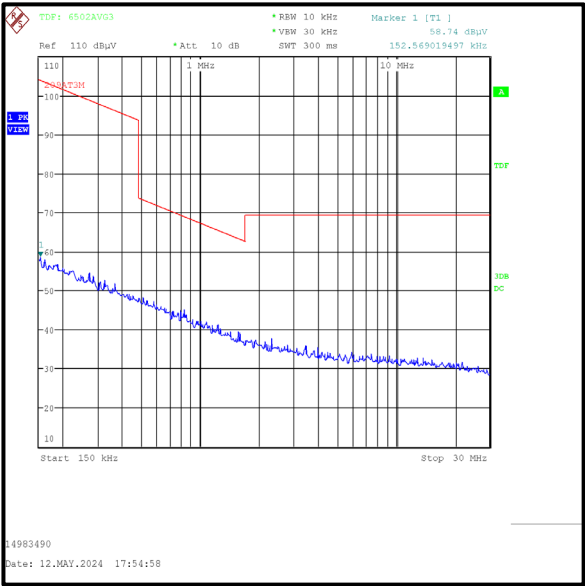
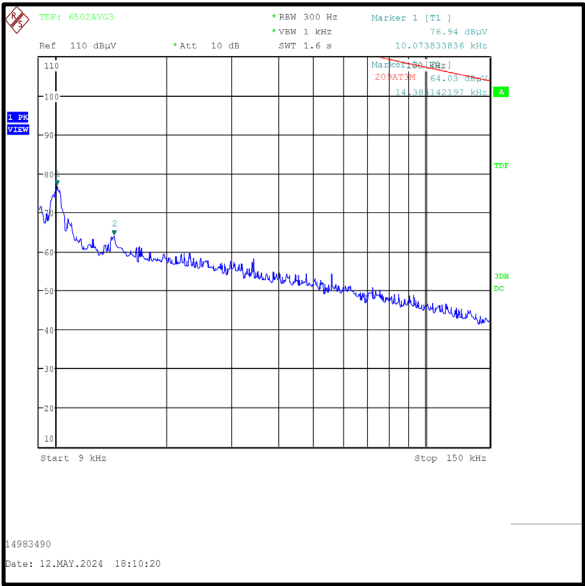
Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3760.170	-33.1	-13.0	20.1	Complied
5640.090	-29.5	-13.0	16.5	Complied

Results: Top Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
3819.150	-29.6	-13.0	16.6	Complied
5727.750	-30.3	-13.0	17.3	Complied
7637.050	-29.6	-13.0	16.6	Complied
9544.960	-30.6	-13.0	17.6	Complied

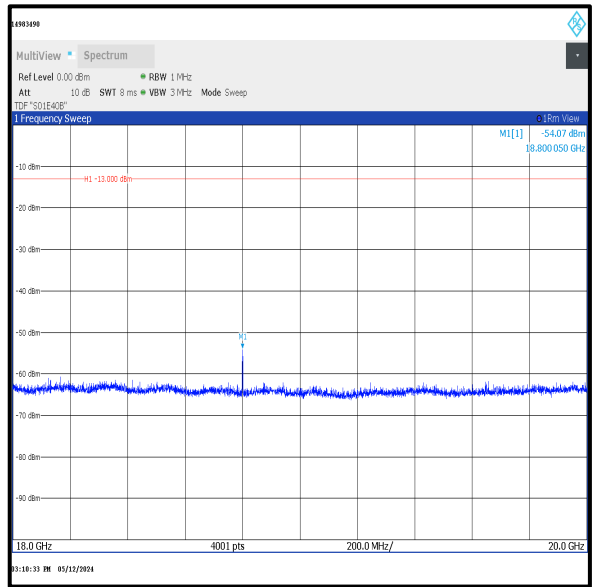
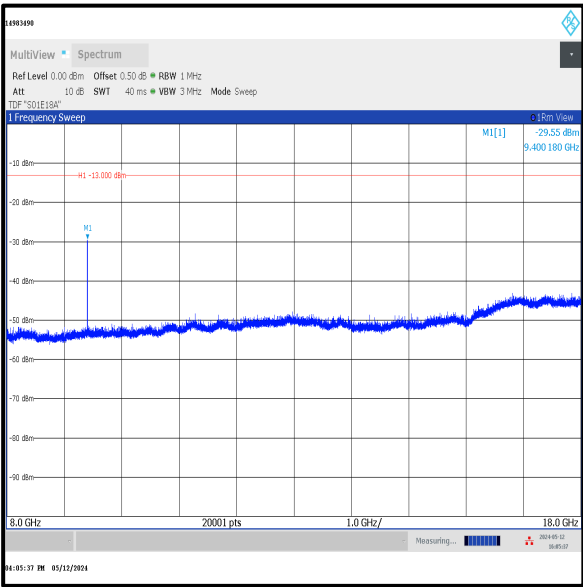
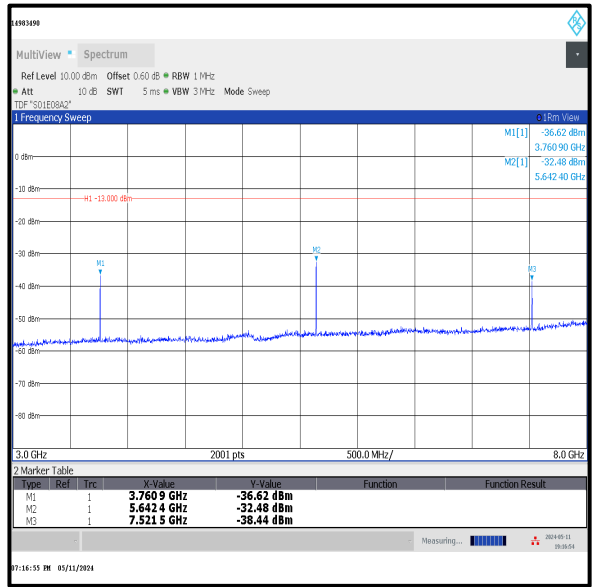
Transmitter Out of Band Radiated Emissions - LTE Band 2 (continued)

Plots: Middle Channel



Note: These plots are pre-scans for indication purposes only. For final measurements, see accompanying tables.

Transmitter Out of Band Radiated Emissions - LTE Band 2 (continued)



Note: These plots are pre-scans for indication purposes only. For final measurements, see accompanying tables.

4.2 Transmitter Out of Band Radiated Emissions - LTE Band 5

Test Summary:

Test Engineers:	Vi Van	Test Dates:	12 May 2024 & 26 May 2024
Test Sample Serial Number:	04270026		

FCC Reference:	Parts 15.209(a) & 22.917
Test Method Used:	KDB 971168 Section 6.1 referencing ANSI C63.26 Section 5.5 & 5.7
Frequency Range	9 kHz to 8.5 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	44

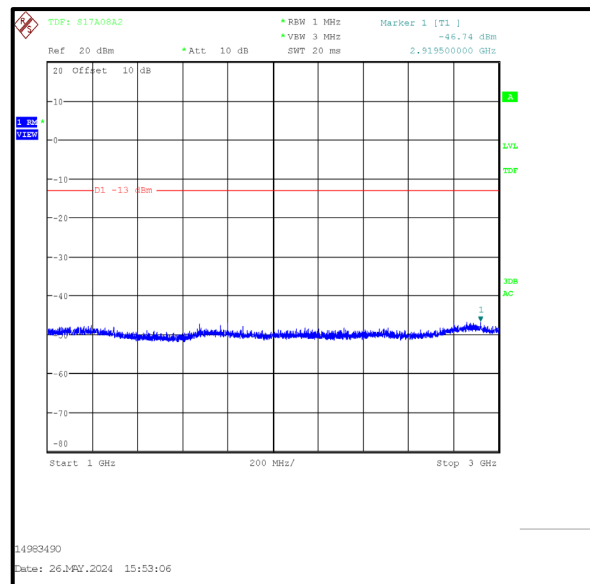
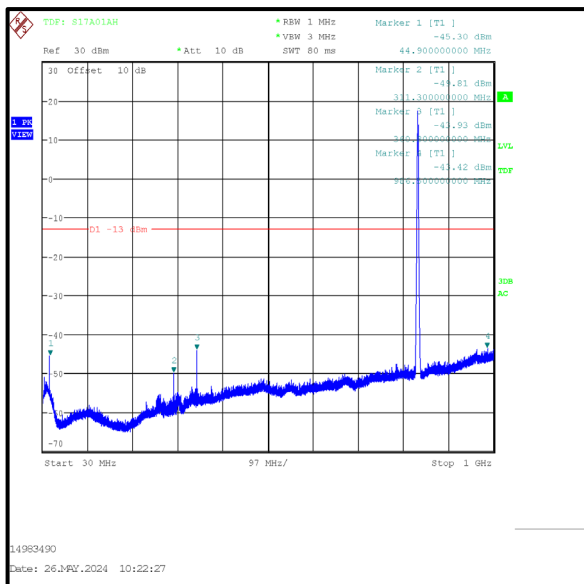
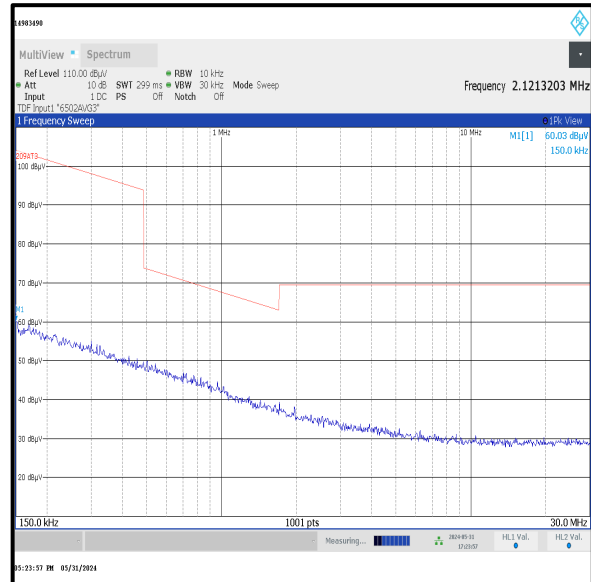
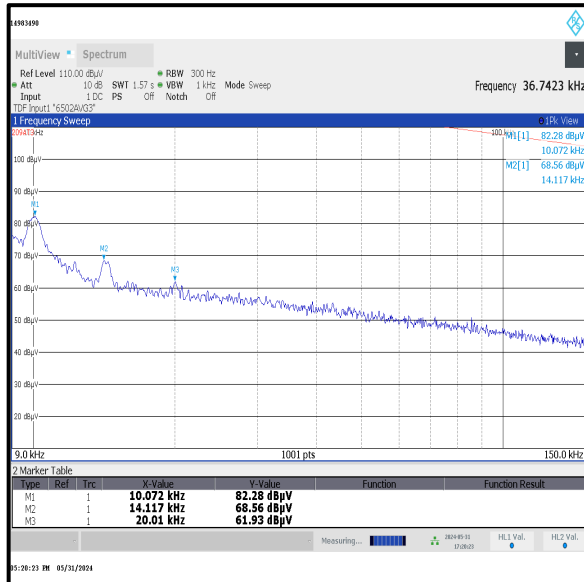
Note(s):

1. The emission seen on the 30 MHz to 1 GHz plot at approximately 836.5 MHz is the EUT uplink.
2. All emissions shown on the pre-scans were investigated and found to be ambient, > 20 dB below the appropriate limit or below the noise floor of the measurement system. Therefore the highest peak pre-scan reading of the measuring receiver was recorded in the table below.
3. Measurements below 30 MHz were performed in a semi-anechoic chamber (Asset Number K0001) at 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. The measurement was extrapolated in accordance with ANSI C63.10 clause 6.4.3 using the method described in clause 6.4.4.2. ANSI C63.10 clause 5.2 states an alternative test site that can demonstrate equivalence to an open area test site may be used for measurements below 30 MHz. Therefore, measurements were performed in a semi-anechoic chamber. The correlation data between semi-anechoic chamber and an open field test site is available upon request.
4. The measured values at 3 metres were extrapolated to the required measurement distances of 300 metres and 30 metres and compared to the specified limits at those distances:
 - 9 kHz to 490 kHz: measured value extrapolated from 3 metres to 300 metres by subtracting 80 dB at 40 dB / decade
 - 490 kHz to 30 MHz: measured value extrapolated from 3 metres to 30 metres by subtracting 40 dB at 40 dB / decade
5. Measurements from 30 MHz to 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
6. Measurements above 1 GHz were performed in a fully-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

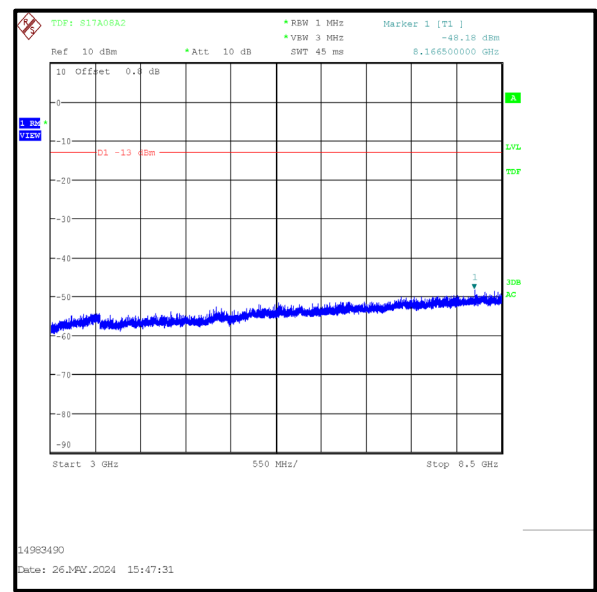
Transmitter Out of Band Radiated Emissions - LTE Band 5 (continued)

Results: Middle Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
986.500	-43.4	-13.0	23.4	Complied



Transmitter Out of Band Radiated Emissions - LTE Band 5 (continued)



4.3.Transmitter Band Edge Radiated Emissions - LTE Band 2

Test Summary:

Test Engineer:	Vi Van	Test Date:	11 May 2024
Test Sample Serial Number:	04270026		

FCC Reference:	Parts 2.1053 & 24.238(a)
Test Method Used:	KDB 971168 Section 6.1 referencing ANSI C63.26 Sections 5.5 & 5.7

Environmental Conditions:

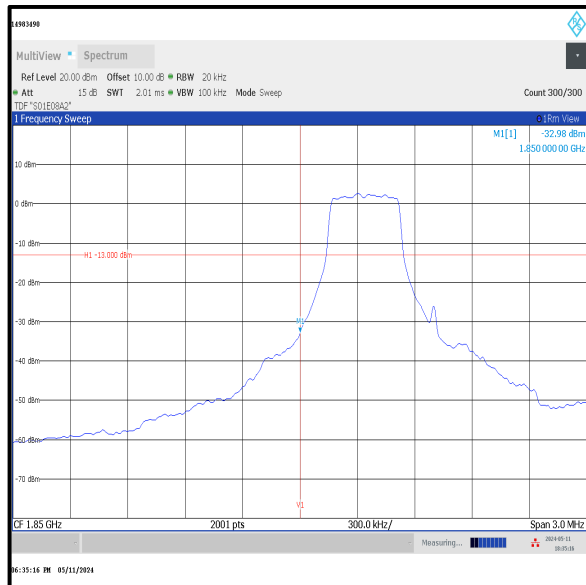
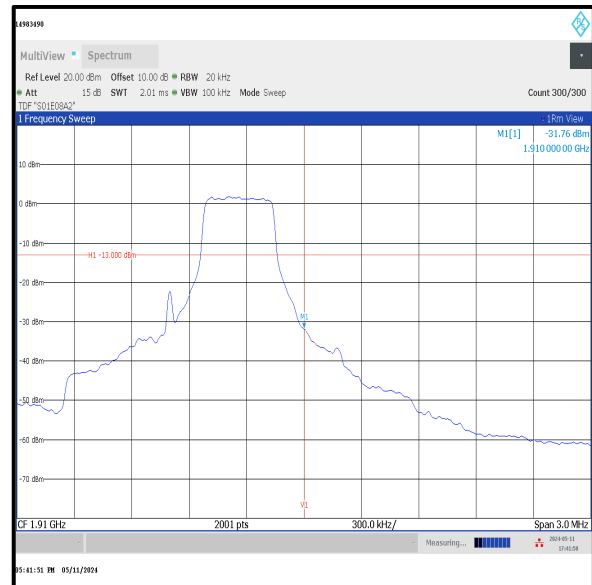
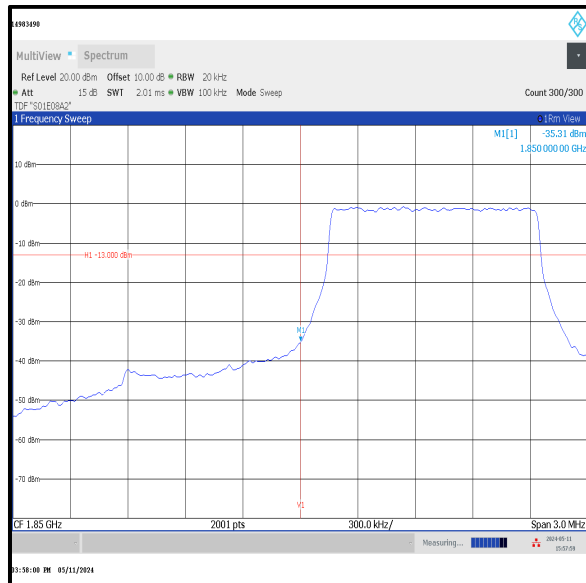
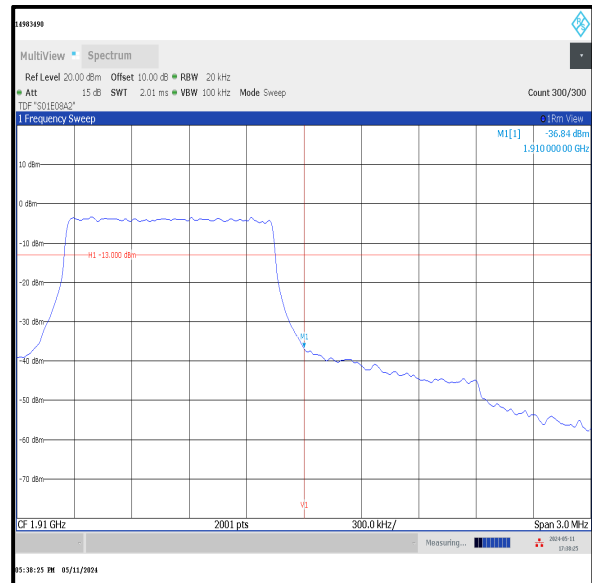
Temperature (°C):	23
Relative Humidity (%):	44

Note(s):

1. Measurements were performed in a fully anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
2. For lower Band Edge, in the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to >1% of the widest 26 dB emission bandwidth and video bandwidth as close to > three times the resolution bandwidth as the test receiver allowed. Sweep time was set to auto and an RMS detector with trace averaging of at least 300 sweeps was used.
3. For upper Band Edge, in the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to >1% of the widest 26 dB emission bandwidth and video bandwidth as close to > three times the resolution bandwidth as the test receiver allowed. Sweep time was set to auto and an RMS detector with trace averaging of at least 300 sweeps was used.

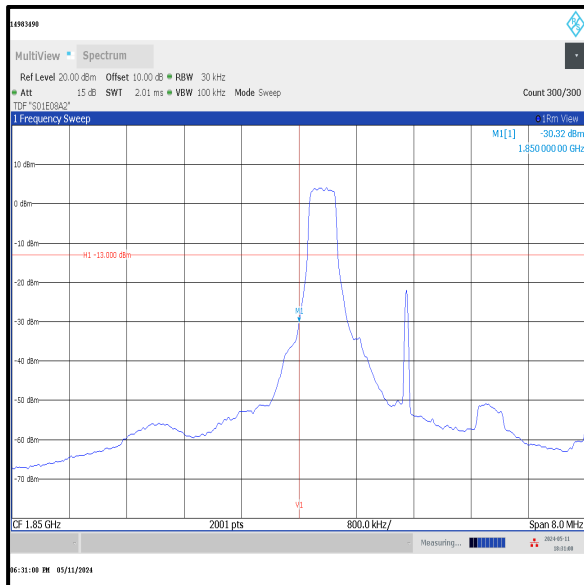
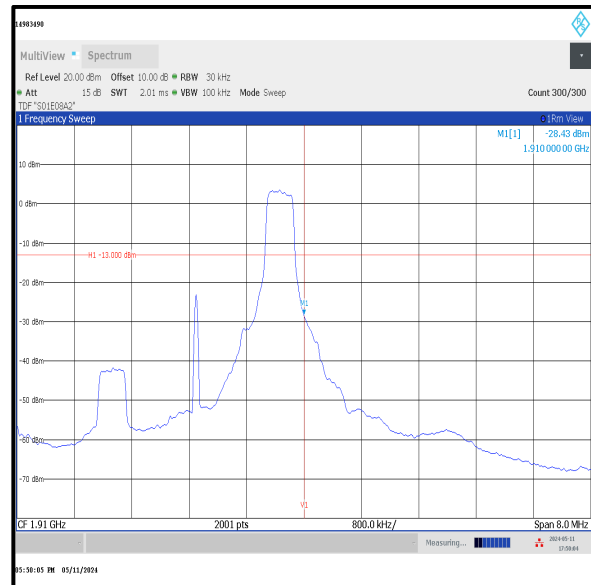
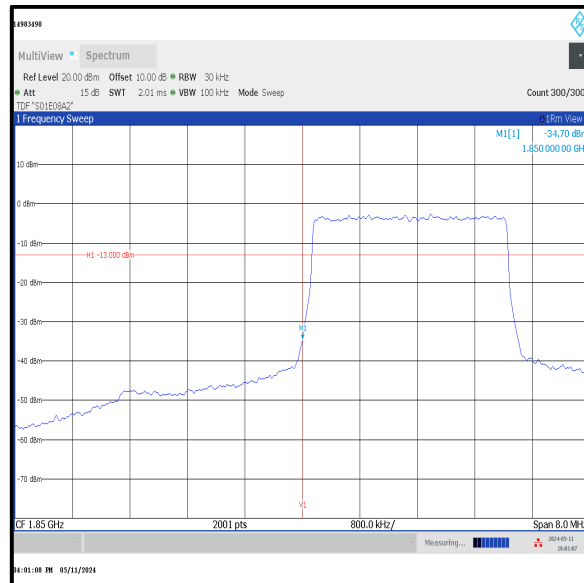
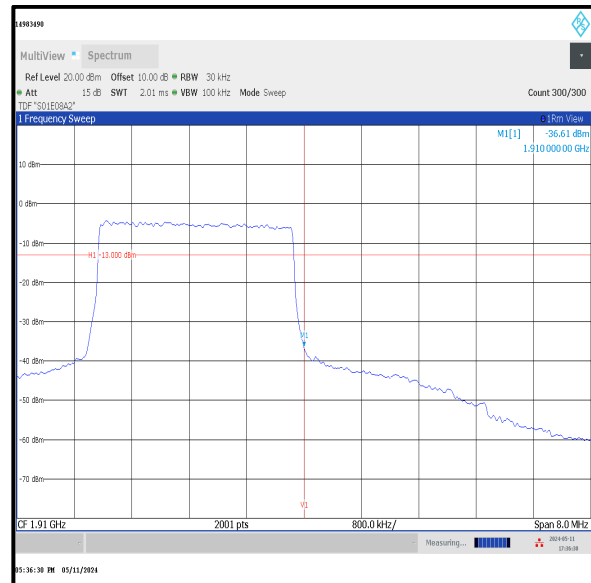
Transmitter Band Edge Radiated Emissions - LTE Band 2 (continued)**Results: 1.4 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	2	0	-33.0	-13.0	20.0	Complied
1910	2	4	-31.8	-13.0	18.8	Complied
1850	6	0	-35.3	-13.0	22.3	Complied
1910	6	0	-36.8	-13.0	23.8	Complied

**QPSK / 2 RB Offset 0 / Lower Band Edge****QPSK / 2 RB Offset 4 / Upper Band Edge****QPSK / 6 RB Offset 0 / Lower Band Edge****QPSK / 6 RB Offset 0 / Upper Band Edge**

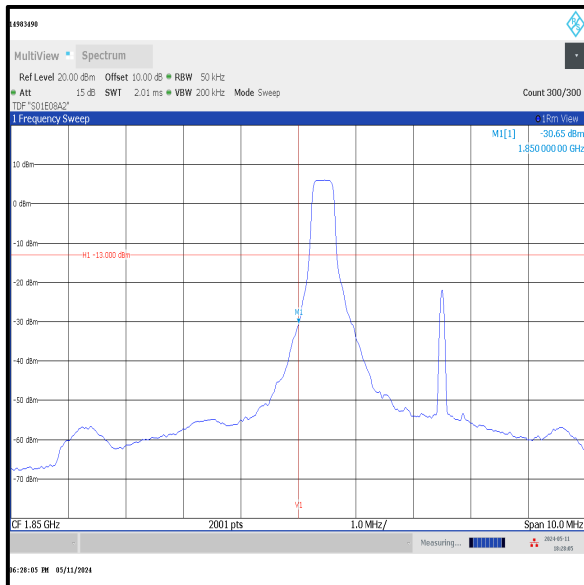
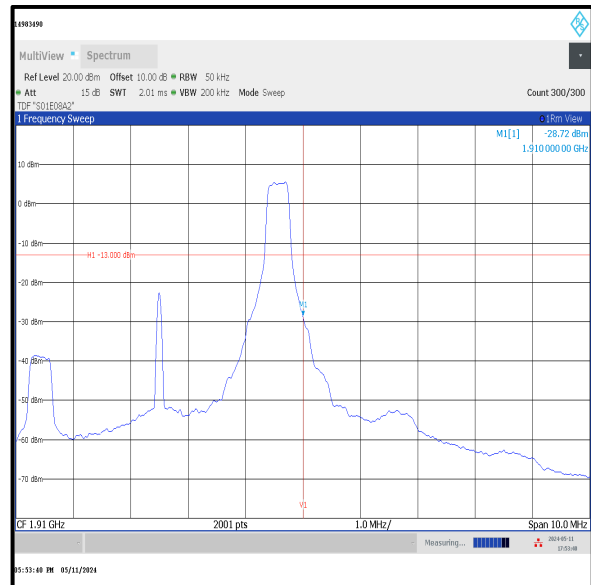
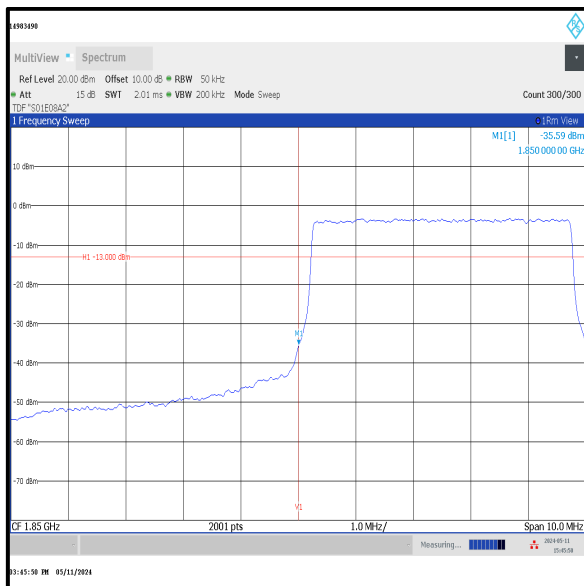
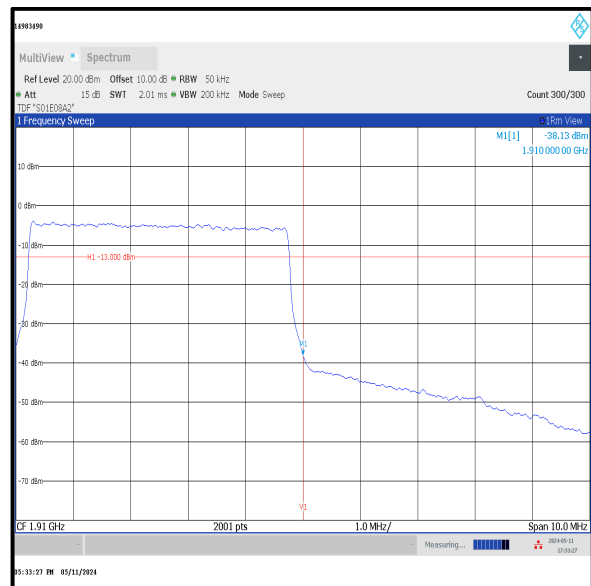
Transmitter Band Edge Radiated Emissions - LTE Band 2 (continued)**Results: 3 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	2	0	-30.3	-13.0	17.3	Complied
1910	2	13	-28.4	-13.0	15.4	Complied
1850	15	0	-34.7	-13.0	21.7	Complied
1910	15	0	-36.6	-13.0	23.6	Complied

**QPSK / 2 RB 0 offset / Lower Band Edge****QPSK / 2 RB 13 offset / Upper Band Edge****QPSK / 15 RB 0 offset / Lower Band Edge****QPSK / 15 RB 0 offset / Upper Band Edge**

Transmitter Band Edge Radiated Emissions - LTE Band 2 (continued)**Results: 5 MHz Channel Bandwidth / QPSK**

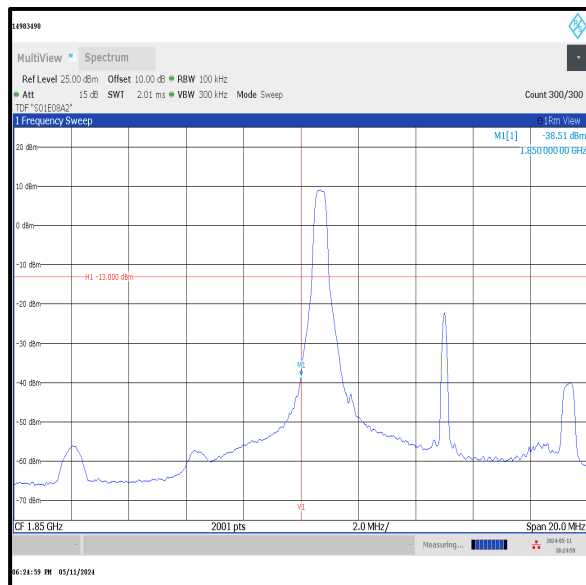
Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	2	0	-30.7	-13.0	17.7	Complied
1910	2	23	-28.7	-13.0	15.7	Complied
1850	25	0	-35.6	-13.0	22.6	Complied
1910	25	0	-38.1	-13.0	25.1	Complied

**QPSK / 2 RB 0 offset / Lower Band Edge****QPSK / 2 RB 23 offset / Upper Band Edge****QPSK / 25 RB 0 offset / Lower Band Edge****QPSK / 25 RB 0 offset / Upper Band Edge**

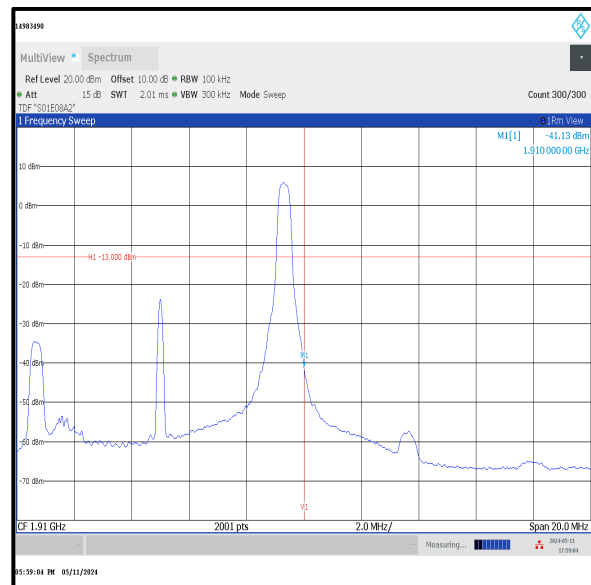
Transmitter Band Edge Radiated Emissions - LTE Band 2 (continued)

Results: 10 MHz Channel Bandwidth / QPSK

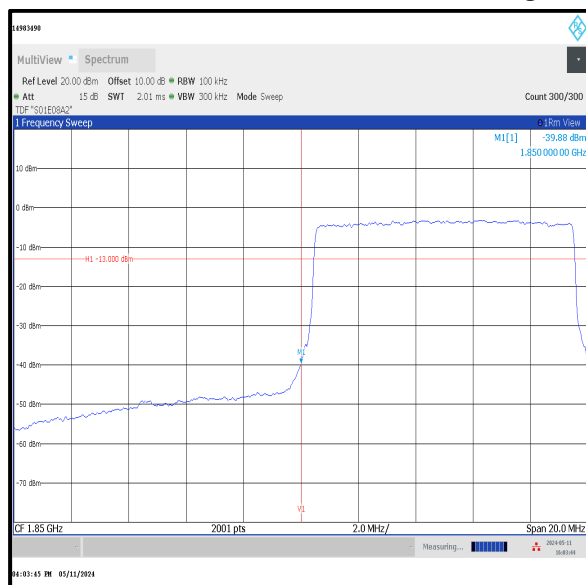
Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	2	0	-38.5	-13.0	25.5	Complied
1910	2	48	-41.1	-13.0	28.1	Complied
1850	50	0	-39.9	-13.0	26.9	Complied
1910	50	0	-38.0	-13.0	25.0	Complied



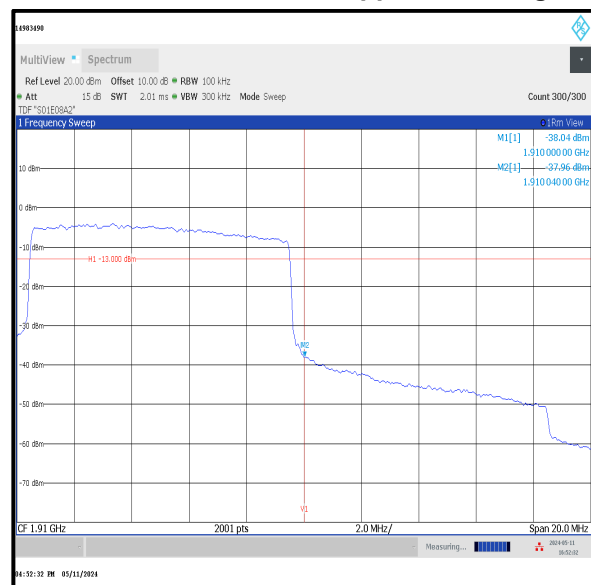
QPSK / 2 RB 0 offset / Lower Band Edge



QPSK / 2 RB 48 offset / Upper Band Edge



QPSK / 50 RB 0 offset / Lower Band Edge

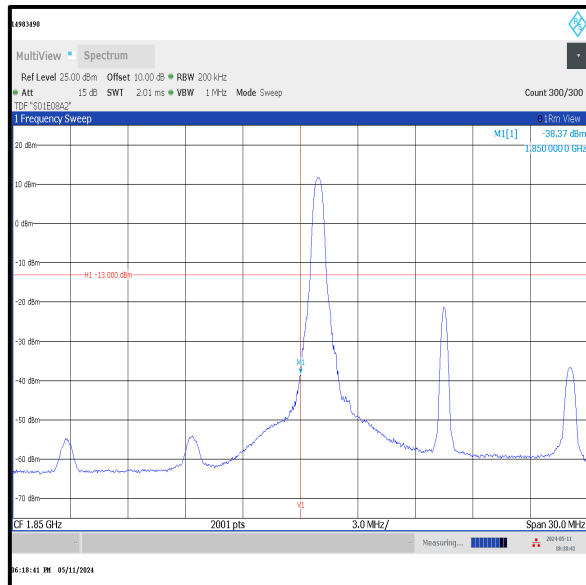


QPSK / 50 RB 0 offset / Upper Band Edge

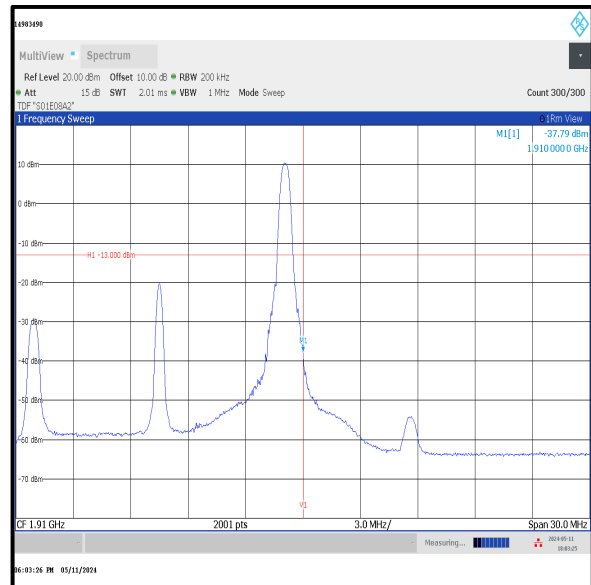
Transmitter Band Edge Radiated Emissions - LTE Band 2 (continued)

Results: 15 MHz Channel Bandwidth / QPSK

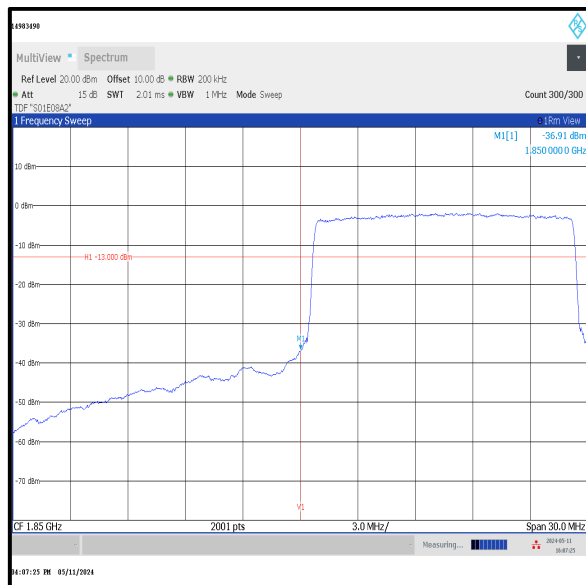
Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	2	0	-38.4	-13.0	25.4	Complied
1910	2	73	-37.8	-13.0	24.8	Complied
1850	75	0	-36.9	-13.0	23.9	Complied
1910	75	0	-37.6	-13.0	24.6	Complied



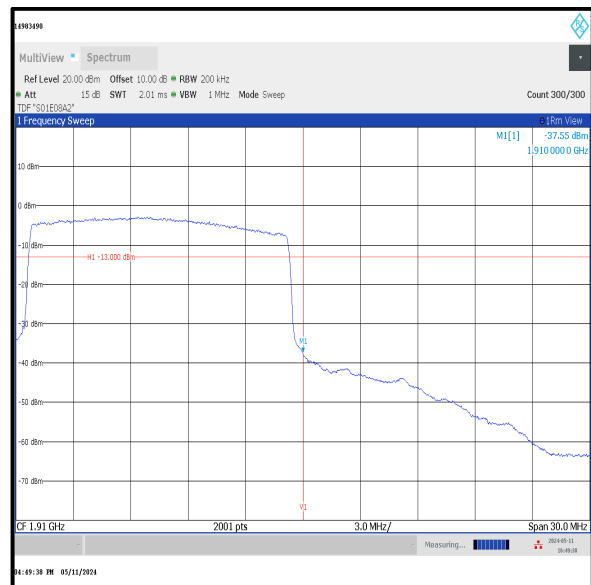
QPSK / 2 RB 0 offset / Lower Band Edge



QPSK / 2 RB 74 offset / Upper Band Edge



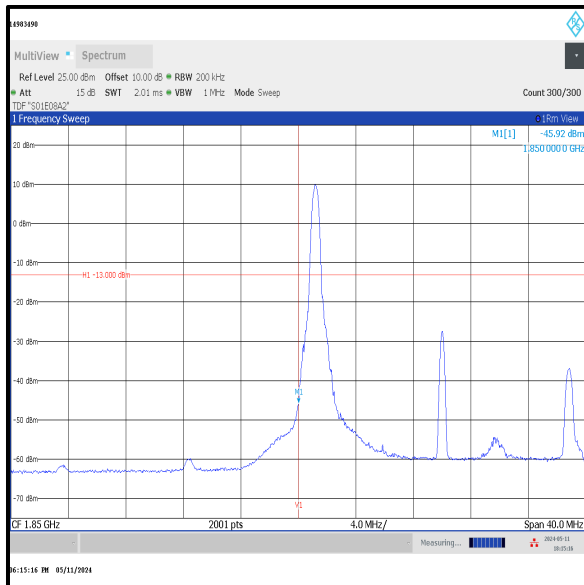
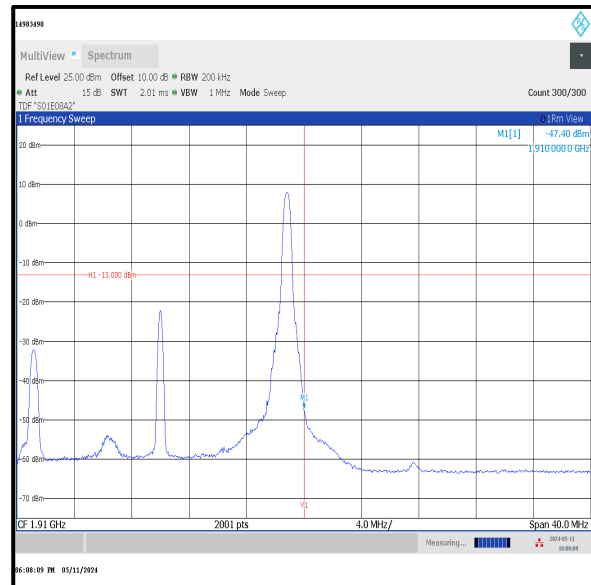
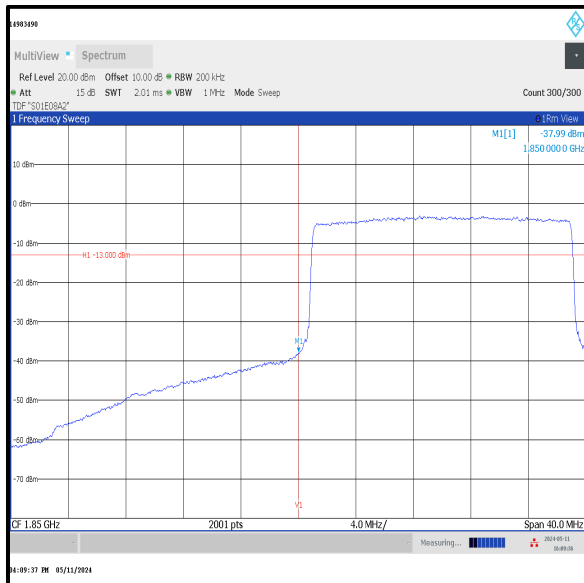
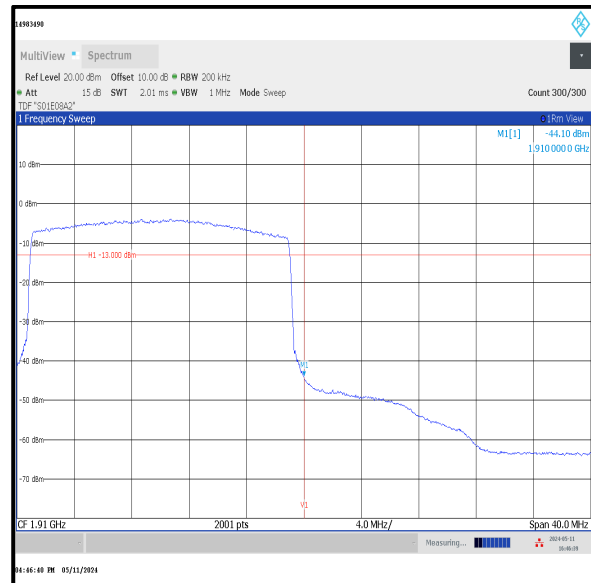
QPSK / 75 RB 0 offset / Lower Band Edge



QPSK / 75 RB 0 offset / Upper Band Edge

Transmitter Band Edge Radiated Emissions - LTE Band 2 (continued)**Results: 20 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1850	2	0	-45.9	-13.0	32.9	Complied
1910	2	98	-47.4	-13.0	34.4	Complied
1850	100	0	-38.0	-13.0	25.0	Complied
1910	100	0	-44.1	-13.0	31.1	Complied

**QPSK / 2 RB 0 offset / Lower Band Edge****QPSK / 2 RB 98 offset / Upper Band Edge****QPSK / 100 RB 0 offset / Lower Band Edge****QPSK / 100 RB 0 offset / Upper Band Edge**

4.4. Transmitter Band Edge Radiated Emissions - LTE Band 5

Test Summary:

Test Engineer:	Vi Van	Test Date:	24 May 2024
Test Sample Serial Number:	04270026		

FCC Reference:	Parts 2.1053 & 22.917
Test Method Used:	KDB 971168 Section 6.1 referencing ANSI C63.26 Sections 5.5 & 5.7

Environmental Conditions:

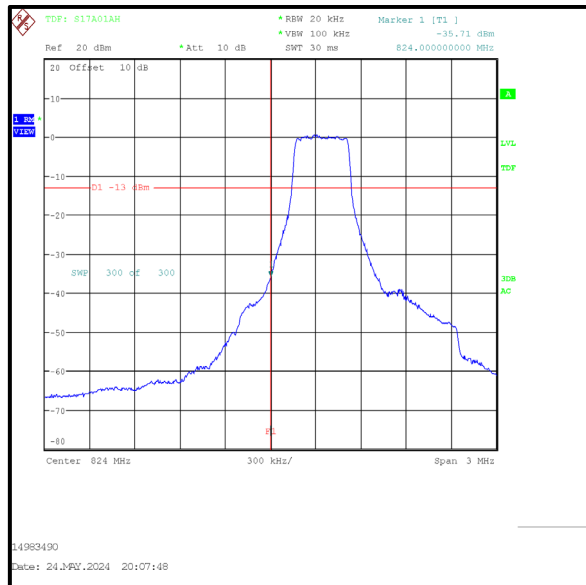
Temperature (°C):	23
Relative Humidity (%):	46

Note(s):

1. Measurements were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
2. In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to >1% of the widest 26 dB emission bandwidth and video bandwidth three times the resolution bandwidth.

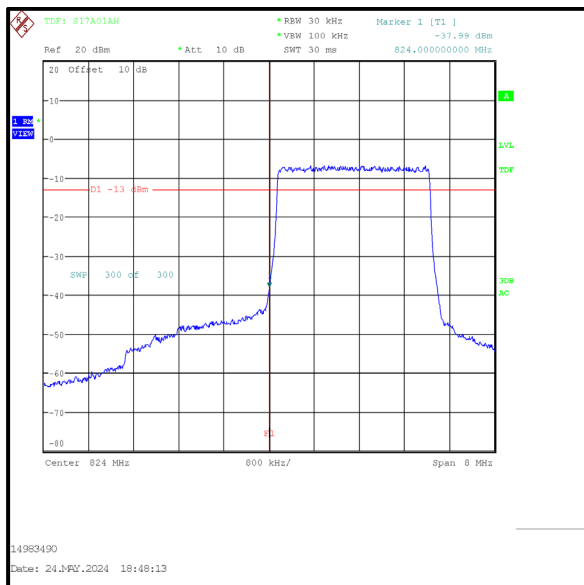
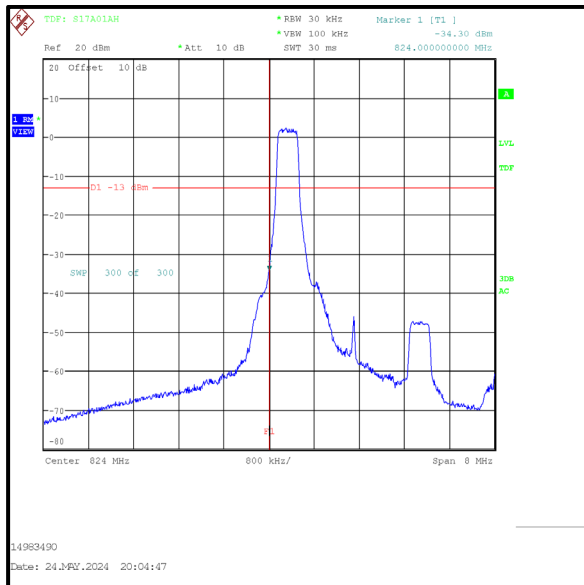
Transmitter Band Edge Radiated Emissions - LTE Band 5 (continued)**Results: 1.4 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	2	0	-35.7	-13.0	22.7	Complied
849	2	4	-29.2	-13.0	16.2	Complied
824	6	0	-39.6	-13.0	26.6	Complied
849	6	0	-37.6	-13.0	24.6	Complied

**QPSK / 2 RB Offset 0 / Lower Band Edge****QPSK / 2 RB Offset 4 / Upper Band Edge****QPSK / 6 RB Offset 0 / Lower Band Edge****QPSK / 6 RB Offset 0 / Upper Band Edge**

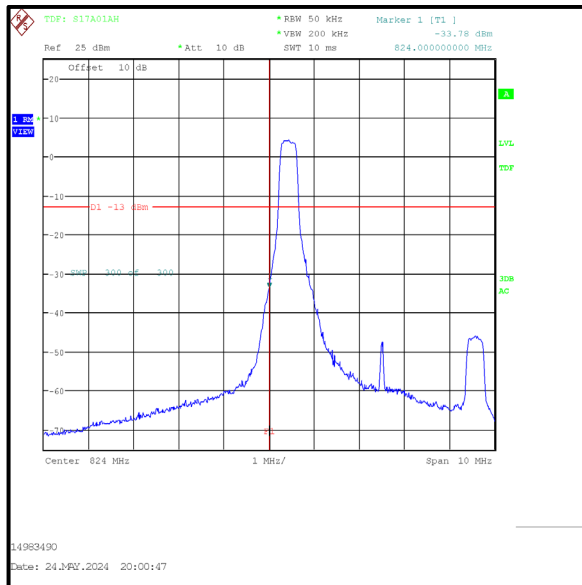
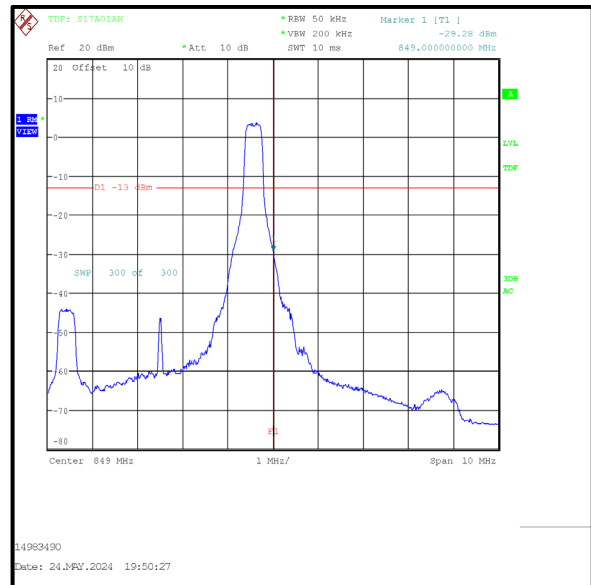
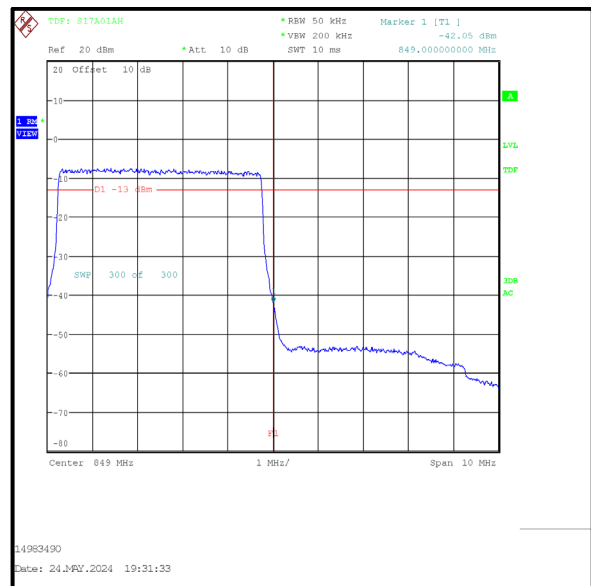
Transmitter Band Edge Radiated Emissions - LTE Band 5 (continued)**Results: 3 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	2	0	-34.3	-13.0	21.3	Complied
849	2	13	-27.4	-13.0	14.4	Complied
824	15	0	-38.0	-13.0	25.0	Complied
849	15	0	-40.2	-13.0	27.2	Complied



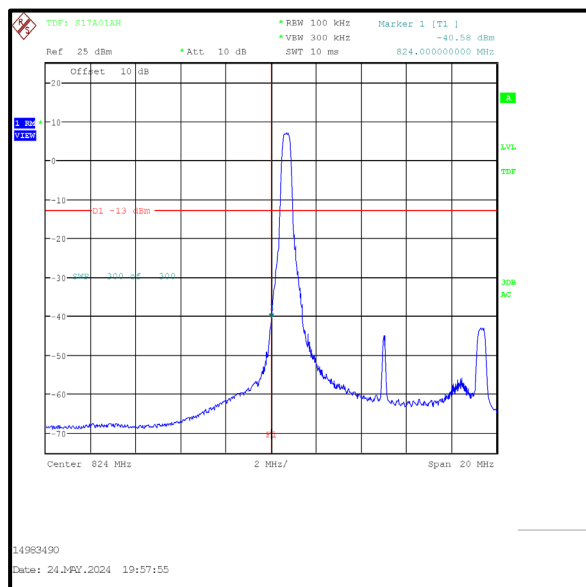
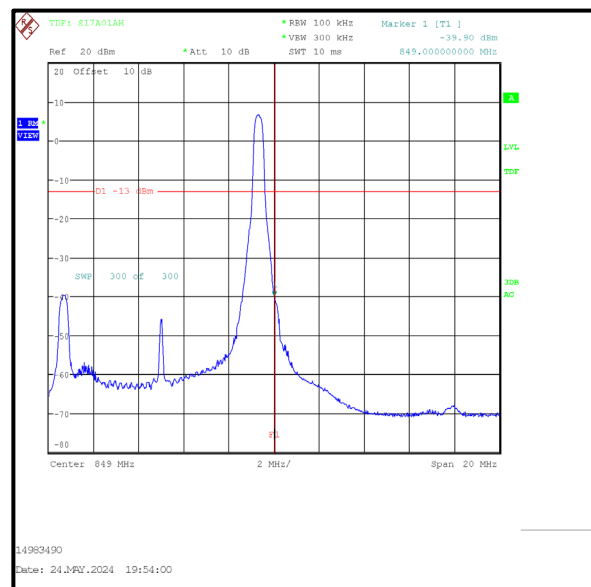
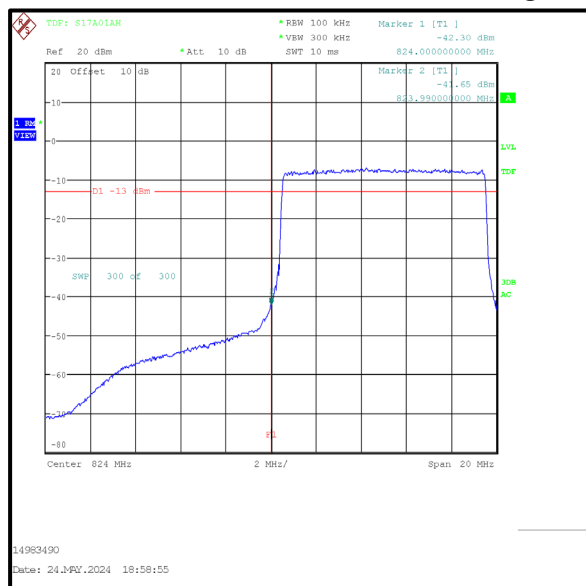
Transmitter Band Edge Radiated Emissions - LTE Band 5 (continued)**Results: 5 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	2	0	-33.8	-13.0	20.8	Complied
849	2	23	-29.3	-13.0	16.3	Complied
824	25	0	-40.0	-13.0	27.0	Complied
849	25	0	-42.0	-13.0	29.0	Complied

**QPSK / 2 RB 0 offset / Lower Band Edge****QPSK / 2 RB 23 offset / Upper Band Edge****QPSK / 25 RB 0 offset / Lower Band Edge****QPSK / 25 RB 0 offset / Upper Band Edge**

Transmitter Band Edge Radiated Emissions - LTE Band 5 (continued)**Results: 10 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	2	0	-40.6	-13.0	27.6	Complied
849	2	48	-39.9	-13.0	26.9	Complied
823.99	50	0	-41.7	-13.0	28.7	Complied
824	50	0	-42.3	-13.0	29.3	Complied
849	50	0	-45.7	-13.0	32.7	Complied

**QPSK / 2 RB 0 offset / Lower Band Edge****QPSK / 2 RB 48 offset / Upper Band Edge****QPSK / 50 RB 0 offset / Lower Band Edge****QPSK / 50 RB 0 offset / Upper Band Edge****--- END OF REPORT ---**