

TEST REPORT

No. AR22-0080073-04

performed in accordance with

**FCC Rules: Code of Federal Regulations (CFR) no. 47
Part 15 Subpart C Section 15.207 and 15.209**

PRODUCT	Indoor video door phone with Wi-Fi and RFID radio modules
MODEL(s) TESTED	1760/32
FCC ID	REA176032 (Contains FCC ID: S8J-R8188EU1G)
TRADE MARK(s)	URMET

APPLICANT	URMET S.p.A. ~ Via Bologna, 188/c ~ I-10154 TORINO
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Assessed by	Robertino Torri <i>[Laboratory technician]</i>	
Approved by	Roberto Colombo <i>[Laboratory manager]</i>	

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	2022-10-12	First edition Digital signed - AR22-0080073-04_TR_FCC Part C - URMET - 1760-32

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	2022-07-21	(Item(s) sampled and sent by applicant)
IMQ reference samples	BEM	109750
Samples tested No.	1	
Object under analysis recognition	Not carried out Except where stated, characteristics of products were taken from client description and were not verified by the laboratory	
Date of acceptance of test item	2022-09-13	
TEST LOCATION		
Testing dates	2022-09-15 ÷ 2022-09-22	
Testing laboratory.	IMQ S.p.A. - Via Quintiliano, 43 – I-20138 Milano	
Testing site	Via Quintiliano, 43 – I-20138 Milano	
ENVIRONMENTAL CONDITIONING		
Parameter	Measured	
Ambient Temperature	23.5 ÷ 25.0 °C	
Relative Humidity	48 ÷ 50 %	
Atmospheric Pressure	990 ÷ 1000 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
<input checked="" type="checkbox"/>	47 CFR Part 15	2015	Radio Frequency Device
<input checked="" type="checkbox"/>	ANSI C63.4	2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
<input checked="" type="checkbox"/>	ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices

3. EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL DATA (according to manufacturer declaration)

MODEL (basic)	Description
1760/32	Indoor video door phone with Wi-Fi and RFID radio modules
VARIANT	Description
/	/

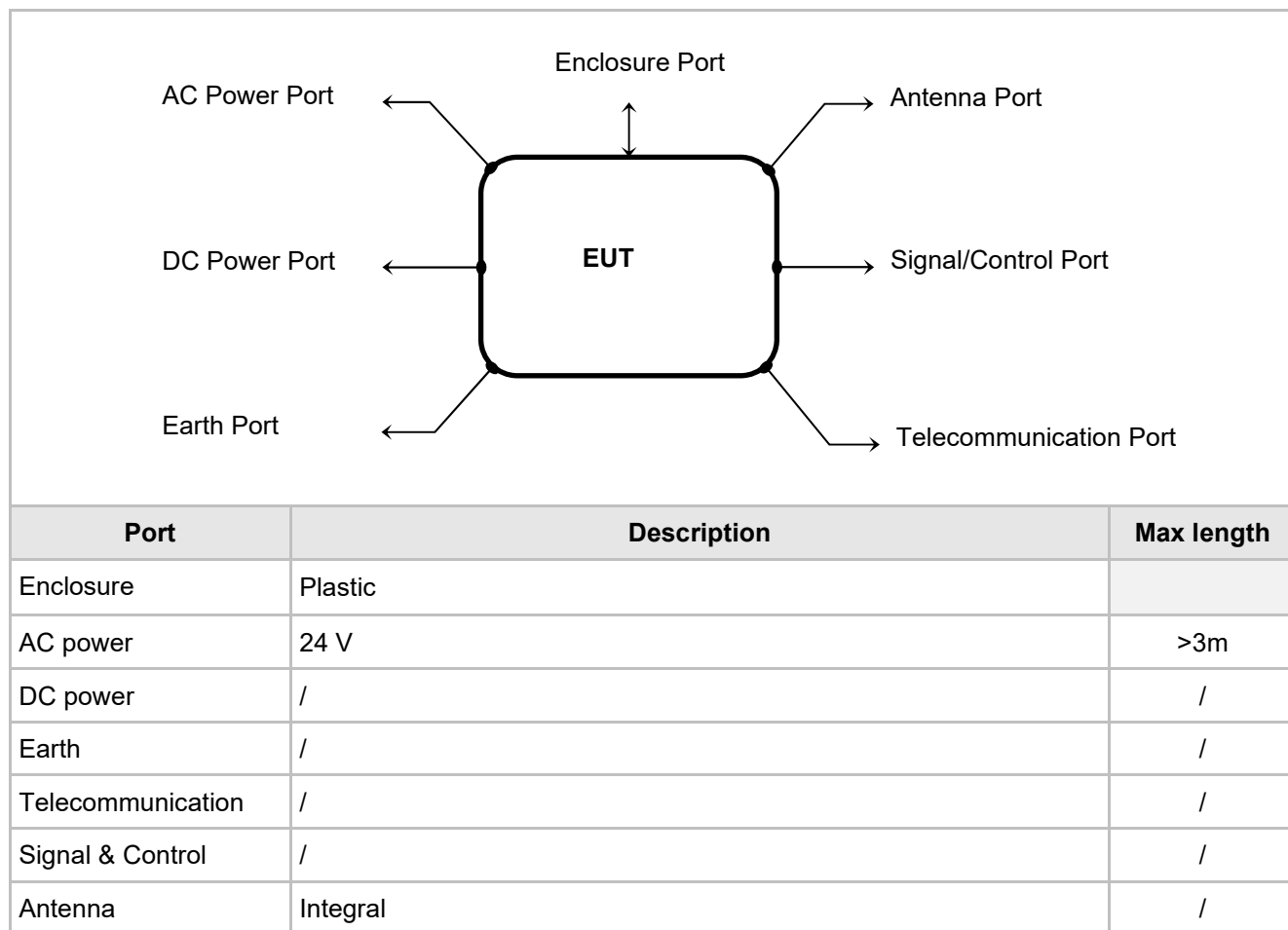
FCC ID	REA176032 (Contains FCC ID: S8J-R8188EU1G)
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MANUFACTURER	URMET S.p.A. ~ Via Bologna, 188/c ~ I-10154 TORINO
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Type of equipment	Indoor video door phone
Operating frequency:	13.553-13.567 MHz (RFID) 2400-2483.5 MHz (Wi-Fi)
Maximum RF radiated power:	
Modulation:	
Channel Spacing:	
Antenna:	Integrated antennas
Supply voltage	24 V AC/DC
Peripherals included (for system application)	None
Interfaces :	None
Integrated interfaces :	None
AC adapter:	AC/AC Power adapter URMET mod. 1723/22

4. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

EUT PORTS



STATE OF THE EUT DURING TESTS

Ref.	Mode	Description
#1	Operating	RFID and Wi-Fi continuous transmission

SUPPORT EQUIPMENT

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

Equipment	Manufacturer	Model
PC with dedicated software for RF transmission management	/	/
AC/AC Power adapter	URMET	1723/22
TAG	URMET	/

ELECTROMAGNETICALLY RELEVANT COMPONENTS

Component	No.	Manufacturer	Model
13.56 MHz radio module	1	NXP Semiconductor	MFRC63002
Wi-Fi radio module	1	B-LINK	BL-R8188EU1(EUS)
Main board	1	URMET	C1760-003A

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 ANSI C63.4:2014, ANSI C63.10:2013 and Section 15.31 of CFR47 Part 15 – Subpart A (General).

Additional test requirements have been adopted according to the reference Section indicated in the § 6 of this test report.

FREQUENCY RANGE INVESTIGATED

Conducted emission tests : from 150 kHz to 30 MHz.

Radiated emission tests: from 9 kHz to 25 GHz

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	TITLE	RESULT
§ 15.207	Conducted emission	PASS
§ 15.209	Radiated disturbances	PASS

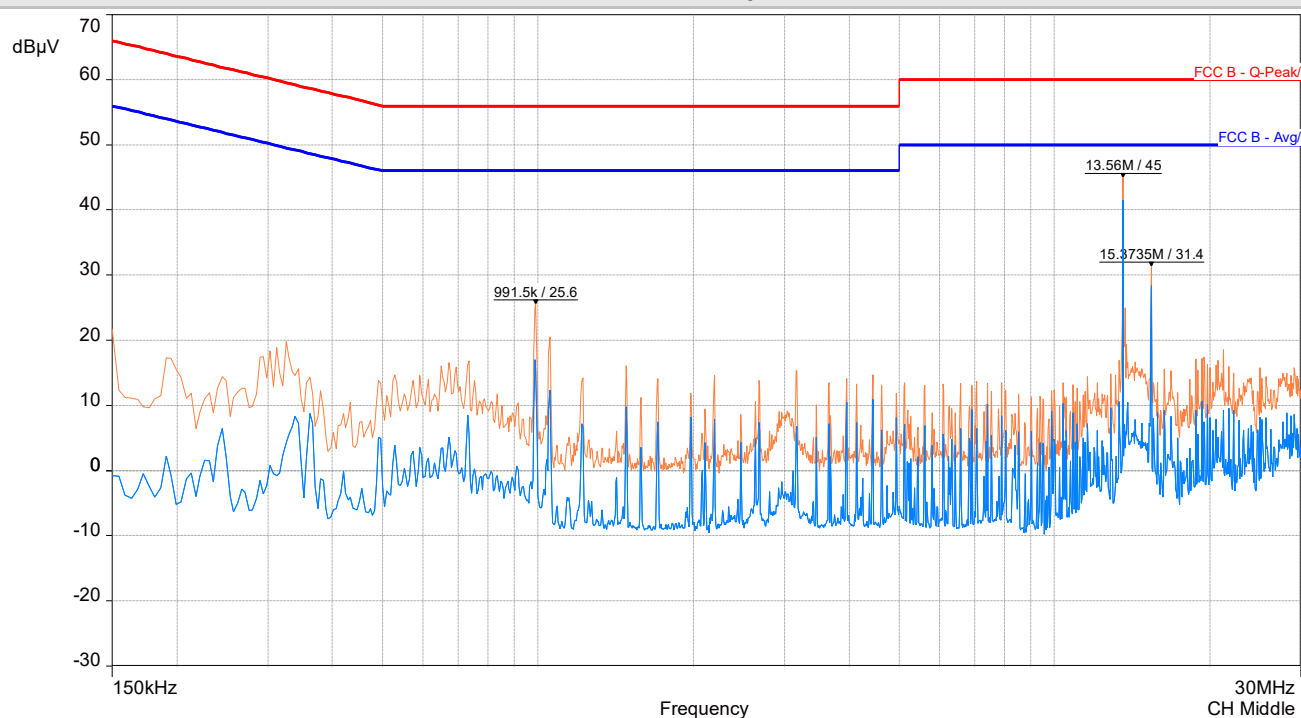
7. TEST RESULTS

7.1 CONDUCTED EMISSION

TEST REQUIREMENT	
Test setup	ANSI C63.4
Frequency range	150 kHz ÷ 30 MHz
IF bandwidth	9 kHz
EMC class	B
Limits	section 15.207
EUT operating condition	#1
Remark	None
Testing dates	2022-09-15 ÷ 2022-09-22

TEST RESULT
The EUT meets the requirements of sections 15.207.

TEST PROCEDURE
<ol style="list-style-type: none"> 1) The EUT was placed on a wooden table of size, 80 cm by 80 cm, raised 80 cm in which is located 40 cm away from the vertical wall the shielded room. 2) Each EUT power cord input cord was individually connected through a 50Ω/50μH LISN to the input power source. 3) Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement. 4) The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz. 5) The measurements were made with the detector set to PEAK and AVERAGE amplitude within a bandwidth of 10 kHz during the measurements. 6) The measurements with Quasi-Peak detector are performed only for frequencies for which the Peak values are \geq (Q.P. limit - 6 dB).

MEASUREMENTS RESULTS**Conducted disturbance on AC mains of AC/AC adapter. Worst case measurement result**

7.2 RADIATED DISTURBANCES

TEST REQUIREMENT	
Test setup	ANSI C63.4
Test facility	Semi-anechoic chamber
Test distance	3 meters
Frequency range	9 kHz to 25.00 GHz
IF bandwidth (below 30 MHz)	9 kHz
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
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 in order 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	2022-09-15 ÷ 2022-09-22

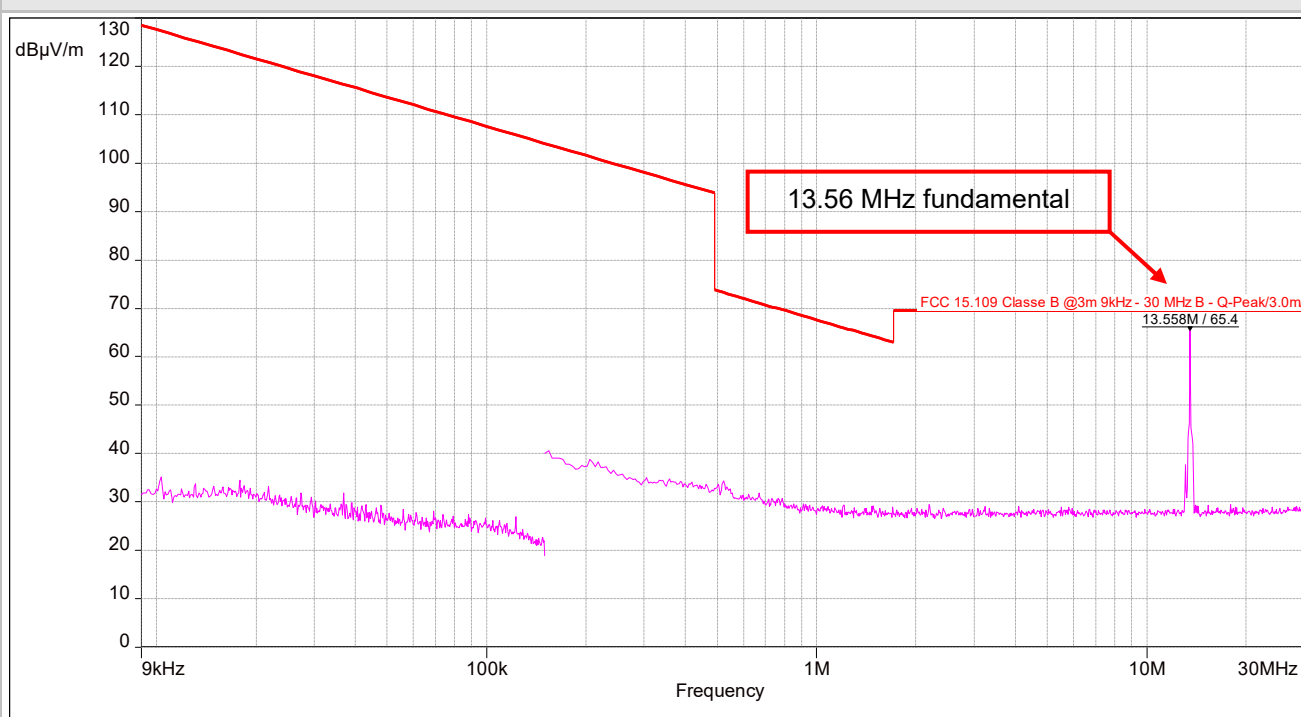
TEST RESULT
The EUT meets the requirements of sections 15.209

LIMITS FOR SPURIOUS		
Band of operations	Limit $\mu\text{V/m}$	Limit $\text{dB}\mu\text{V/m}$
30÷88 MHz	100	40
88÷216 MHz	150	43.5
216÷960 MHz	200	46
Above 960MHz	500	54

TEST PROCEDURE

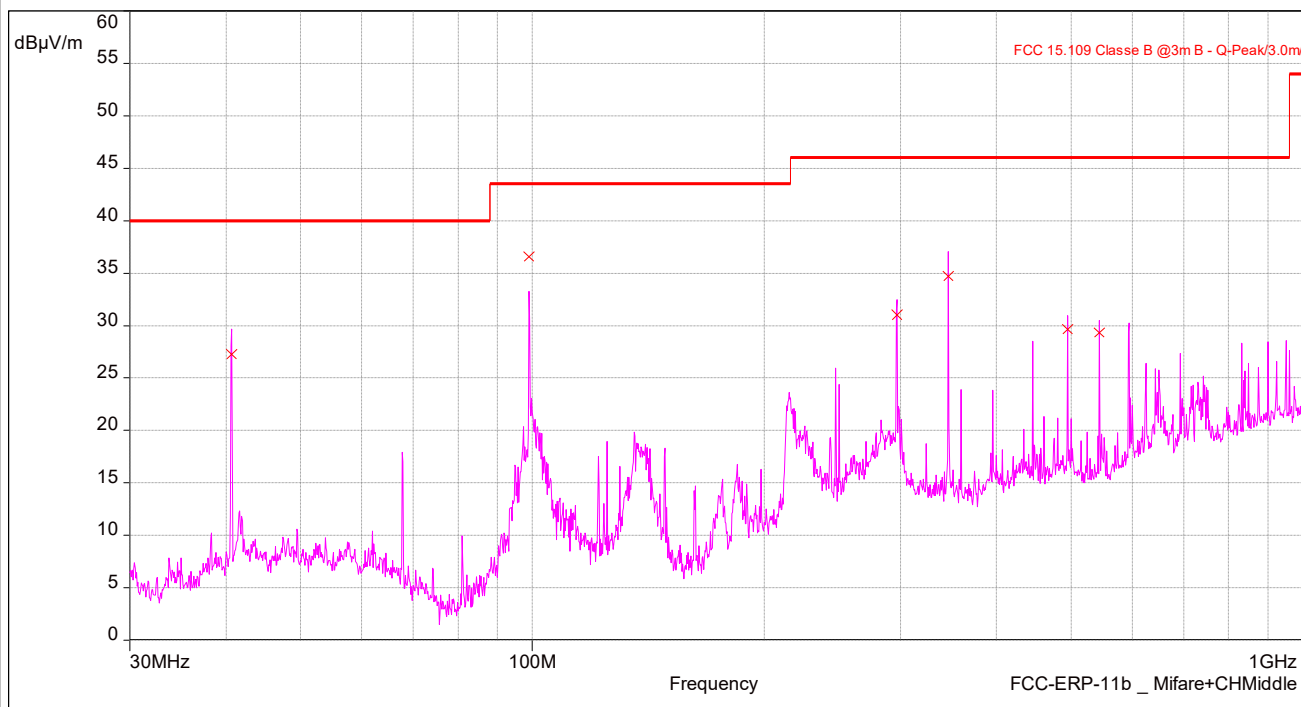
- 1) The EUT was placed on turntable which is 0.8 m above the ground plane
- 2) The turntable shall rotate from 0° to 360° degrees to determine the position of maximum emission level.
- 3) The EUT is positioned 3 m away from the receiving antenna which varied from 1 to 4 m to find the highest emission.
- 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) The measurements with Quasi-Peak detector, below 1000 MHz are performed only for frequencies for which the Peak values are \geq (Q.P. limit – 6 dB).

Worst case measurement result 9 kHz÷30 MHz



09/15/2022 15:14 FCC 15.109 Classe B @3m 9kHz - 30 MHz B 13.558M, 65.4 dBμV/m : r-Ē

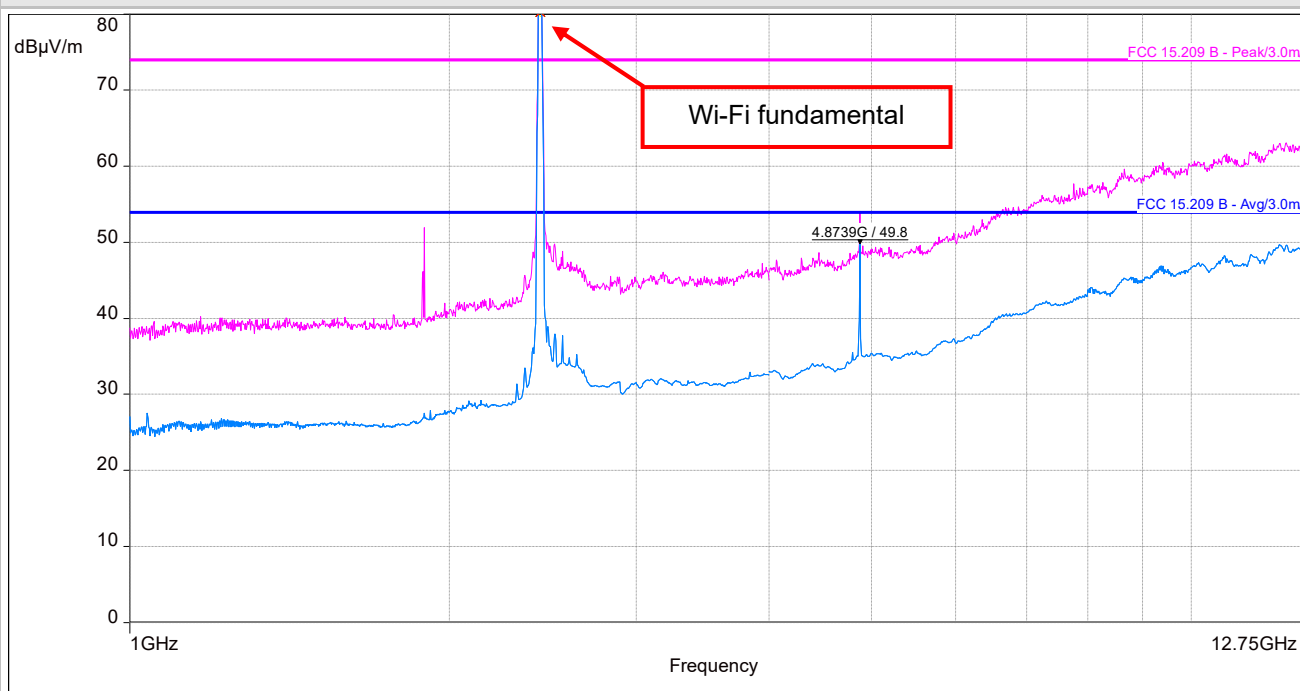
Worst case measurement result 30÷1,000 MHz



09/15/2022 08:55 FCC 15.109 Classe B @3mB

Frequency (MHz)	QPeak (dBμV/m)	QPeak Limit	Margin	Height	Angle	Polarization	Meas Time	RBW
40 665	27.30	40.00	12.70	1.00	289.50	Vertical	1.00	120k
98 985	36.56	43.50	6.94	3.44	134.90	Horizontal	1.00	120k
296 985	31.00	46.00	15.00	1.00	0.00	Horizontal	1.00	120k
346 485	34.72	46.00	11.28	1.00	199.30	Vertical	1.00	120k
494 985	29.65	46.00	16.35	1.00	0.00	Vertical	1.00	120k
544 485	29.33	46.00	16.67	1.00	0.00	Vertical	1.00	120k

Worst case measurement result 1,000÷24,000 MHz



No relevant emissions found above 12.75 GHz.

8. MEASUREMENTS AND TESTS UNCERTAINTY

Unless otherwise stated the uncertainties for the tests and measurements are evaluated in according to IMQ Operational Instruction IO-LAB-001 and IO-LAB-004. 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.

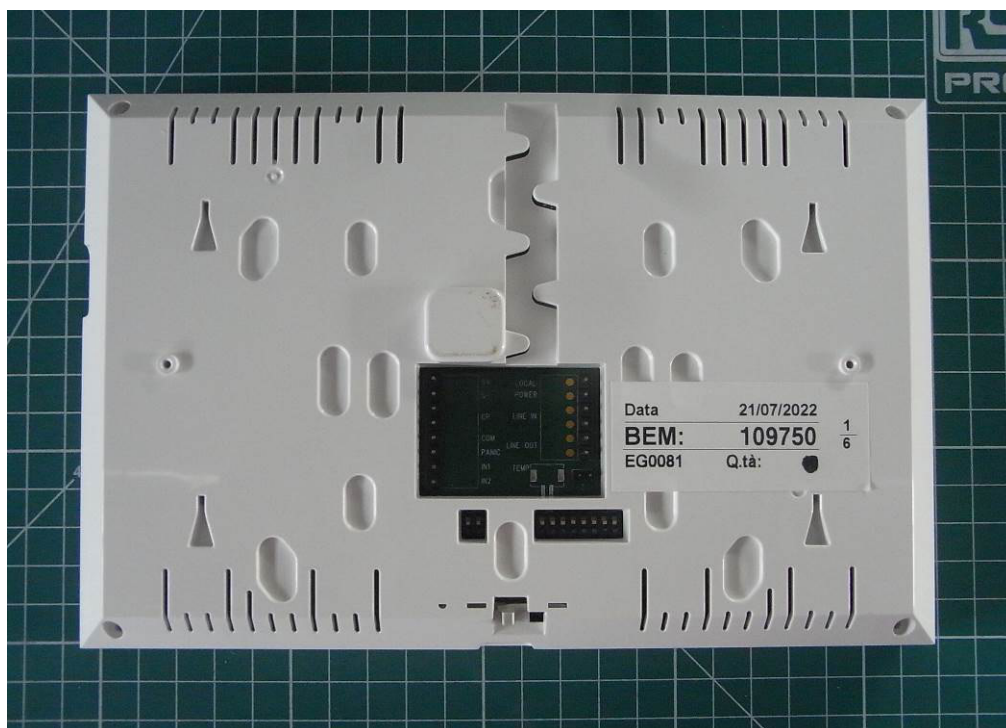
Internal Procedure PG-037 ensures that the requirements for traceability of calibrations, of all test equipment requiring calibration, and calibration intervals are met.

9. LIST OF MEASURING EQUIPMENT AND CALIBRATION INFORMATION

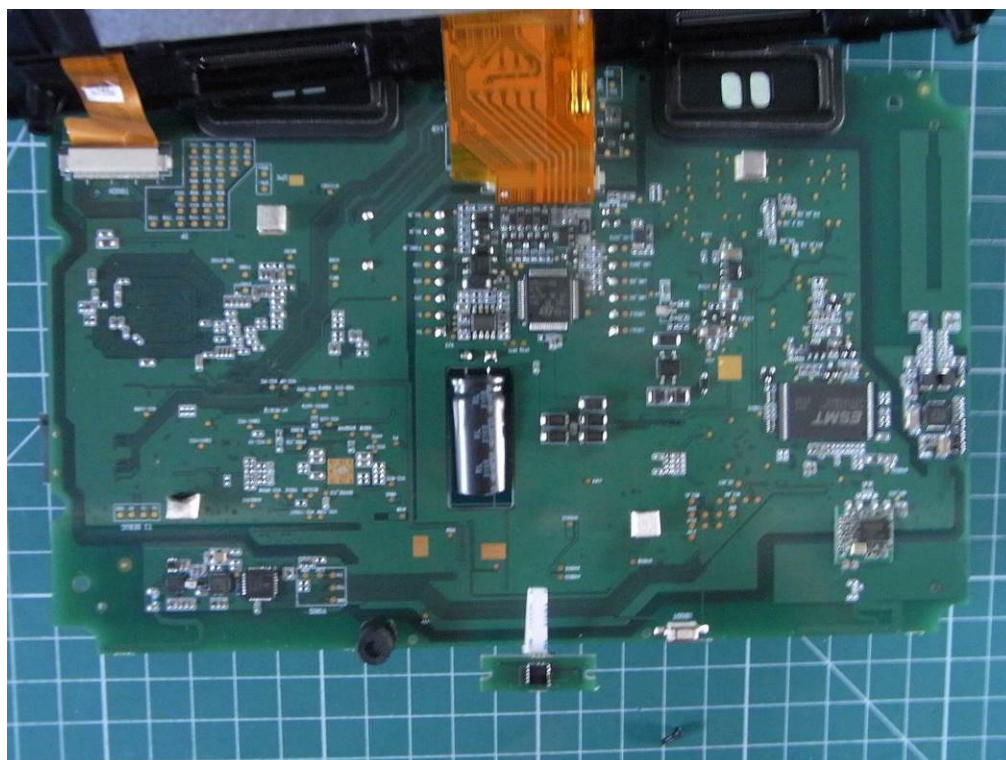
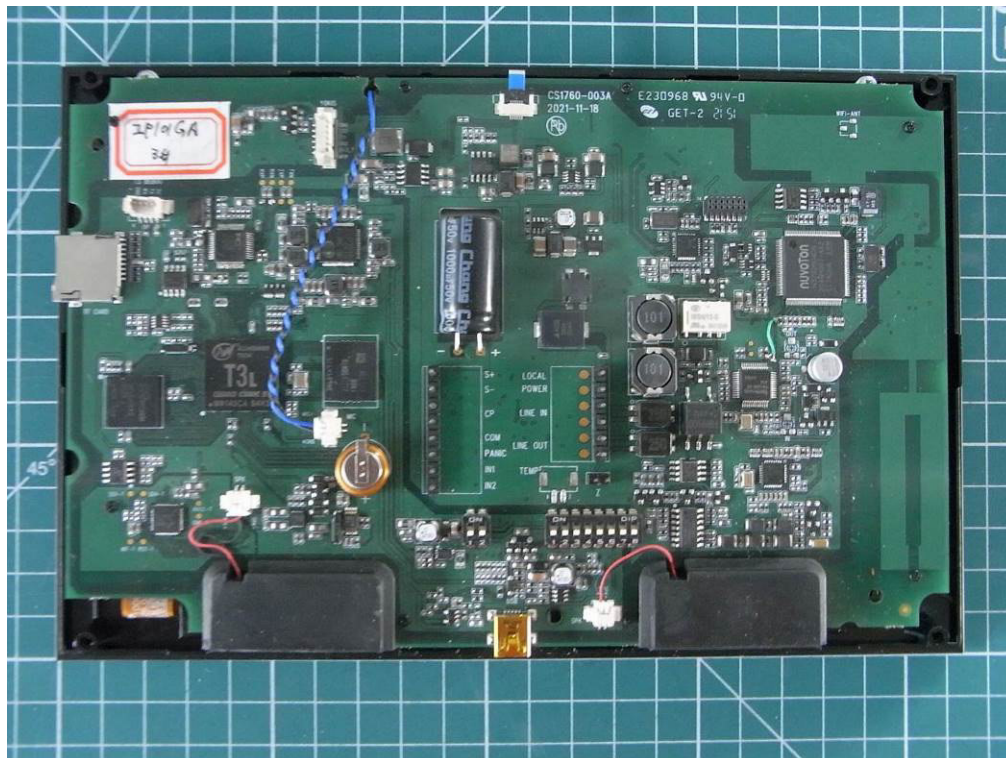
Instrument	Manufacturer	Model	IMQ Ref.	Calibration	
				Last date	Due date
SHIELDED ANECHOIC CHAMBER	SIDT-EUROPE	RFSD 100	P-01709	/	/
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESW44	S-07965	2021-09-30	2022-09-30
ARTIFICIAL MAINS V-NETWORK	SCHWARZBECK	NSLK 8128 RC	S-09218	2022-05-26	2023-05-26
LOOP ANTENNA	ROHDE & SCHWARZ	HFH2-Z2E	S08623	2022-01-26	2023-01-26
LOG ANTENNA	SCHWARZBECK	VULB 9162	S09211	2021-05-21	2024-05-21
ANTENNA HORN	SCHWARZBECK	BBHA9120D	S03463	2020-07-06	2023-07-06
ANTENNA HORN	SCHWARZBECK	BBHA9170	S03724	2020-07-29	2023-07-29
SOFTWARE	NEXIO	BAT-EMC V3.21.0.14	/	/	/

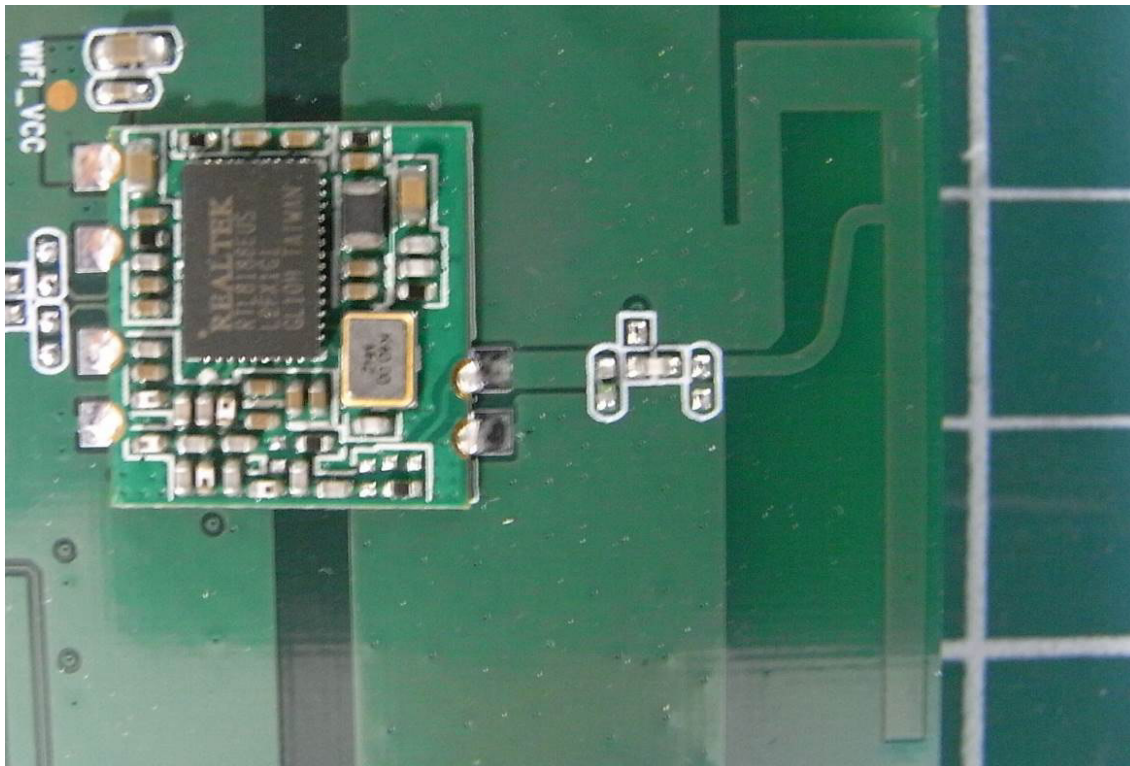
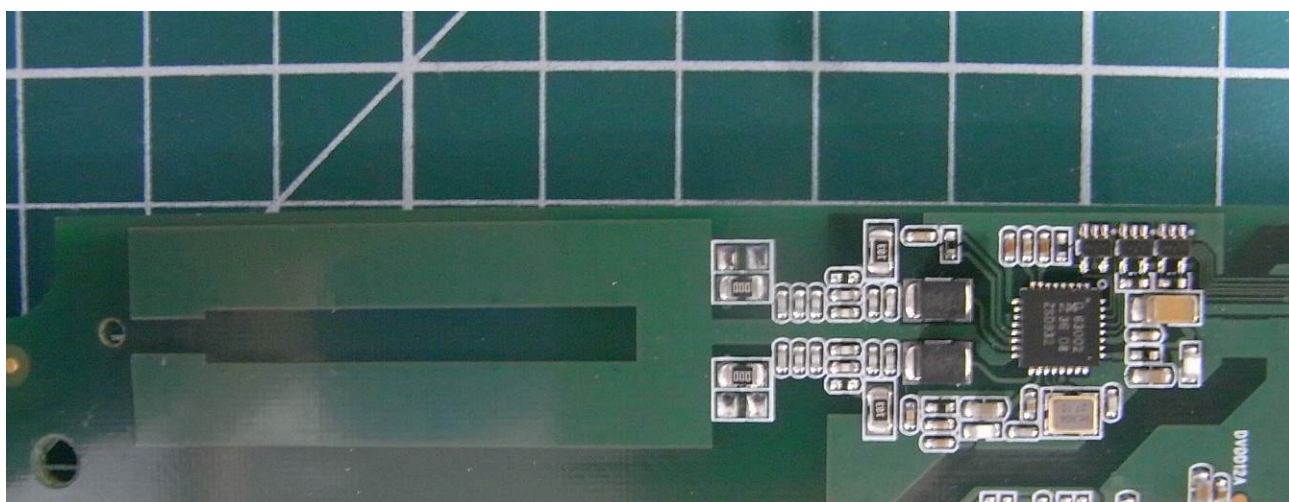
10. PHOTOGRAPHIC DOCUMENTATION

EUT IDENTIFICATION

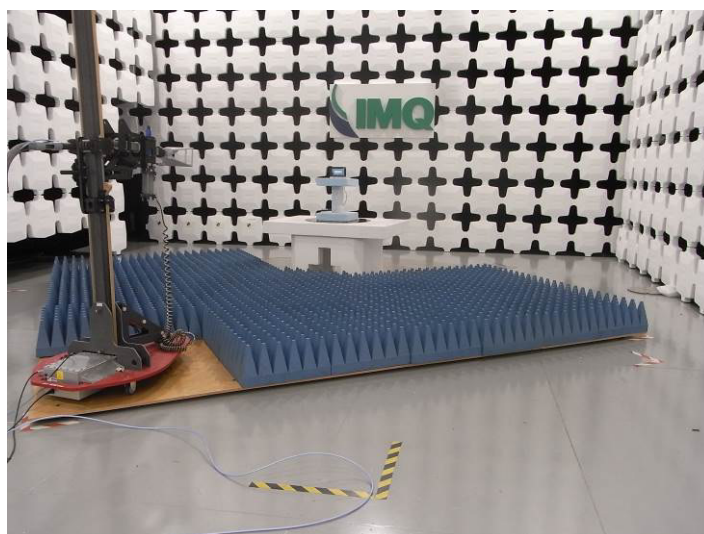
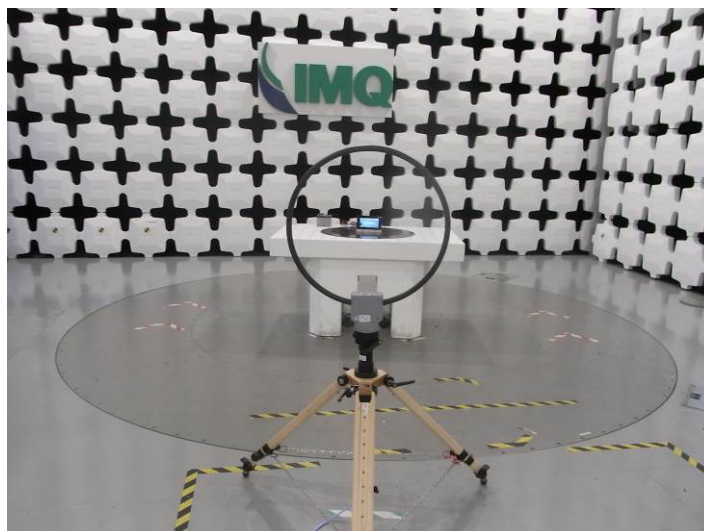


EUT IDENTIFICATION – Internal views



EUT IDENTIFICATION – Internal views – Wi-Fi radio module and antenna**EUT IDENTIFICATION – Internal views – 13.56 MHz radio module and antenna**

TEST SET-UP



END OF TEST REPORT