

TEST REPORT

No. AR24-0103136-01

performed in accordance with

FCC Rules: Code of Federal Regulations (CFR) no. 47
Part 15 Subpart C Section 15.249

and

INDUSTRY CANADA

Spectrum Management and Telecommunications Radio Standards Specification

RSS-210:2024

Licence-Exempt Radio Apparatus

Category I Equipment

PRODUCT	LPD transmitter of RRC radio system
MODEL(s) TESTED	P904+
FCC ID	02W-TPP
IC CODE	10492A-TPP
TRADE MARK(s)	QUICK

APPLICANT	QUICK S.p.A. – Via Piangipane, 120/A – IT-48124 Piangipane (RA)
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Tested by	Robertino Torri [Laboratory technician]	
Approved by	Federico Sirtori [Laboratory manager]	

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	2025-11-18	First edition Digital signed - AR24-0103136-01_Rev3_TR_FCC Part C 15.249 + RSS 210-GEN - QUICK - P904+.doc
Rev. 1	2026-02-05	Second edition Fixed typo on ISED testing location, added maximum RF gain as declared by manufacturer and specified measurement type performed (radiated)
Rev. 2	2026-03-25	Third edition Updated limit values to AV measurement and standards references
Rev. 3	2026-06-24	Fourth edition Updated graphic on page 14 and table on page 16 & 20 with QPK detector measurement.

The results of tests and checks reported in this Test Report refer exclusively to the samples tested and described in the Report itself.

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The authenticity of this Test Report and its contents can be verified by contacting IMQ S.p.A., responsible for this Test Report.

1. GENERAL DATA

SAMPLE		
Samples received on	2024-04-23	(Item(s) sampled and sent by applicant)
IMQ reference samples	BEM	117192
Samples tested No.	1	
Object under analysis recognition	Not carried out	
Date of acceptance of test item	2024-04-23	
TEST LOCATION		
Testing dates	2024-07-22 ÷ 2024-07-24	
Testing laboratory	IMQ S.p.A. - Via Quintiliano, 43 – IT-20138 Milano	
Testing site	Viale Lombardia, 20/B – IT-20021 Bollate (MI)	
ISED Canada Test site registration number	22460 (at the date of Rev. 1 test report revision)	
ENVIRONMENTAL CONDITIONING		
Parameter	Measured	
Ambient Temperature	20÷22 °C	
Relative Humidity	58 %	
Atmospheric Pressure	978 mbar	
The laboratory is monitored by a continuous environmental conditions measurements system. Temperature, humidity and pressure data are recorded on a weekly basis and stored in local archive.		
REMARKS		
Throughout this report a point is used as the decimal separator. The ability or reliability of this product to perform its intended function in a particular application has not been investigated. The test results apply to the sample as received. All information relating to the details of the equipment under test at the § 3 of this document was provided by the applicant. IMQ declines any responsibility derived from missing or wrong information provided aside by the applicant.		

2. REFERENCE DOCUMENT

	DOCUMENT	DATE	TITLE
☒	47 CFR Part 15	/	Radio Frequency Device
☒	ANSI C63.4	2020	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
☒	ANSI C63.10	2020	American National Standard for Testing Unlicensed Wireless Devices (For FCC only)
☒	ANSI C63.10	2020 Corr. 1-2023 C63.10a-2024	American National Standard for Testing Unlicensed Wireless Devices. (For ISSED only)
☒	RSS-GEN Amd.1 Amd.2	2018 Issue 5 2019 2021	General Requirements for Compliance of Radio Apparatus
☒	RSS-210	2024 Issue 11	Licence-Exempt Radio Apparatus: Category I Equipment

3. EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL DATA

MODEL (tested)	Description
P904+	LPD transmitter of RRC radio system
MODEL (derivated)	Description
P902+ PW94+ PT94+	As P904+ The transmitters have the same electronic board (the same PCB and components) but the number of the buttons and their disposition can change. The firmware is the same and factory settable for the five different types of use.

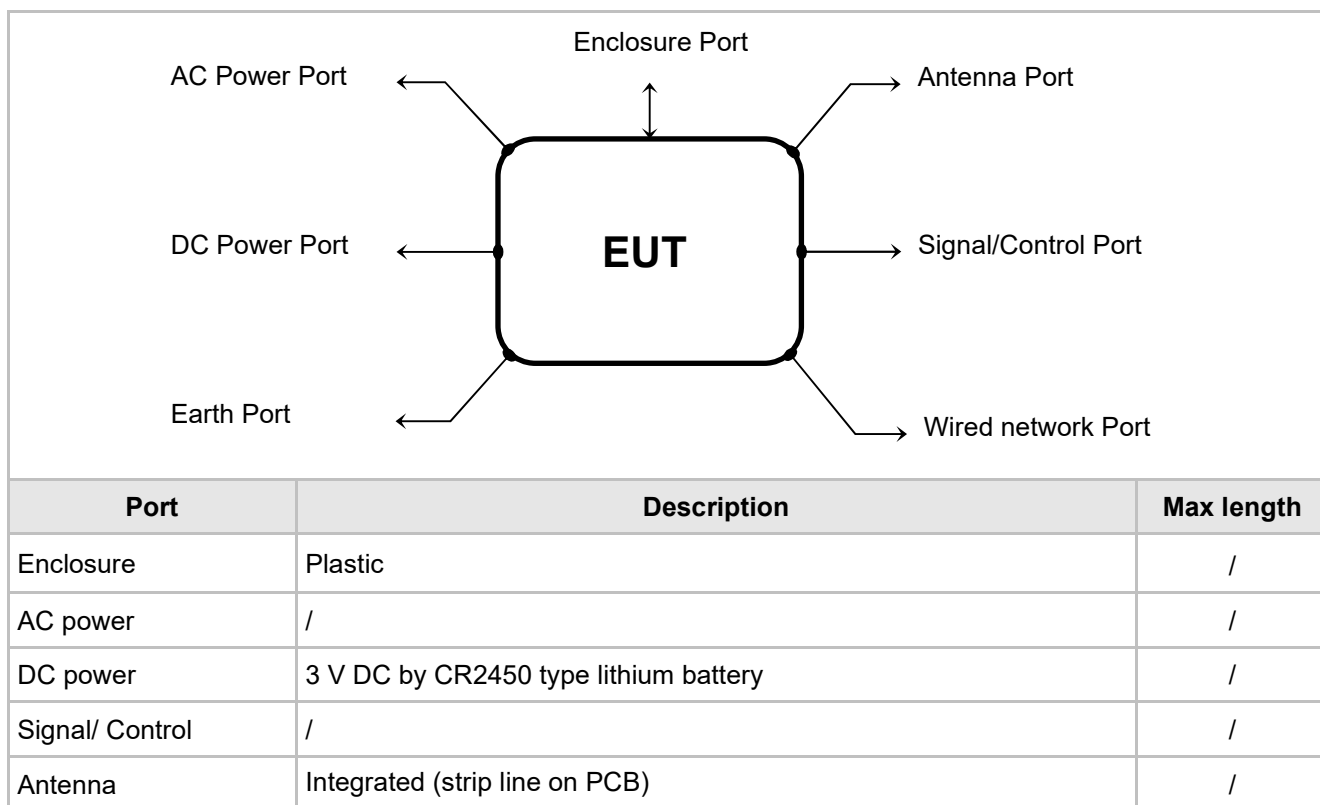
FCC ID	02W-TPP
IC CODE	10492A-TPP

Manufacturer	QUICK S.p.A. – Via Piangipane, 120/A – IT-48124 Piangipane (RA)
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Type of equipment	LPD transmitter
Operating frequency	913.7 MHz
Max radiated peak power	92.53 dBμV/m (QPK at 3m distance)
Modulation	FSK
Channel Spacing	/
Channel bandwidth	100 kHz
Antenna	Integrated (strip line on PCB)
Number of channels	/

4. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

EUT PORTS



STATE OF THE EUT DURING TESTS

Ref.	Transmission Mode	Description
#1	Modulated	Continuous modulated transmission

SUPPORT EQUIPMENT

Defined as equipment needed for correct operation or loading of the EUT, but not considered as tested:

Equipment	Manufacturer	Model
/	/	/

ELECTROMAGNETICALLY RELEVANT COMPONENTS

Component	No.	Manufacturer	Model
PCB board	1	QUICK	RCC P904
Radio module	1	MIPOT	32001550US

RFI SUPPRESSION DEVICES

Component	No.	Manufacturer	Model
/	/	/	/

EMI PROTECTION DEVICES

Component	No.	Manufacturer	Model
/	/	/	/

EUT TECHNICAL DOCUMENTATION

Document	Reference
/	/

5. METHODS OF MEASUREMENT

All compliance measurements have been carried out using the procedures described in the standard .Additional test requirements have been adopted according to the reference Section indicated in the § 6 of this test report.

FREQUENCY RANGE INVESTIGATED

Radiated emission tests: from 30 MHz to tenth harmonic of fundamental.

6. SUMMARY OF TEST RESULTS

POSSIBLE TEST CASE VERDICTS	
Test object meets the requirement	PASS
Test object does not meet the requirement	FAIL
Test case does not apply to the test object	N.A.
Test not performed	N.P.

CFR47 Part 15	ISED	TITLE	RESULT
§ 15.35 (c)	RSS-GEN clause 8.2	Pulse train measurement	MEASURED
§ 15.203	RSS-GEN clause 6.8	Antenna Requirements	PASS
§ 15.207 (a)	/	Conducted Emission	N.A.
§ 15.205 - 15.209 § 15.249 (a)	RSS 210 Annex B.10 (a) and (b)	Radiated disturbance	PASS
§ 15.215 (c)	RSS-GEN clause 6.7	Bandwidth	MEASURED
§ 15.249 (a)	RSS 210 Annex B.10 (a)	Field Strengths of fundamental	PASS

All measurements were performed radiated and therefore additional antenna gain documentation is not required.

7. TEST RESULTS

7.1 PULSED TRAIN MEASUREMENT

Requirement according to

CFR 47 Subchapter A Part 15 Subpart A section § 15.35 (c)

RSS Gen clause 8.2

Unless otherwise specified, e.g., §§ 15.255 and 15.256(l)(5), when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to Supplier's Declaration of Conformity.

EUT operating condition

#1

Testing dates

2024-07-22

PROCEDURE

Devices transmitting pulsed emissions and subject to a limit requiring an average detector function for radiated emissions shall initially be measured with an instrument that uses a peak detector.

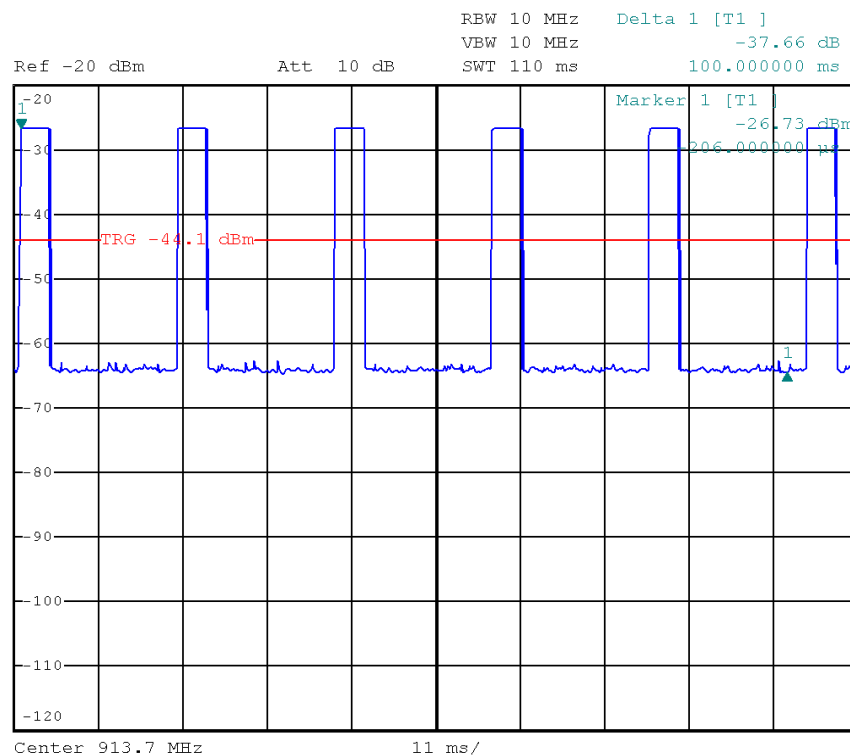
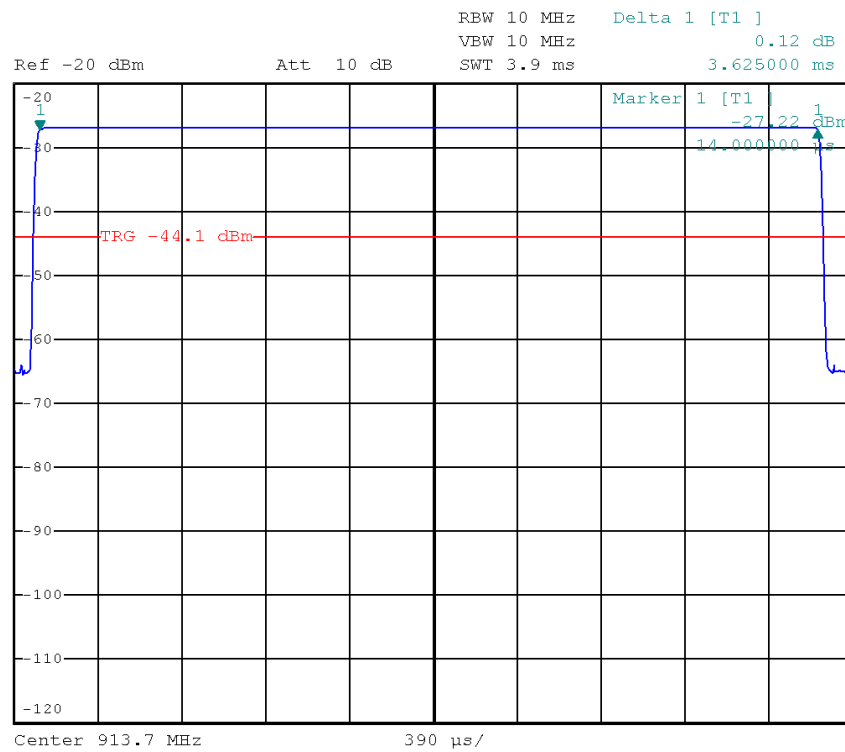
A radiated emission measured with a peak detector may then be corrected to a true average using the appropriate factor for emission duty cycle.

This correction factor relates the measured peak level to the average limit and is derived by averaging absolute field strength over one complete pulse train that is 0.1 s, or less, in length. If the pulse train is longer than 0.1 s, the average shall be determined from the average absolute field strength during the 0.1 s interval in which the field strength is at a maximum.

MEASUREMENTS RESULTS (WORST CASE)

Frame period: $TF = 3.625 \text{ ms}$; $TxON (100\text{ms}) = 3.625 \times 5 = 18.125\text{ms}$; $DC = TxON / 100 \text{ ms} = 0,18125$

Average correction factor (**AVcf**) = $20\log(0.18125) = -14.83 \text{ dB}$



7.2 ANTENNA REQUIREMENTS

TEST REQUIREMENT

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 carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, 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 Section 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.

Testing dates	2024-07-22
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Antenna specifications

N° of authorized antenna types	1
Antenna type	Integrated
Connector type	/
Maximum total gain	-3.84 dBd (declared by manufacturer)
External power amplifiers	Not present

Note: /

TEST RESULT

The EUT meets the requirements of section 15.203 and 15.204 and RSS GEN clause 6.8

7.3 RADIATED DISTURBANCES

TEST REQUIREMENT	
Test setup	ANSI C63.4
Test facility	Semi-anechoic chamber
Test distance	3 meters
Frequency range	30 MHz to tenth harmonic of fundamental (or 1 GHz)
IF bandwidth (below 1,000 MHz)	120 kHz
IF bandwidth (above 1,000 MHz)	1 MHz
Deviation to test procedure	None
Limits	Sections 15.209 (a) & 15.249 (a) RSS 210 Annex B.10 (a) and (b)
EUT operating condition	#1
Remark	(*) In accordance with part 15.31 (f) (2), where the measurement distance was specified to be 30 or 300 meters, a correction factor was applied to permit measurement to be performed at a separation distance. The applied formula for limits at 3 meter is: Extrapolation (dB) = $40\log(300\text{meter} / 3\text{meter}) = +80\text{dB}$ Extrapolation (dB) = $40\log(30\text{meter} / 3\text{meter}) = +40\text{dB}$
Testing dates	2024-07-22 & 2024-07-24

TEST RESULT

The EUT meets the requirements of sections 15.209 (a) & 15.249 (a) and RSS 210 Annex B.10 (a) and (b)

LIMITS FOR SPURIOUS

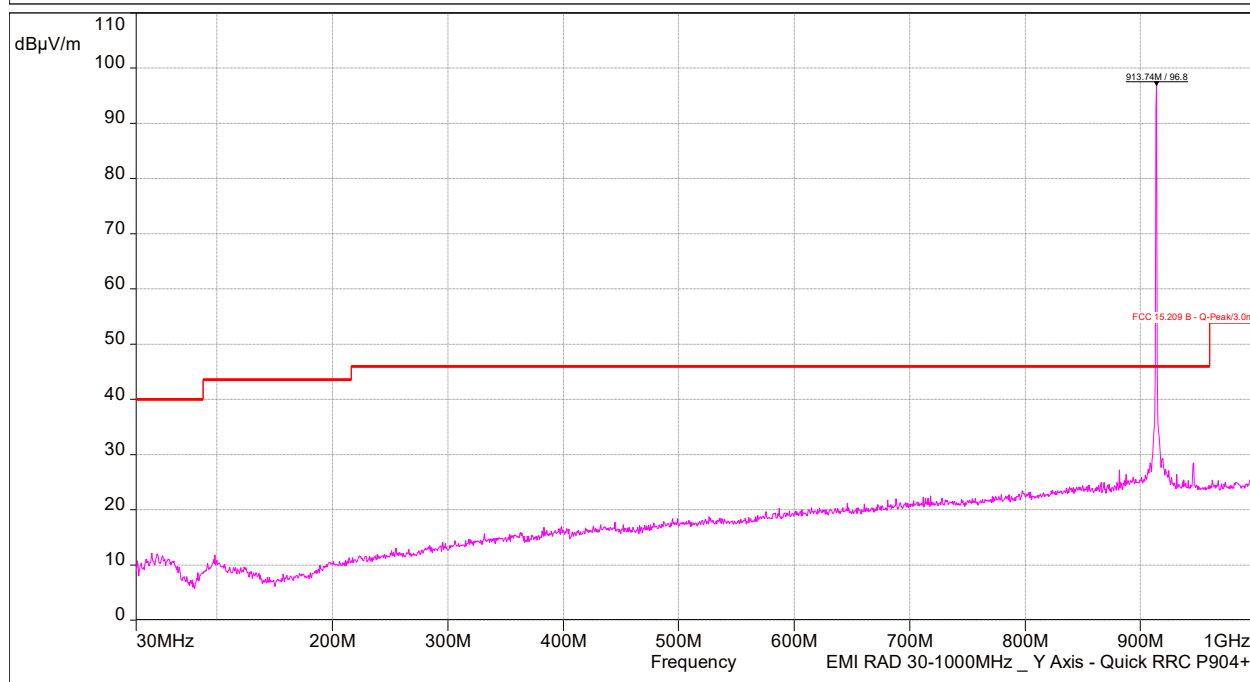
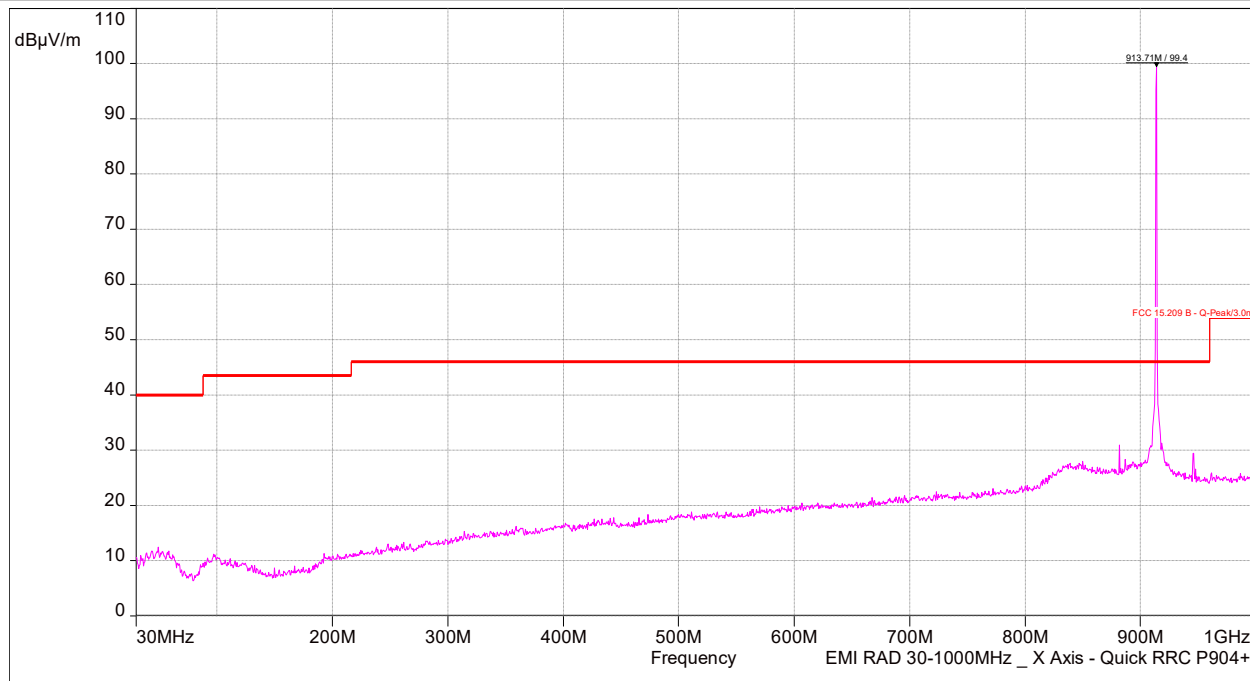
Band of operations	Peak (dB μ V/m)	Average Limit (dB μ V/m)
Restricted bands (§ 15.205)	74	54
Others bands	According to 15.209 or -50dBc (which is greater)	According to 15.209 or -50dBc (which is greater)

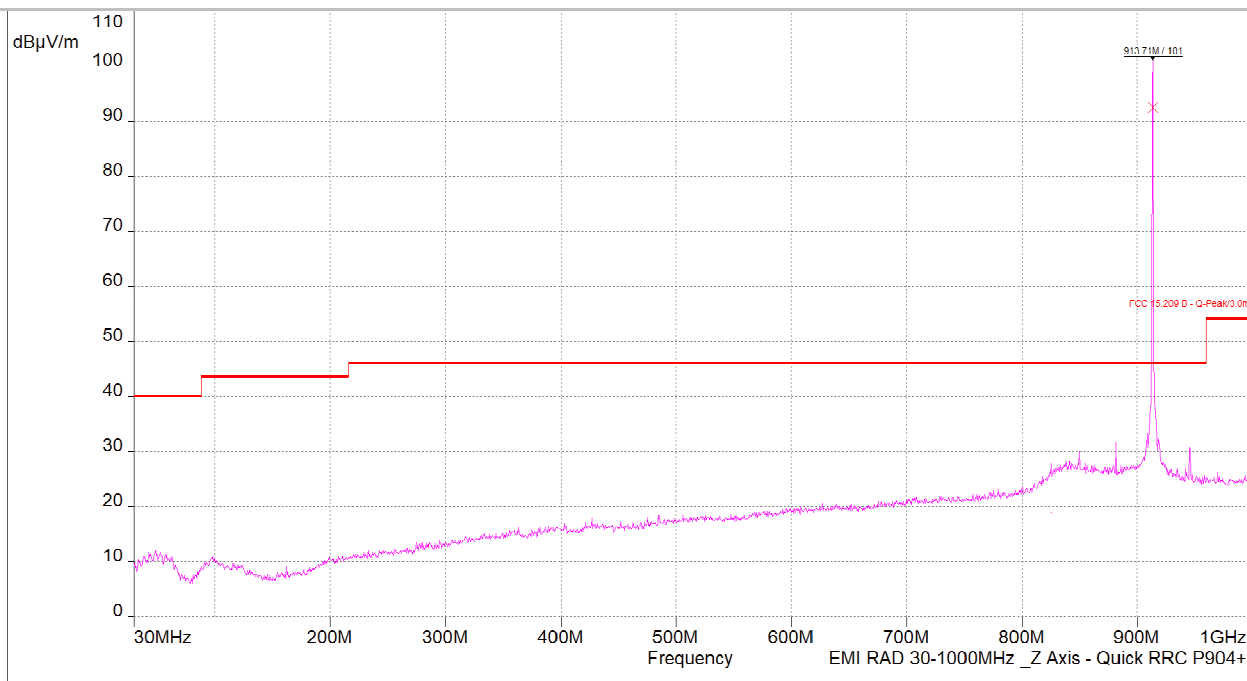
TEST PROCEDURE

- 1) The EUT was placed on turntable which is 0.8 m above the ground plane for frequencies below 1GHz and 1.5m for frequencies above 1GHz
- 2) The turntable shall rotate from 0° to 360° degrees to determine the position of maximum emission level.
- 3) The EUT is positioned 3 m away from the receiving antenna which varied from 1 to 4 m to find the highest emission.
- 4) The measurements were made with the detector set to PEAK and AVERAGE amplitude within a bandwidth of 100 kHz below 1000 MHz and 1 MHz above 1000 MHz.
- 5) The receiving antenna was positioned in both horizontal and vertical polarization.
- 6) As the peak levels measured below 1000 MHz are under Average limit, the Average spurious levels are not been measured.

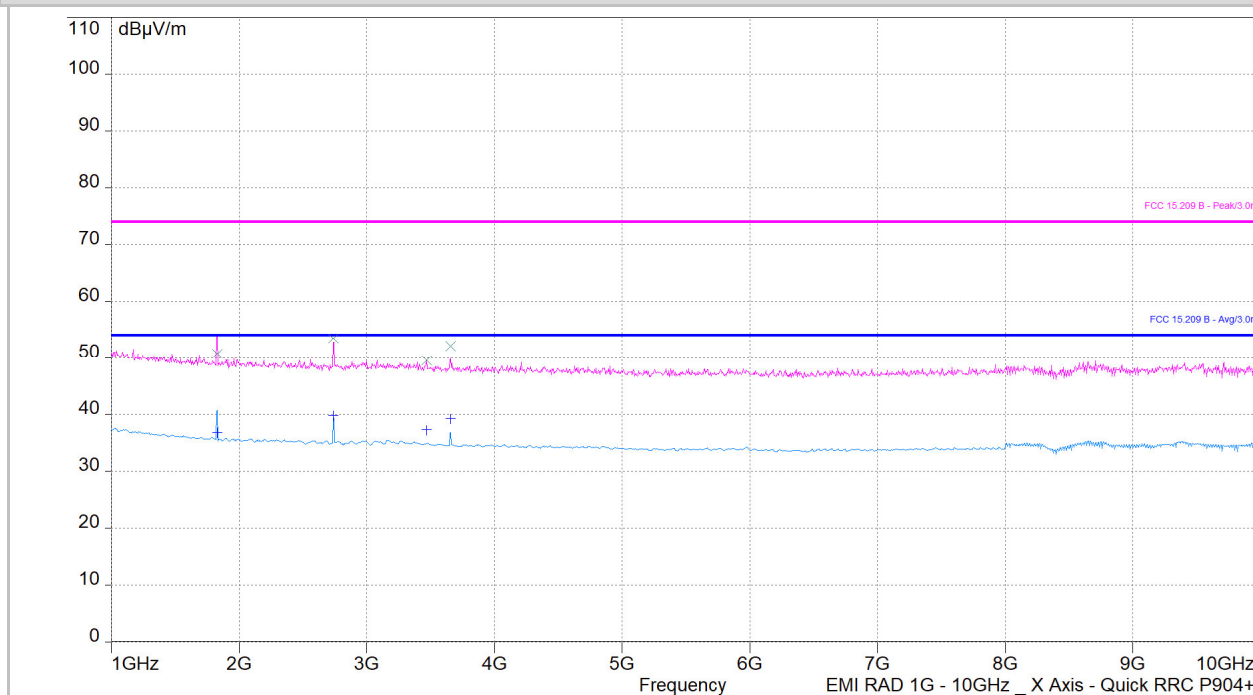
MEASUREMENTS RESULTS

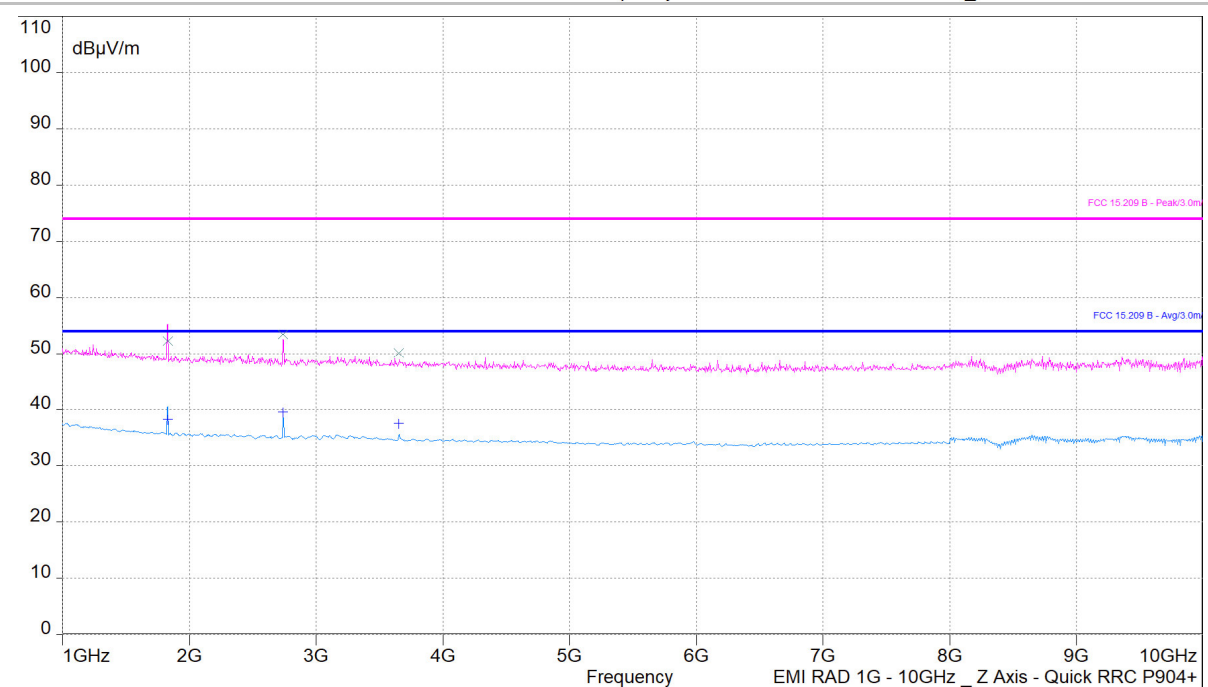
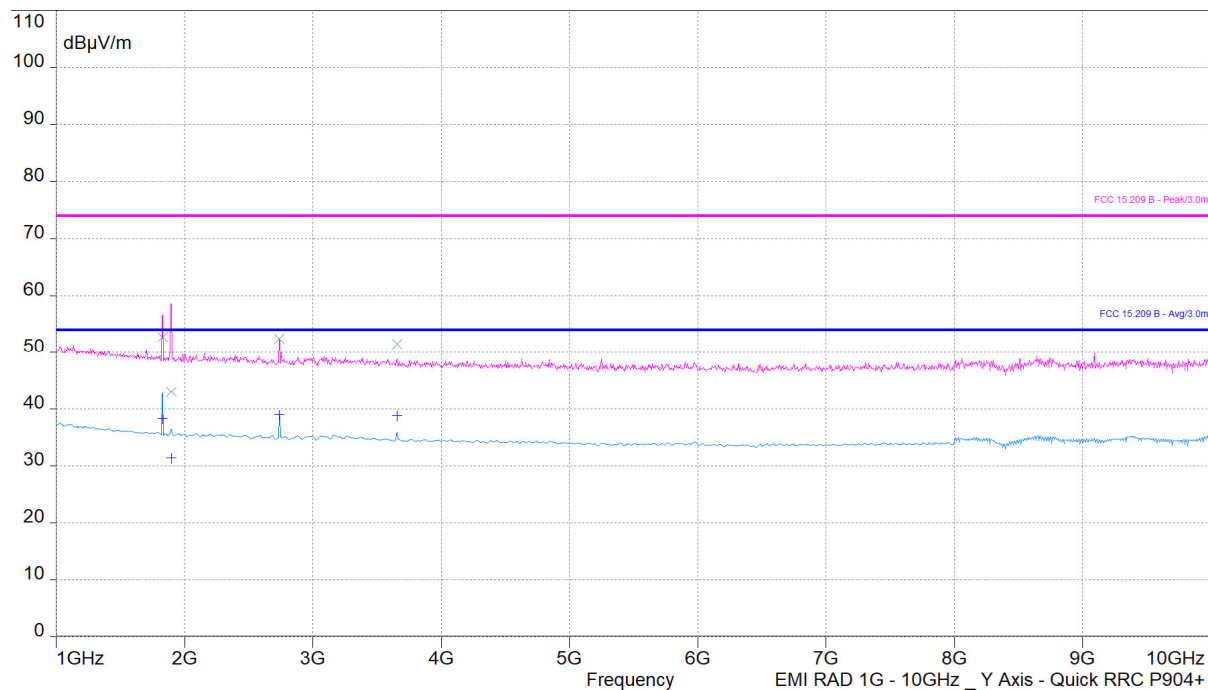
RANGE: 30 ÷ 1000 MHz





RANGE: >1000 MHz





Fundamental worst case

Frequency (MHz)	PK (dB μ V/m)	QPK (dB μ V/m)	QPK LIMIT (dB μ V/m)	MARGIN (dB)	Axis	Height (m)	Angle (°)	Polarization
913.71	101.46	92.53	94	-1.47	Z	2	267	H

Harmonics worst case

Frequency (MHz)	AVG (dB μ V/m)	AVG LIMIT (dB μ V/m)	MARGIN (dB)	Axis	Height (m)	Angle (°)	Polarization
1827	38.32	54	15.68	Y	1.55	272	H
2741	39.50	54	14.50	Z	1.50	320	H
3655	39.25	54	14.75	X	1.60	186	V
Other harmonics up to 9500MHz	<50	54	/	ALL	/	/	/

Frequency (MHz)	Reading value (dB μ V)	Antenna Factor (dB3/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Correcting reading (dB μ V/m)	Average Limit (μ V/m)	Average Limit (dB μ V/m)	Margin (dB)
1827	43.79	25.53	3.19	-34.19	38.32	500	54.00	15.68
2741	44.39	28.55	5.58	-33.77	44.75	500	54.00	14.50
3655	38.88	30.35	6.47	-33.10	42.60	500	54.00	14.75

NOTE: Where the peak levels measured are under Average Limit (54 dB μ V/m). the Average spurious levels are not measured.

7.4 BANDWIDTH OF EMISSION IN PERIODIC TRANSMISSION

TEST REQUIREMENT	
Test setup	ANSI C63.4
Deviation to test procedure	None
EUT operating condition	#1
Remark	None
Testing dates	2024-07-24

TEST RESULT
The EUT meets the requirements of sections 15.215 (c) and RSS GEN clause 6.7

ANSI C63-4 SPECIFICATION

13.1.7 Occupied bandwidth measurements

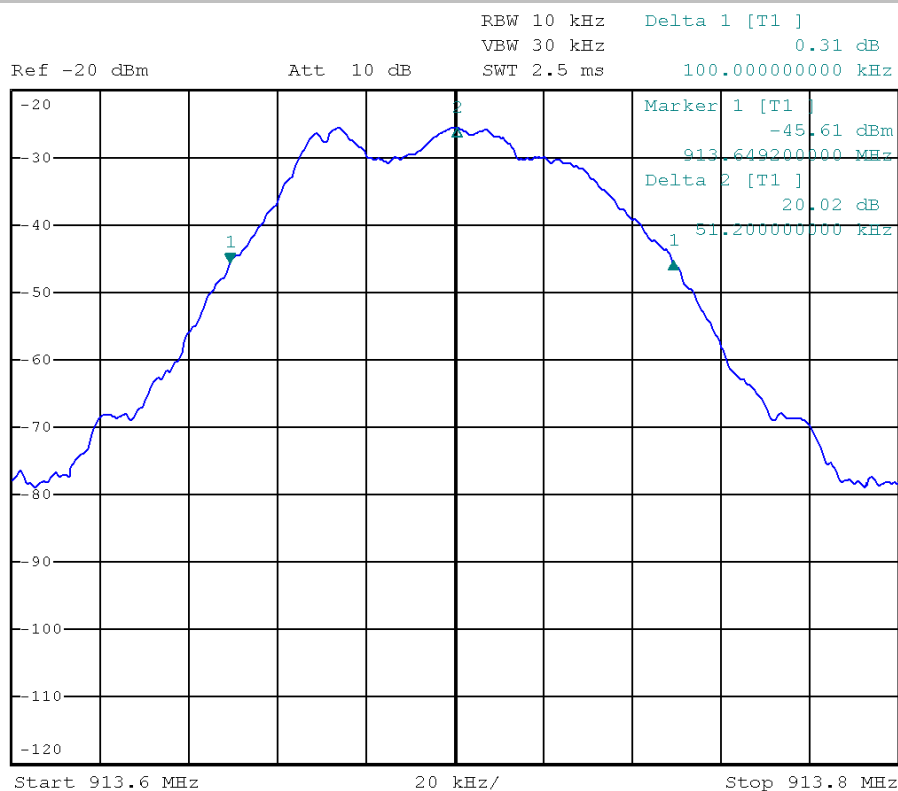
In order to measure the modulated signal properly, a resolution bandwidth that is small compared with the bandwidth required by the procuring or regulatory agency shall be used on the measuring instrument. However, the resolution bandwidth of the measuring instrument shall be set to a value greater than 5% of the bandwidth requirements. When no bandwidth requirements are specified, the minimum resolution bandwidth of the measuring instrument is given in the following table:

Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1 kHz
30 to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

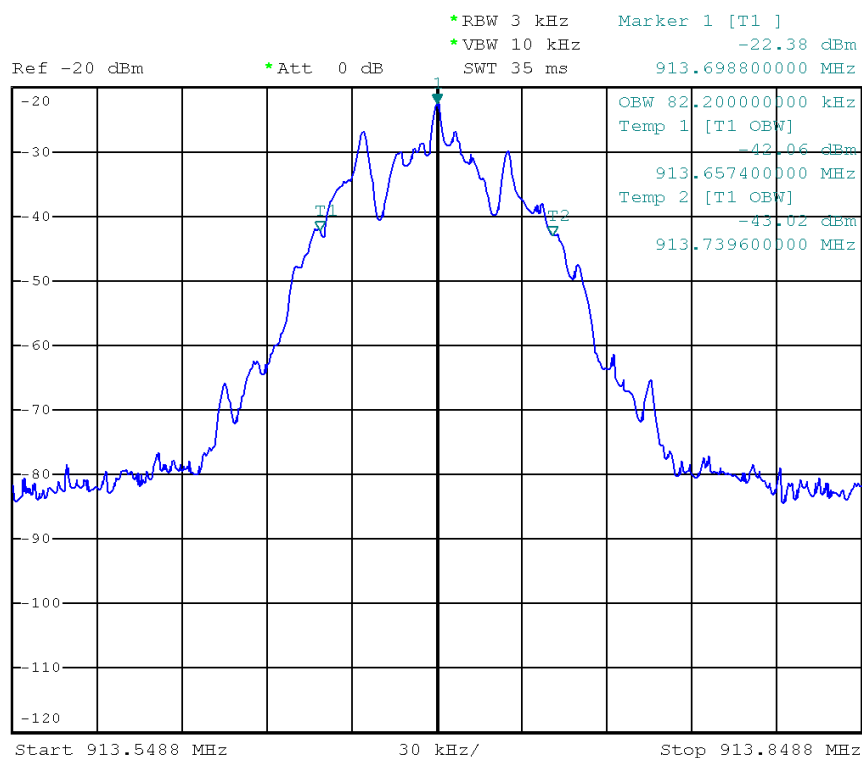
BANDWIDTH OF EMISSION	
Center Frequency	-20dBc Bandwidth
913.7 MHz	100kHz
Center Frequency	99% Bandwidth
913.7 MHz	82.2kHz

MEASUREMENTS RESULTS

BANDWIDTH at -20dBc



BANDWIDTH 99%



7.5 FIELD STRENGTHS

TEST REQUIREMENT

Spectrum analyzer settings

Span	Wide enough to capture the peak level of the emission
Resolution bandwidth (RBW)	100 kHz
Video bandwidth (VBW)	300 kHz
Detector function	Peak
Trace	Max hold
Deviation to test procedure	None
EUT operating condition	#1
Remark	None
Testing dates	2024-07-23

TEST PROCEDURE

Radiated measurements:

As the EUT is supplied with a dedicated antenna, the effective radiated power is measured in a 3 m anechoic chamber with the substitution antenna method

LIMITS

Field strength of fundamental for frequency 902÷928MHz: 50 (millivolts/meter).

Average correction factor: -14.83 dB (see § 7.1 page 9 for correction factor determination).

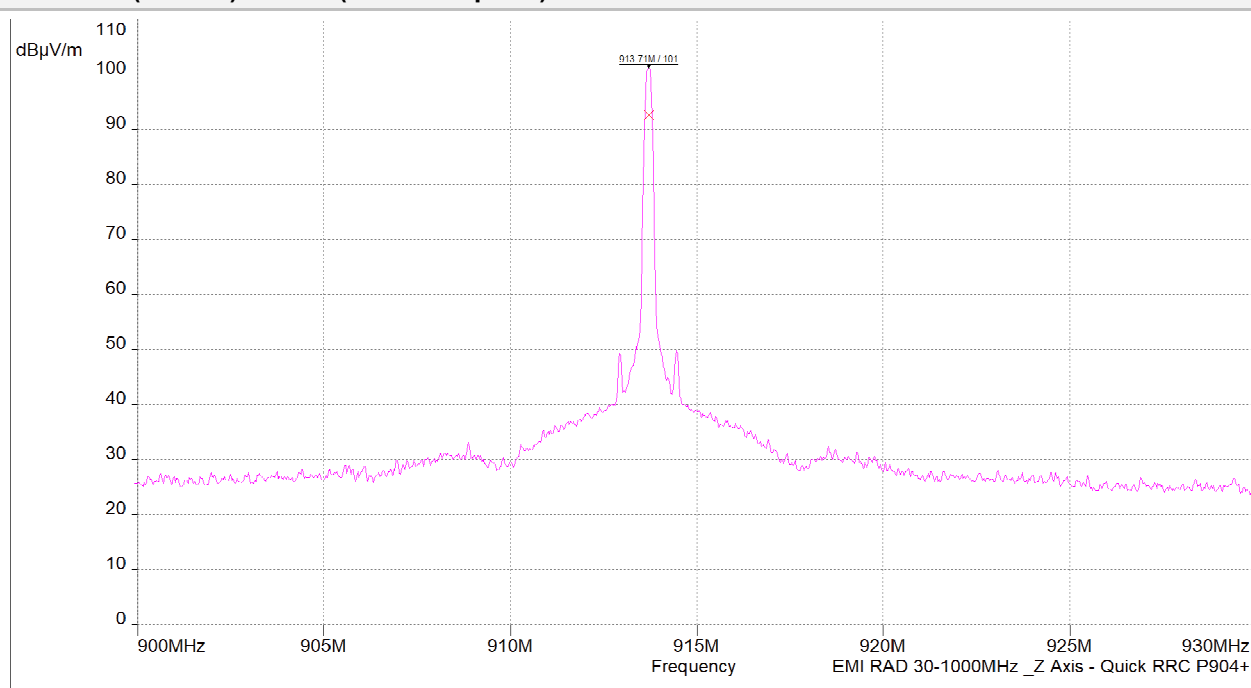
TEST RESULT

The EUT meets the requirements of § 15.249 (a) and RSS 210 Annex B.10 (a)

FIELDS STRENGTH RESULTS (RADIATED)

Channel (No.)	Frequency (MHz)	Modulation type	Detector	Radiated Output Power (at 3m. distance) (dBμV/m)	Limit (dBμV/m)
1	913.7	FSK	PK	101.46	/
1	913.7	FSK	QPK	92.53	94

Plot 1 – PK (marker) & QPK (X marked point)



8. MEASUREMENTS TESTS UNCERTAINTY

Unless otherwise stated the uncertainties for the tests and measurements are evaluated in according to IMQ Operational Instruction IO-LAB-001. IO-LAB-004 and IO-LAB-009 and requirement of NIST Technical Note 1297 and NIS 81: 1994 "The Treatment of Uncertainty in EMC Measurements"

The expanded uncertainty was calculated for all measurements and tests listed in this test report according to CISPR 16-4-2 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainty in EMC Measurements ". with UKAS document LAB 34 and is documented in the quality system accordance to ISO/IEC 17025.

Internal Procedure PG-037 ensures that the requirements for traceability of calibrations. of all test equipment requiring calibration. and calibration intervals are met.

Methods/Standard	Parameter	Expanded Uncertainty	Unit	Confidence level	Coverage Factor	Degree of freedom
Continuous disturbance	QP detector 9 – 150 kHz	2.47	dB	95%	2.00	25
	QP detector 150 k – 30 MHz	2.61	dB	95%	2.00	26
	QP detector using Voltage Probe	2.45	dB	95%	2.00	26
	QP detector using ISN	3.15	dB	95%	2.00	> 60
	QP detector using Current Probe	2.15	dB	95%	2.00	35
Radiated disturbance	QP detector (30 MHz - 100 MHz) H polarization	4.33	dB	95%	2.00	> 60
	QP detector (30 MHz - 100 MHz) V polarization	4.22	dB	95%	2.00	> 60
	QP detector (100 MHz - 200 MHz) H polarization	3.40	dB	95%	2.00	> 60
	QP detector (100 MHz - 200 MHz) V polarization	4.76	dB	95%	2.00	> 60
	QP detector (200 MHz - 1000 MHz) H polarization	3.91	dB	95%	2.00	> 60
	QP detector (200 MHz - 1000 MHz) V polarization	3.82	dB	95%	2.00	> 60
	P detector 1-6 GHz	4.77	dB	95%	2.00	> 60
	P detector 6 – 18 GHz	5.14	dB	95%	2.00	> 60

9. LIST OF MEASURING EQUIPMENT AND CALIBRATION INFORMATION

Instrument	Manufacturer	Model	IMQ Ref.	Calibration	
				Last date	Due date
Shielded semi-anechoic chamber	ETS-LINDGREN	--	P04112	/	/
Spectrum Analyser	Rohde & Schwarz	ESW44	S07965	2024-03-08	2025-03-08
Spectrum Analyser	Rohde & Schwarz	ESW26	S09498	2023-12-18	2024-12-18
Broadband preamplifier	SCHWARZBECK	BBV 9744	S09213	2023-12-06	2024-12-06
Broadband preamplifier	SCHWARZBECK	BBV9718C	S09214	2023-08-03	2024-08-03
TRI-LOG ANTENNA	SCHWARZBECK	VULB 9162	S09211	2024-06-27	2027-06-27
HORN ANTENNA	SCHWARZBECK	BBHA9120D	S09212	2024-06-25	2027-06-25
SOFTWARE	Nexio	BAT-EMC V3.21.0.14	/	/	/
PC	/	/	/	/	/

10. PHOTOGRAPHIC DOCUMENTATION

EUT IDENTIFICATION and TEST SET-UP

See Annex 1

END OF TEST REPORT