

File Number **26/36400688**

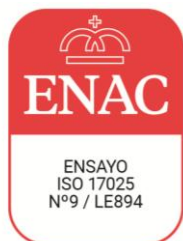
TEST REPORT

Electromagnetic Compatibility

Petitioner's Reference:		ENKOA SYSTEM S.L.	
Company Address:		POLIGONO ERRAMONE 45, 20850 MENDARO SPAIN	
Equipment:		PHH	
Brand:	ENKOA	HW version/HMN	PHHxxxBA7x
Sample #1:	20191193/0126	Applus Id:	41878-0001
Result:		complies	
It has been tested and complies with the applicable standard. See test result summary section.			
Applicable Standard:			
EMC standard/s:		FCC 47 CFR Part 15 Subpart B (October 2024) ICES-003 Issue 7 (October 2020)	
<i>¹The latest modifications of the standard, published at the date of the tests reported in this document, have been considered.</i>			
Dates and Test Site:		Applus Barcelona, Bellaterra	
Equipment Reception Date		March 19, 2026	
Test Initial Date:		March 25, 2026	
Test Final Date:		April 10, 2026	

Test Manager: Javier Miguel Nadales
Date of issue: Bellaterra, April 23, 2026

EMC & Wireless Technical Manager
 Electrical and Electronics
 LGAI Technological Center S.A.



The results refer only and exclusively to the sample, product or material delivered for testing, and tested under conditions stipulated in this document. The equipment has been tested under conditions stipulated by standard(s) quoted in this document. This document will not be reproduced otherwise than in full.
 This is the first page of the document, which consists of 21 pages.

1 TEST RESULTS SUMMARY

Test Description	Sample #	DUT Test Modes	Req. Criteria	Results	Criteria Note
RADIO-FREQUENCY RADIATED EMISSIONS (FCC Part 15.109, ICES-003 Issue 7 (3.2.2))	#1	Mode 1	CLASS B	PASS	CN4

The test results are shown in detail on the following pages.

The criteria to give conformity in those cases where it is not implicit in the standard or specification will be, for EMC emissions tests, a non-simple binary decision rule will be followed with a safety zone equal to the value of the uncertainty ($w = U$).

In this case, the upper limit of the value of the probability of false acceptance, according to ILAC G8, is 2.5 % and the criteria notes are:

CN1: The measured results are above the upper limit, even considering the uncertainty interval.

CN2: The measured results are above the specified limits, but within the uncertainty interval. It is therefore not possible to state compliance based on the 95% level of confidence. However, the results indicate that non-compliance is more probable than compliance.

CN3: The measured results are below the specified limits, but within the uncertainty interval. It is therefore not possible to state compliance based on the 95% level of confidence. However, the results indicate that compliance is more probable than non-compliance.

CN4: The measured results are within the limits, including the uncertainty interval.

Service Quality Assurance

Applus+, guarantees that this work has been made in accordance with our Quality and Sustainability System, fulfilling the contractual conditions and legal norms.

Within our improvement program we would be grateful if you would send us any commentary that you consider opportune, to the person in charge who signs this document, or to the Quality Manager of Applus+, in the following e-mail address:

satisfaccion.cliente@applus.com

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3 GENERAL DESCRIPTION OF TEST ITEMS

3.1 EQUIPMENT DESCRIPTION

This information has been provided by the customer and it is not covered by the accreditation. LGAI does not assume any responsibility from it.

EQUIPMENT DESCRIPTION				
Description	Hand held device for iSWITCH wireless systems			
EUT Version	FVIN		HVIN	
	N/A		PHHxxxBA7x	
Power supply	Battery Powered	+/-	2 × LR03 (AAA) — 1.5 V each or USB (5 V)	-- Hz
Applicability	Fixed device	Mobile devices	Mode I personal/portable	Mode II personal/portable
	☐	☐	☒	☐
Class Type	Class B			
Operating frequency band	2.4 GHz (IEEE 802.15.4)			
Sample #1 Size	Length	Width		Height
	120 mm	74 mm		24 mm
Maximum internal frequency [MHz]	2483.5			

Table 1: Equipment description

I/O CABLES						
Description	Port #	Name	Type	Cable length	Cable Shielded	Comments
	1	USB Port	USB	N/A	N/A	The equipment does not include a USB cable

Table 2: Input/output ports description

RF FEATURES					
Description	Communication Technology	Radio Chipset	Brand	Module Model	Antenna Gain[dBi]
	IEEE 802.15.4 @ 2.4 GHz	Microchip AT86RF231 / AT86RF233	Microchip	Integrated on PCB (not a module)	3.3 dBi (inverted-F PCB antenna)

Table 3: RF Features

3.2 TEST SIGNALS

This information has been provided by the customer and it is not covered by the accreditation. Applus+ does not assume any responsibility from it.

Test signals for data	
Mode #	Description
1	Wireless communication mode (IEEE 802.15.4 @ 2.4GHz)

Table 4: Test Signals

3.3 ACCEPTANCE CRITERIA

According to standard **FCC 47 CFR Part 15 Subpart B and ICES-003 Issue 7**

3.4 PHOTOGRAPHS

Photographs identifying the equipment under test and its auxiliaries, as well as assembly photographs for radiated and conducted tests, can be found in the document: *ENKOA_TR EMC_FCC_PHH_ANNEX*

3.5 TEST FACILITIES ID

TEST FACILITIES ID	
FCC Test Firm Registration Number:	507478
ISED Assigned Code:	5766A
CABID	ES0001

Table 5: Test facilities ID

3.6 COMPETENCES AND GUARANTEES

LGAI Technological Center, S.A. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 9/LE894.

In order to assure the traceability to other national and international laboratories, Applus+ Laboratories has a calibration and maintenance program for its measurement equipment.

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

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4 TEST RESULTS

4.1 RADIO-FREQUENCY RADIATED EMISSIONS

4.1.1 Test Setup Required

According to standard ANSI C63.4:2014

4.1.1.1 Tabletop equipment

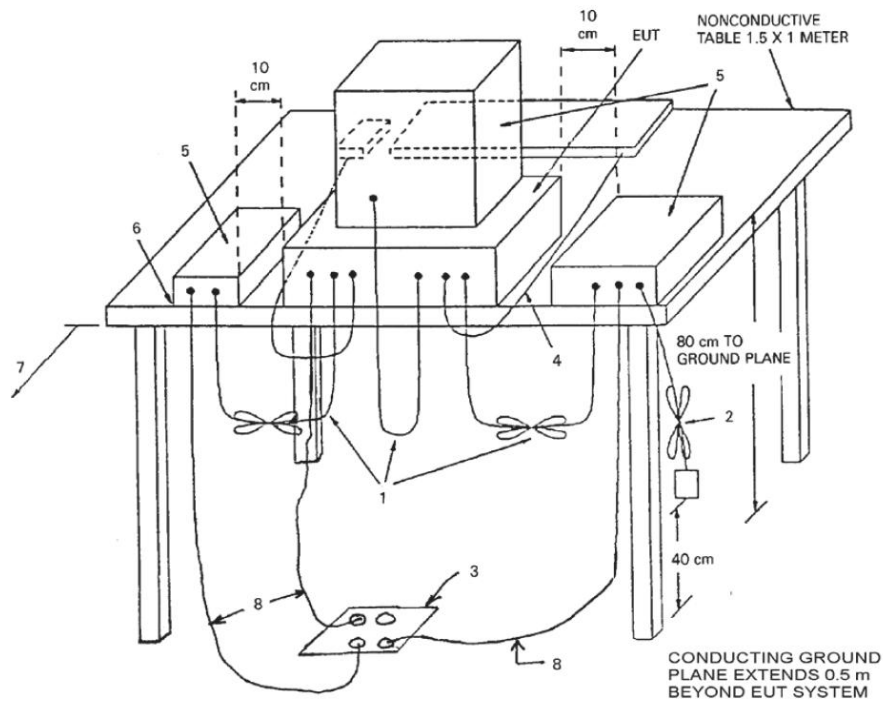


Fig. 1: Radio-frequency radiated emissions setup of table top equipment.

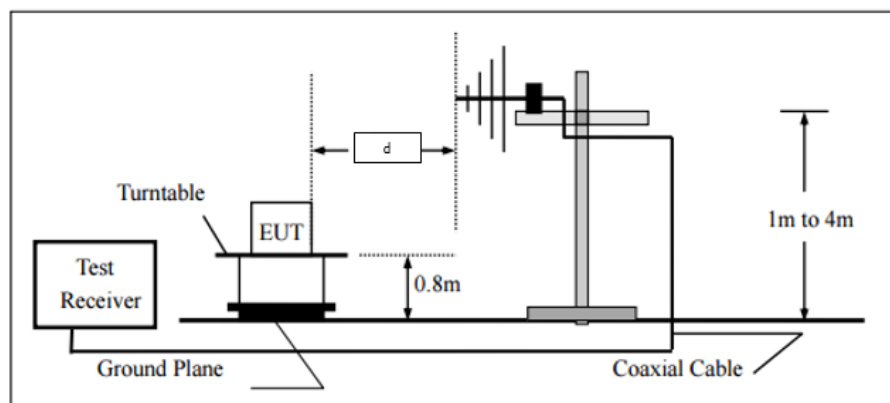


Fig. 2: Radio-frequency radiated emissions of table top equipment from 30 MHz to 1000 MHz

Distance "d" depends on test chamber.

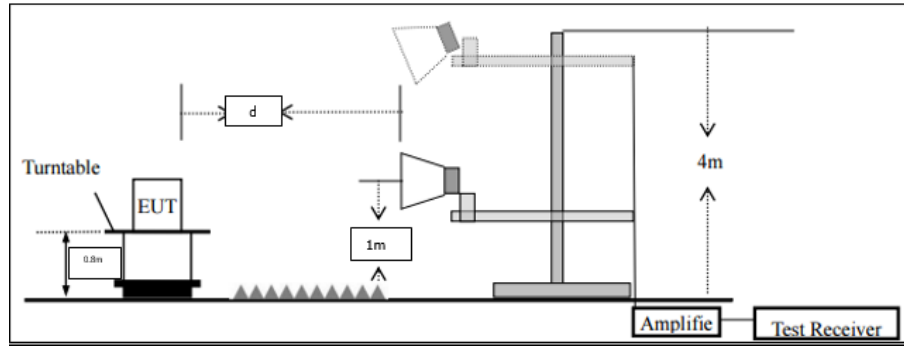


Fig. 3: Radio-frequency radiated emissions setup of table top equipment above 1 GHz

Distance "d" depends on test chamber.

4.1.1.2 Floor standing equipment

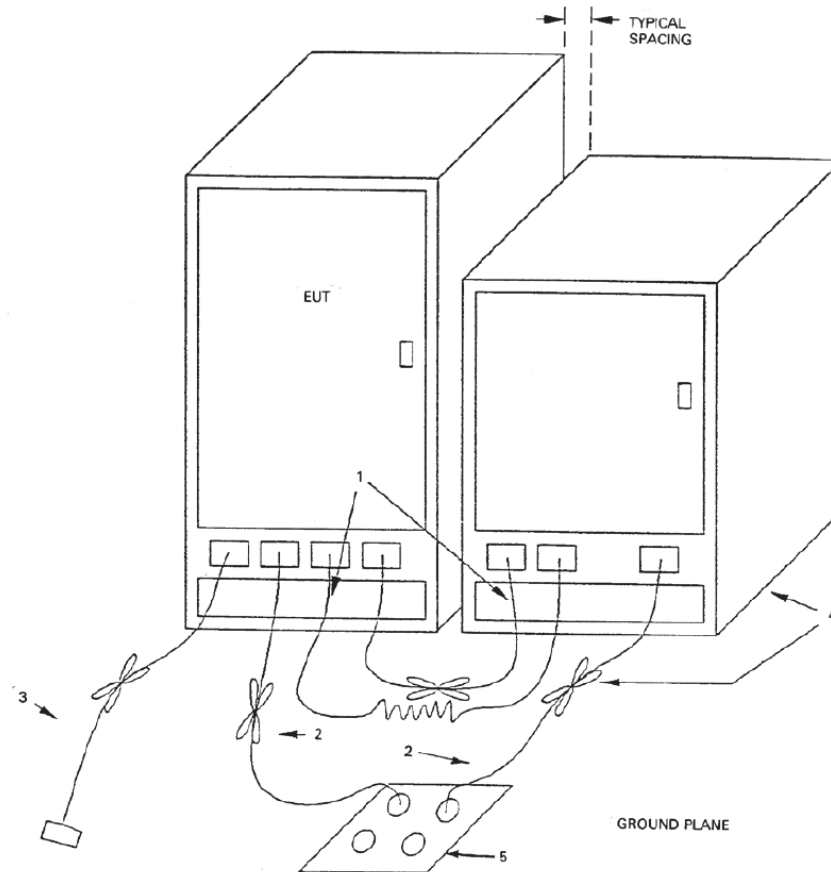


Fig. 4: Radio-frequency radiated emissions of floor-standing setup equipment.

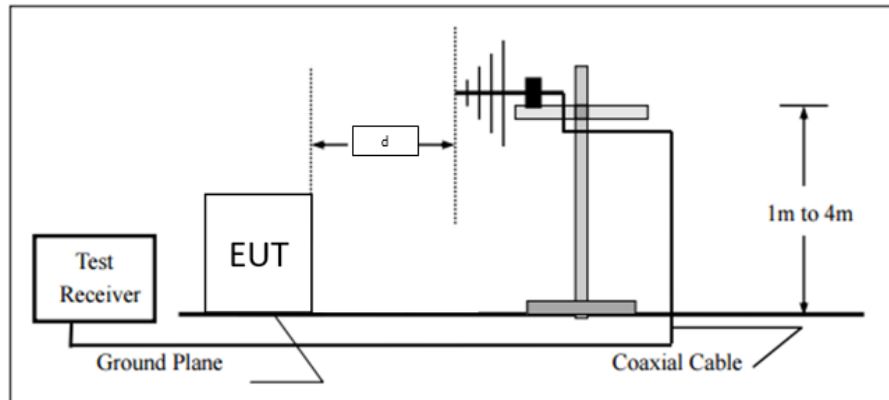


Fig. 5: Radio-frequency radiated emissions of floor-standing setup equipment from 30 MHz to 1000 MHz

Distance "d" depends on test chamber.

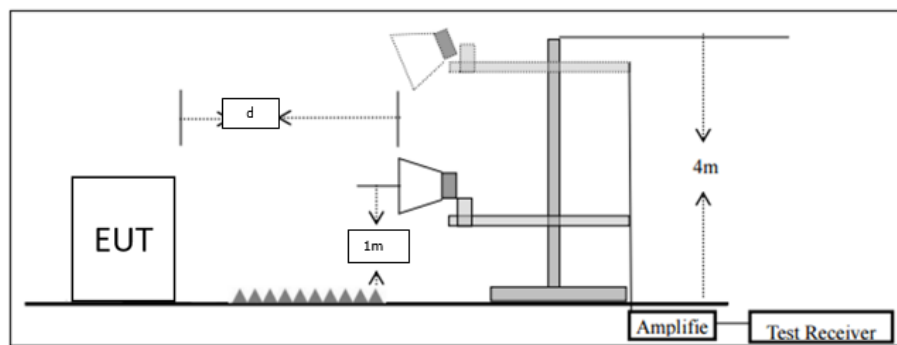


Fig. 6: Radio-frequency radiated emissions of floor-standing setup equipment above 1 GHz

Distance "d" depends on test chamber.

4.1.2 Test Procedure

The test site, 3 or 10 m semi-anechoic chamber, has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.4-2014

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 30 MHz to 1 GHz in semi-anechoic chambers. The receiving antennas are conform to specifications ANSI C63. These antennas can be moved over the height range between 1 m and 4 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.

Pre-measurement

- The turntable rotates from 0° to 315° using 45° steps
- The antenna is polarized vertical and horizontal
- The antenna height changes from 1 m to 4 m
- At each turntable position, antenna polarization and height the receiver finds the maximum of all emissions

Final measurement

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable position 360 ° and antenna height between 1 m and 4 m
- The final measurement is done with quasi-peak detector (as described in ANSI C63.4) for 30 MHz to 1 GHz emissions test
- The final measurement is done in the position (azimuth, height and antenna polarization) causing the highest emissions with Peak and RMS detector (as described in ANSI C63.4) for 1 GHz to 18 GHz test
- Final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factors, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is shown

Correction Factor:

Emission Level = Read Level +Corrections (Antenna Factor + Cable Loss – Amplifier Gain (if applies) + Attenuator (if applies))

4.1.3 Test Parameters

4.1.3.1 Requirements

According to FCC Part 15.109:

Class A Equipment's						
Frequency Range [MHz]	Quasi-peak detector (QP) [dBμV/m]		Peak detector (PK) [dBμV/m]		Average detector (AVG) [dBμV/m]	
	10 m measuring distance	3 m measuring distance ¹	8.5 m measuring distance ²	3 m measuring distance ³	8.5 m measuring distance ²	3 m measuring distance ³
30 – 288	39.0	49.5	N/A	N/A	N/A	N/A
88 – 216	43.5	54	N/A	N/A	N/A	N/A
216 – 960	46.4	56.9	N/A	N/A	N/A	N/A
960 – 1000	49.5	60	N/A	N/A	N/A	N/A
Above 1000	N/A	N/A	70.95	80	50.95	60

Table 6: Radio-frequency radiated emissions requirements – Class A equipment's

Note 1: The limits has been modified according to the applicable standard applying the formula: $L_2 = L_1 - 20\log(d_2/d_1)$, where:

L_2 : New Limit.

L_1 : Limit at 10 meters.

d_1 : 10 meters (standard distance).

d_2 : 3 meters (new measurement distance).

Note 2: The limits has been modified according to the applicable standard applying the formula: $L_2 = L_1 - 20\log(d_2/d_1)$, where:

L_2 : New Limit.

L_1 : Limit at 10 meters.

d_1 : 10 meters (standard distance).

d_2 : 8.5 meters (new measurement distance).

Note 3: The limits has been modified according to the applicable standard applying the formula: $L_2 = L_1 - 20\log(d_2/d_1)$, where:

L_2 : New Limit.

L_1 : Limit at 10 meters.

d_1 : 10 meters (standard distance).

d_2 : 3 meters (new measurement distance).

Class B Equipment's						
Frequency Range [MHz]	Quasi-peak detector (QP) [dBμV/m]		Peak detector (PK) [dBμV/m]		Average detector (AVG) [dBμV/m]	
	10 m measuring distance ¹	3 m measuring distance	8.5 m measuring distance ²	3 m measuring distance	8.5 m measuring distance ²	3 m measuring distance
30 – 288	29.5	40	N/A	N/A	N/A	N/A
88 – 216	33.0	43.5	N/A	N/A	N/A	N/A
216 – 960	35.5	46	N/A	N/A	N/A	N/A
960 – 1000	43.5	54	N/A	N/A	N/A	N/A
Above 1000	N/A	N/A	65	74	45	54

Table 7: Radio-frequency radiated emissions requirements – Class B equipment's

Note 1: The limits has been modified according to the applicable standard applying the formula: $L_2 = L_1 - 20\log(d_2/d_1)$, where:

L_2 : New Limit.

L_1 : Limit at 3 meters.

d_1 : 3 meters (standard distance).

d_2 : 10 meters (new measurement distance).

Note 2: The limits has been modified according to the applicable standard applying the formula: $L_2 = L_1 - 20\log(d_2/d_1)$, where:

L_2 : New Limit.

L_1 : Limit at 3 meters.

d_1 : 3 meters (standard distance).

d_2 : 8.5 meters (new measurement distance).

According to ICES-003 Issue 7 (3.2.2):

Class A Equipment's						
Frequency Range [MHz]	Quasi-peak detector (QP) [dBμV/m]		Peak detector (PK) [dBμV/m]		Average detector (AVG) [dBμV/m]	
	10 m measuring distance	3 m measuring distance ¹	8.5 m measuring distance ¹	3 m measuring distance	8.5 m measuring distance ¹	3 m measuring distance
30 – 288	40.0	50.0	N/A	N/A	N/A	N/A
88 – 216	43.5	54.0	N/A	N/A	N/A	N/A
216 – 230	46.4	56.9	N/A	N/A	N/A	N/A
230 – 960	47.0	57.0	N/A	N/A	N/A	N/A
960 – 1000	49.5	60.0	N/A	N/A	N/A	N/A
Above 1000	N/A	N/A	71	80	51	60

Table 8: Radio-frequency radiated emissions requirements – Class A equipment's

Class B Equipment's						
Frequency Range [MHz]	Quasi-peak detector (QP) [dBμV/m]		Peak detector (PK) [dBμV/m]		Average detector (AVG) [dBμV/m]	
	10 m measuring distance	3 m measuring distance	8.5 m measuring distance ¹	3 m measuring distance	8.5 m measuring distance ¹	3 m measuring distance
30 – 288	30.0	40.0	N/A	N/A	N/A	N/A
88 – 216	33.1	43.5	N/A	N/A	N/A	N/A
216 – 230	35.6	46.0	N/A	N/A	N/A	N/A
230 – 960	37.0	47.0	N/A	N/A	N/A	N/A
960 – 1000	43.5	54.0	N/A	N/A	N/A	N/A
Above 1000	N/A	N/A	65	74	45	54

Table 9: Radio-frequency radiated emissions requirements – Class B equipment's

Note 1: The limits has been modified according to the applicable standard applying the formula: $L_2 = L_1 - 20 \log (d_2/d_1)$, where:

L_2 : New Limit.

L_1 : Limit at 3 meters.

d_1 : 3 meters (standard distance).

d_2 : 8.5 meters (new measurement distance).

4.1.3.2 Receiver Parameters

According to standard ANSI C63.4:2014:

Frequency Range [MHz]	Detector	Resolution Bandwidth [MHz]	Video Bandwidth [MHz]
30 – 1000	Quasi-peak (QP)	0.12	0.30
Above 1000	Peak (PK)	1	3
	Average (AVG)	1	10·10 ⁻⁶

Table 10: Receiver parameters – Radio-frequency radiated emissions

4.1.3.3 Sample Calculations for Field Strength Measurements

Field Strength is calculated from the Receiver readings, based on the following equation:

$$Final\ Result\ [dB\mu V/m] = Raw\ Rec\ [dB\mu V] + Corr.\ [dB/m]$$

$$Final\ Result\ [dB\mu V/m] = Raw\ Rec\ [dB\mu V] + Trd\ Corr\ [dB/m] + Preamp\ [dB] + Sig\ Path\ [dB]$$

Equation 1: Equation for Calculation for Field Strength

Where:

- *Raw Rec* – Measured reading in dBμV.
- *Sig Path* – Cable Loss + External Amplifier in dB.
- *Preamp* - Internal Amplifier in dB.
- *Trd Corr* – Antenna Factor in dB/m.
- $Corr\ [dB/m] = Sig\ Path\ [dB] + Preamp\ [dB] + Trd\ Corr\ [dB/m]$

Example calculation from primary register taken from EMC-32 Test Software:

Frequency [MHz]	MaxPeak [dBμV/m]	CAverage [dBμV/m]	Limit [dBμV/m]	Corr. [dB/m]	Raw Rec [dBμV]	Sig Path [dB]	Preamp [dB]	Trd Corr. [dB/m]
1060.000	61.2	---	74.0	26.4	34.8	2.0	0.0	24.4
1060.000	---	22.8	54.0	26.4	-3.6	2.0	0.0	24.4

Table 11: Sample Calculation for Field Strength

$$MaxPeak\ [dB\mu V/m] = 34.8 + 24.4 + 0 + 2 = 61.2\ [dB\mu V/m]$$

$$CAverage\ [dB\mu V/m] = -3.6 + 24.4 + 0 + 2 = 22.8\ [dB\mu V/m]$$

Equation 2: Sample Calculation for Field Strength

4.1.4 Test Environmental Conditions

Test Date	Technician	Supervisor	Temperature [°C]	Humidity [%]	Atm. Pressure [mbar]
25/03/2026	A. Perez	---	23.0	40.3	996.4
26/03/2026	A. Perez	---	23.5	45	1021
10/04/2026	A.Perez	---	22.7	41.3	1001.4

Table 12: Test environmental conditions – Radio-frequency radiated emissions

4.1.5 Summary Test Results

Frequency Range ¹ [MHz]	Equipment Class	Test Area	Distance [m]	Emissions	Results
30 – 1000	B	SAC 2	3	QP < Limit - I	PASS
1000 – 3500	B	SAC 2	3	PK < Limit - I AVG < Limit - I	PASS
3500 – 13000	B	SAC 2	3	PK < Limit - I AVG < Limit - I	PASS

Table 13: Summary test results – Radio-frequency radiated emissions

Note 1: Upper limit according to the fifth harmonic of the maximum internal frequency declared by the manufacturer or to 40 GHz, whichever is lower.

4.1.6 Test Results

4.1.6.1 Ambient Levels. Frequency range: 30 MHz – 1 GHz

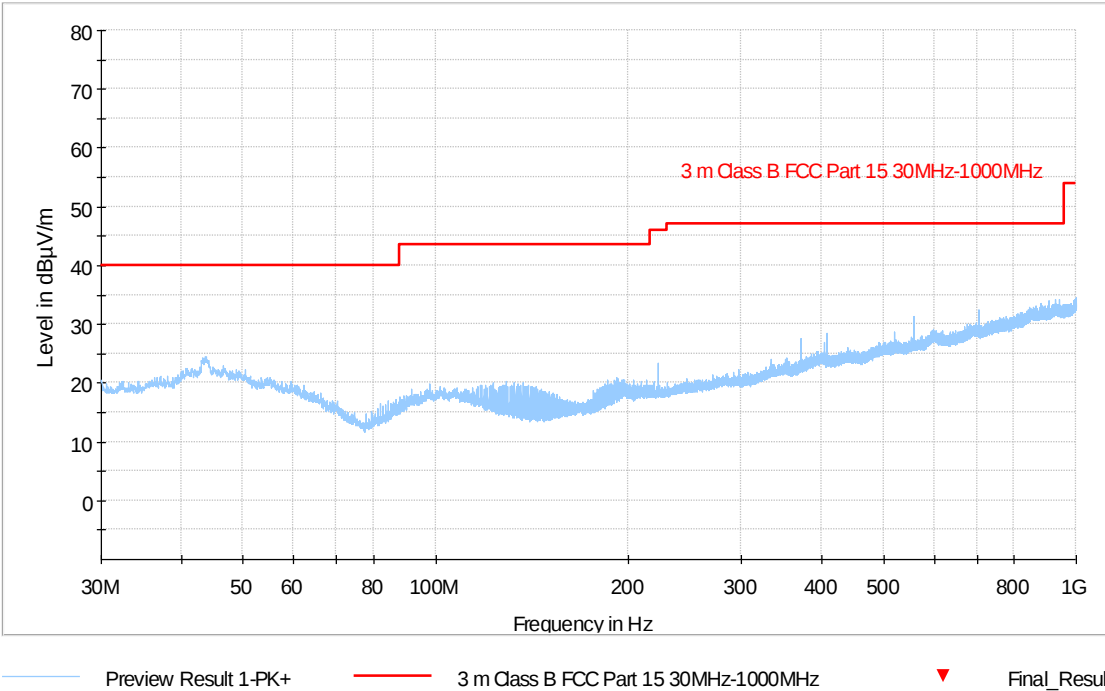


Fig. 7: Ambient level. Frequency range: 30 MHz – 1 GHz

4.1.6.2 Ambient Levels. Frequency range: 1 GHz – 3.5 GHz

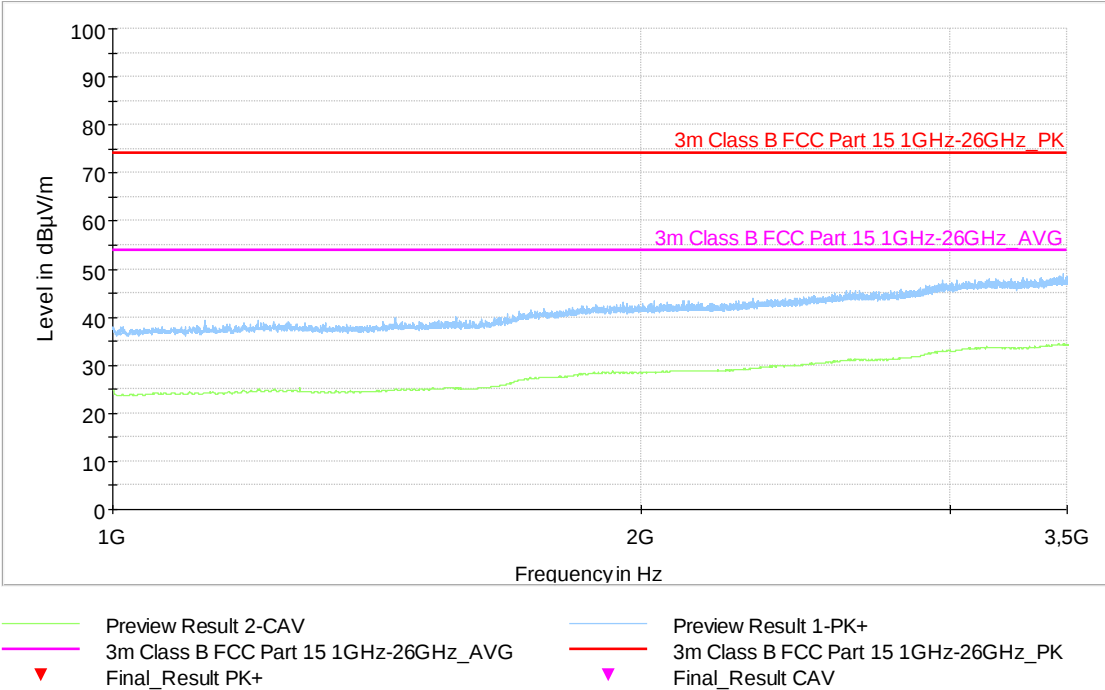


Fig. 8: Ambient level. Frequency range: 1 GHz – 3.5 GHz

4.1.6.3 Ambient Levels. Frequency range 3.5 GHz – 13 GHz

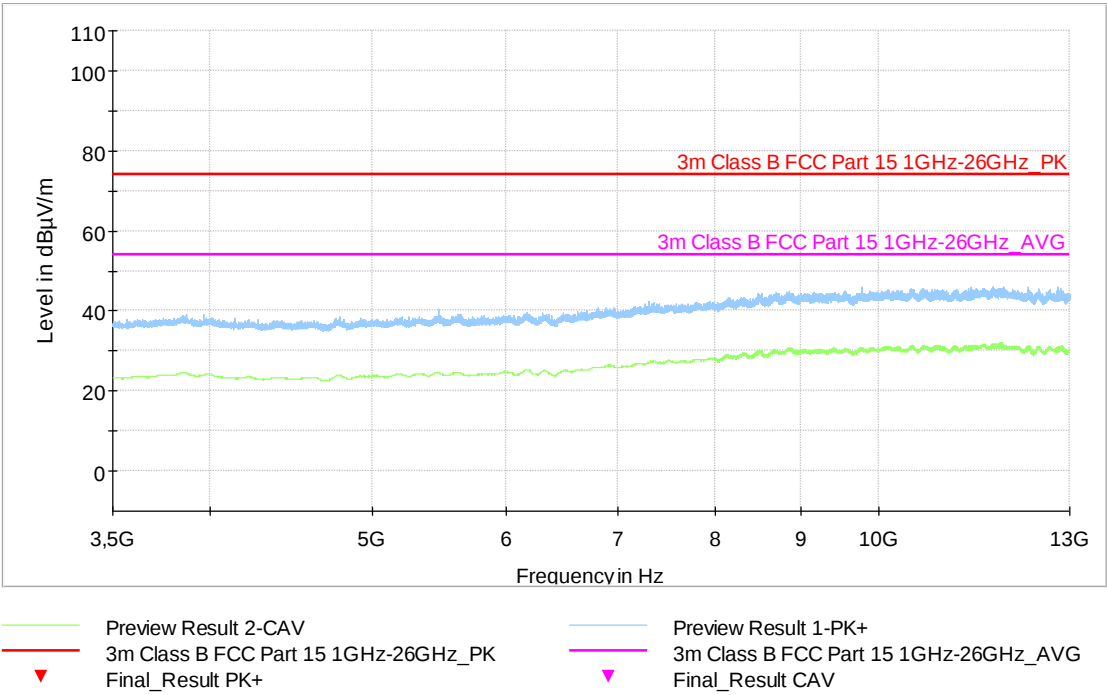


Fig. 9: Ambient level. Frequency range: 3.5 GHz –13 GHz

4.1.6.4 Sample #1. Mode 1. Frequency range: 30 MHz – 1 GHz

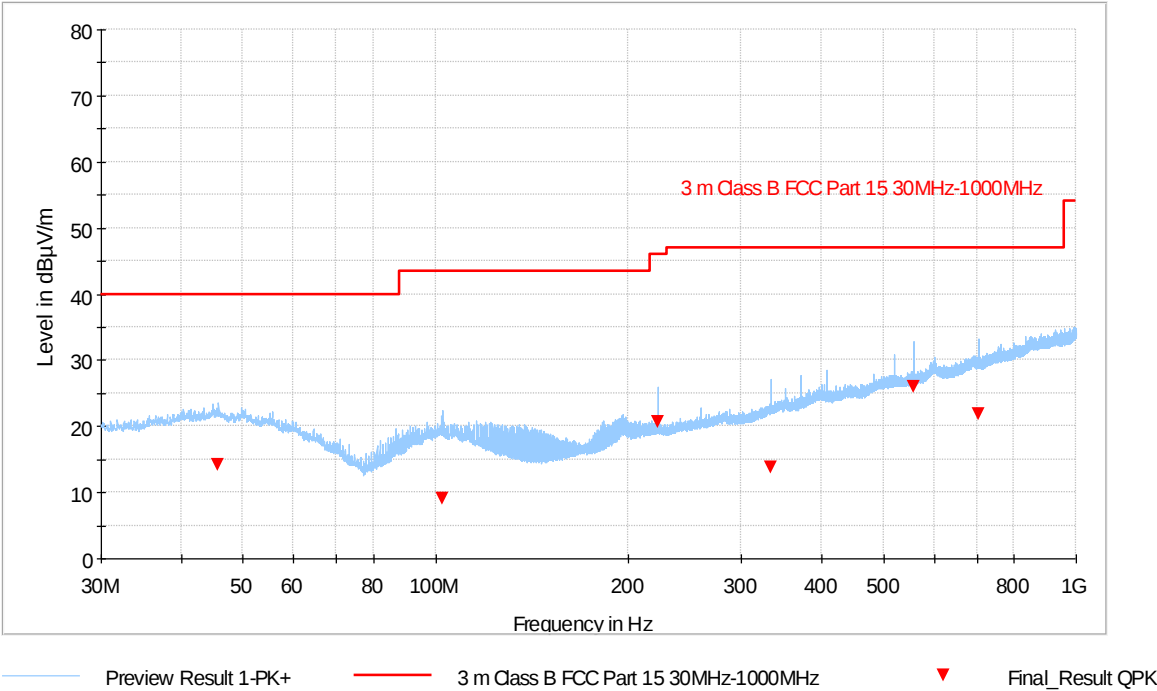


Fig. 10: Sample #1. Mode 1. Frequency range: 30 MHz – 1 GHz

FINAL MEASUREMENTS

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
45.750	14.27	40.00	25.8	312.0	H	177.0	17.8
102.570	9.1	43.50	34.4	308.0	V	0.0	16.0
222.750	20.7	46.00	25.3	331.0	H	267.0	16.0
334.110	13.8	47.00	33.2	173.0	H	87.0	19.3
556.860	26.0	47.00	21.0	289.0	V	283.0	23.5
705.390	21.8	47.00	25.2	195.0	H	263.0	25.8

4.1.6.5 Sample #1. Mode 1. Frequency range: 1 GHz – 3,5 GHz

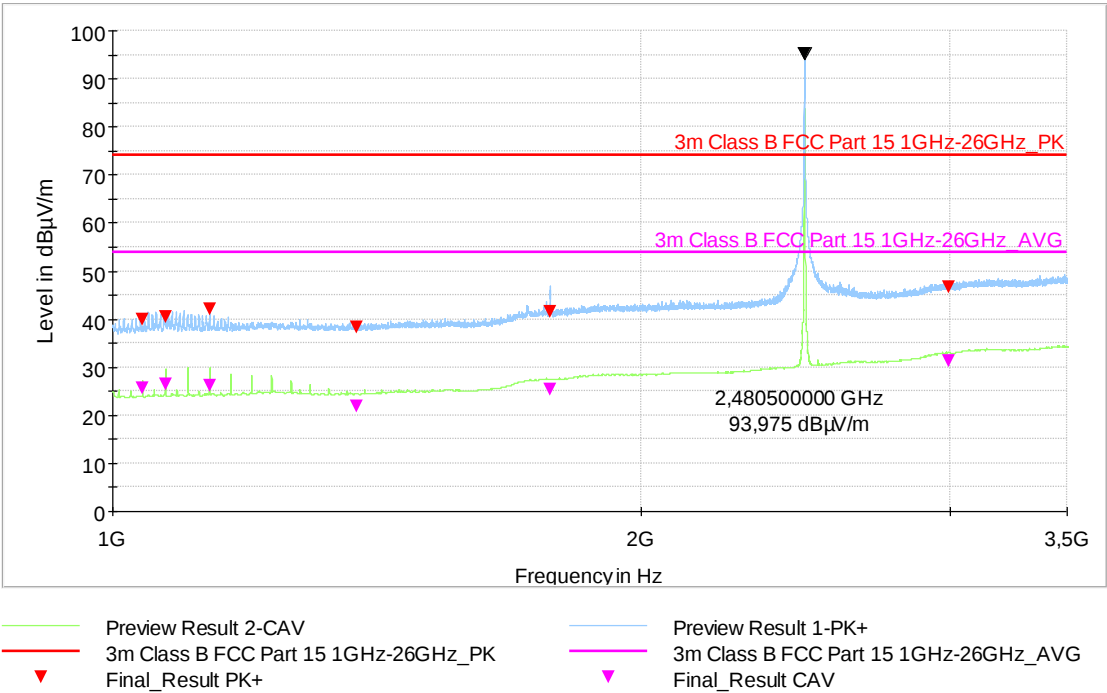


Fig. 11: Sample #1. Mode 1. Frequency range: 1 GHz – 6 GHz

FINAL MEASUREMENTS

Frequency (MHz)	Max Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.750	39.8	74.00	34.2	25.5	54.00	28.5	171.0	H	181.0	25.5
1071.750	40.3	74.00	33.7	26.4	54.00	27.6	149.0	H	166.0	25.8
1136.250	41.9	74.00	32.1	26.22	54.00	27.8	127.0	H	170.0	26.2
1376.750	38.3	74.00	35.7	21.9	54.00	32.1	284.0	V	306.0	26.5
1775.250	41.5	74.00	32.53	25.5	54.00	28.5	390.0	H	247.0	28.3
2996.750	46.7	74.00	27.33	31.3	54.00	22.7	169.0	V	133.0	32.4

4.1.6.6 Sample #1. Mode 1. Frequency range: 3,5 GHz – 13 GHz

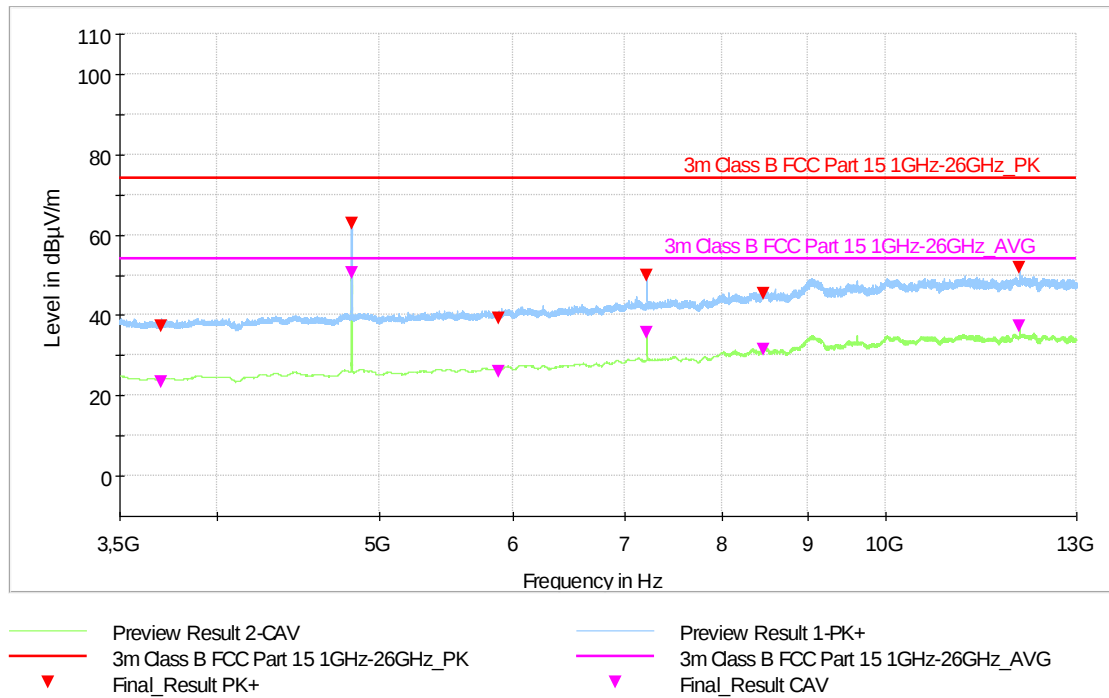


Fig. 12: Sample #1. Mode 1. Frequency range: 3,5 GHz – 13 GHz

FINAL MEASUREMENTS

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3705.250	37.3	74.00	36.7	23.3	54.00	30.7	100.0	V	278.0	-19.8
4811.000	62.7	74.00	11.3	50.4	54.00	3.7	162.0	V	170.0	-16.8
5887.750	39.1	74.00	34.9	25.8	54.00	28.2	400.0	H	298.0	-15.8
7213.500	49.8	74.00	24.2	35.6	54.00	18.4	282.0	V	194.0	-13.4
8468.250	45.2	74.00	28.8	31.4	54.00	22.6	324.0	V	204.0	-10.6
12022.500	51.7	74.00	22.3	37.4	54.00	16.6	171.0	H	168.0	-4.7

4.1.7 Test Equipment Used

Equipment	Brand	Model	Applus Ref.	Last Calibration	Next Calibration
EMI RECEIVER	R&S	ESW26/2Hz-26GHz	1041791	30/01/2026	30/01/2027
BILOG ANTENNA EMI	SCHWARZBECK	VULB9164	1042740	17/12/2025	17/12/2026
ATENUADOR 3 DB	HUBER/SUHNER	6803.17.B	1042020	24/07/2025	24/07/2026
RF ROTARY TRANSITION	SPINNER	BN835088	1042793	20/06/2025	20/06/2026
RF CABLE	HUBER/SUHNER	SF103	1042875	22/08/2025	22/08/2026
RF CABLE 8m	HUBER/SUHNER	SF 106	1043041	26/09/2025	26/09/2026
RF CABLE (WALL PANEL)	--	--	104572	24/07/2025	24/07/2026
SEMIANECHOIC CHAMBER	EUROSHIELD	TC2TESTCHAMBER	104563	12/03/2026	12/03/2029
TEST SOFTWARE	R&S	EMC32v.10.50.00	104624_SAC2	-----	-----
MAST-TABLE CONTROLLER	MATURO	NCD/052/8931211	1042758	-----	-----
HORN ANTENNA EMI	EMCO	3115	05-ER-182	07/01/2026	07/01/2027

Table 14: Test Instruments – Radio-frequency radiated emissions

4.1.8 Uncertainty

Test Type	Test Description	Uncertainty
Emissions	RADIO-FREQUENCY RADIATED EMISSIONS 30 MHz – 1 GHz	± 5.3 dB
Emissions	RADIO-FREQUENCY RADIATED EMISSIONS 1 GHz – 6 GHz	± 5.3 dB
Emissions	RADIO-FREQUENCY RADIATED EMISSIONS 6 GHz – 18 GHz	± 5.5 dB

Table 15: Radio-frequency radiated emissions measuring Uncertainties

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by a coverage factor $k=2$, which for normal distribution corresponds to a coverage probability of approximately 95%.