


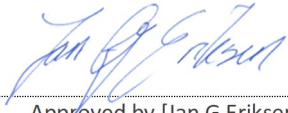


Test Report

Electromagnetic Compatibility

Product	1.9 GHz Wireless Alert Badge		
Name and address of the applicant (1)	Panasonic Corporation of North America Two Riverside Plaza, Newark New Jersey, United States		
Name and address of the applicant (2)	Audio Enhancement 9858 South Audio Drive West Jordan, 84081, UT, United States		
Name and address of the manufacturer	Panasonic Entertainment & Communications Co., Ltd. 4-1-62 Minoshima, Hakata-ku Fukuoka, 812-8531 Japan		
Model	K-SAB25		
Rating	3.7V _{DC} (Li-Ion Battery)		
Trademark	Audio Enhancement		
Additional information	DECT 6.0, Class A Digital Device		
Tested according to	FCC CFR 47 Subpart 15B ISED Canada ICES-003, Issue 7 Unintentional Radiators, Digital Device		
Project number	PRJ0077743		
Tested in period	2025-05-27		
Issue date	2025-06-03		
Name and address of the testing laboratory	Nemko Scandinavia AS Institutteien 6 2007 Kjeller Norway		 
An accredited technical test executed under the Norwegian accreditation scheme			
 Prepared by [Frode Sveinsen]		 Approved by [Jan G Eriksen]	

REPORT REVISIONS

Report Edition	Date	Project	Description
A	2025-05-28	PRJ0077743	First issued
B	2025-06-03	PRJ0077743	Removed photos and added comment below plots



THIS REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATION(S) TESTED.

It is the manufacturer's responsibility to assure the additional production units of this product are manufactured with identical electrical and mechanical components. The manufacturer is responsible to the authorities for any modifications made to the product, which result in non-compliance to the relevant regulations.

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Opinions expressed within this report regarding general assessments and qualifications for PASS or FAIL to the standards limits and requirements, are not part of the current accreditation. Neither is opinions expressed regarding model variants covered by the testing performed in this report.

Deviations from, additions to, or exclusions from the test specifications are described in "Test Report Summary".

This report was originally distributed electronically with digital signatures. For more information contact Nemko.

DESCRIPTION OF TESTED ITEM(S)

Product description.....:	1.9GHz Wireless Alert Badge
Model/type	K-SAB25
FCC ID	ACJ9TAK-SAB25
Serial number	PRJ00777430027
Operating voltage.....:	3.7 V _{DC}
Maximum power/current.....:	/
Insulation class	A
Highest clock frequency	/
Hardware version	PULB1130ZA-GL
Software version	V0.03R00
Mounting position.....:	<input type="checkbox"/> Tabletop equipment <input type="checkbox"/> Wall/ceiling mounted equipment <input type="checkbox"/> Floor standing equipment <input checked="" type="checkbox"/> Handheld equipment <input type="checkbox"/> Rack mounted equipment <input type="checkbox"/> Console equipment <input type="checkbox"/> Other:

ACCESSORIES USED DURING TEST

Description	Manufacturer	Type
AC Adaptor	Audio Enhancement	Dual USB-A Charger Model: 360539 Vivid2.4™
Companion Device	Audio Enhancement	Model: K-SRC14, 1.9 GHz Wireless Receiver

MODEL VARIANTS

The following model variants have been inspected and are confirmed to be identical or believed to be less disposed with regard to electromagnetic compatibility.

Model/type	Description of differences	Tested
N/A		<input type="checkbox"/>

INPUT/OUTPUT PORTS

Port name and description	Cable		
	Longer than 3m	Attached during test	Shielded
AC mains supply	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This equipment has been tested with certain cable types and cable configurations. Any changes to these parameters when installed may influence the EMC properties of this equipment.

OPERATING MODES

OP no.	Description	Applied for testing	
		Emissions	Immunity
OP1	Charging, On-hook	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OP2	Operating, Off-hook	<input type="checkbox"/>	<input type="checkbox"/>

POWER SUPPLY CONDITIONS

The following nominal power supply conditions have been tested:


PC no.	Voltage	Frequency	Type	Ground terminal
PC1	120 V	<input type="checkbox"/> AC 50Hz / <input checked="" type="checkbox"/> AC 60Hz / <input type="checkbox"/> DC	<input type="checkbox"/> 3AC / <input type="checkbox"/> 3ACN / <input type="checkbox"/> PoE	<input type="checkbox"/> PE / <input type="checkbox"/> GND / <input type="checkbox"/> None

- The power supply voltage has been selected after a maximum disturbance investigation over the product's rated voltage range.
- Additional chassis grounding was applied.

OTHER INFORMATION

Modifications	None
Additional information	The tested device is a Class A digital device; however, all tests have been performed to Class B limits and are still passed.

TEST ENVIRONMENT

Test laboratory	<input checked="" type="checkbox"/> KJELLER (Instituttveien 6, N-2007 Kjeller, Norway) <input type="checkbox"/> LYSAKER (Philip Pedersens vei 11, N-1366 Lysaker, Norway)
Laboratory accreditation.....	 <p style="text-align: center;">Norsk Akkreditering – TEST 033 P06 – Electromagnetic Compatibility</p>
Environmental conditions.....	<p>The climatic conditions during the tests are within limits specified by the manufacturer for the operation of the product and the test equipment. The climatic conditions during tests are within the following limits:</p> <p style="margin-left: 40px;">Ambient temperature: 15 – 35 °C Relative humidity: 25 – 75 %RH Atmospheric pressure: 86 – 106 kPa</p> <p>If explicitly required by the test standard, or the requirements are tighter than the above; the climatic conditions are recorded and documented separately in this test report.</p>
Calibration.....	<p>All instruments used in the tests of this test report are calibrated and traceable to national or international standards. Between calibrations test set-ups are controlled and verified on a regular basis by intermediate checks to ensure, with 95% confidence that the instruments remain within their calibrated levels. The instrumentation accuracy is within limits agreed by the IECCE/CTL and defined by Nemko.</p>
Measurement uncertainties.....	<p>Uncertainty in EMC emission measurements stated in this report are calculated from the standard measurement uncertainties multiplied by the coverage factor $k=2$. It was determined in accordance with CISPR 16-4-2. The true value is in the corresponding interval with a probability of 95%. Uncertainties for continuous immunity tests are calculated based on the same principles as for EMC emission uncertainties. For Harmonics and Flicker measurements the measurement uncertainty is calculated based on the same principles as for EMC emission uncertainties. Uncertainties for transient immunity are kept within the requirements of the relevant basic standard. <i>Further information about measurement uncertainties is provided on request.</i></p>
Decision rules	<p>As specified by CISPR 16-4-2; if our measurement uncertainty U_{LAB} is less than or equal to U_{CISPR}, compliance is deemed to occur if no measured disturbance level exceeds the limit hence "PASS" is indicated, and non-compliance is deemed to occur if any measured disturbance level exceeds the limits hence "FAIL" is indicated. For continuous immunity tests, uncertainties are not considered when applying the calibrated test levels. Tests are performed at the test levels specified by the test standard. PASS and FAIL decisions are based on behaviour observations of the specimen. For transient immunity tests, uncertainties are not considered if the test equipment is kept within the requirements of the relevant basic standard. Tests are performed at the test levels specified by the test standard. PASS and FAIL decisions are based on behaviour observations of the specimen. For Harmonics and Flicker measurements the measurement uncertainty is considered, and measurements are marked if necessary. In doing so, the associated uncertainty of measurement has been considered. <i>Further information about decision rules is provided on request.</i></p>

TEST REPORT SUMMARY

APPLIED STANDARDS

Standards	Titles
FCC CFR 47 Subpart 15B	<i>Digital devices - Unintentional radiators, Digital Device</i>
ISED Canada ICES-003, Issue 7	<i>Spectrum Management and Telecommunications Policy. Interference-Causing Equipment Standard. Information Technology Equipment (Including Digital Apparatus - Limits and Methods of Measurement (Issue 7, June 2020)</i>

TEST SUMMARY

Requirements – Tests	Reference standards	Verdict
Conducted Emissions	FCC CFR 47 Subpart 15B ISED Canada ICES-003, Issue 7 ANSI C63.4-2014+C63.4a-2017	PASS
Radiated Emissions (Below 1GHz)	FCC CFR 47 Subpart 15B ISED Canada ICES-003, Issue 7 ANSI C63.4-2014+C63.4a-2017	PASS

- PASS : Tested and complied with the requirements
- FAIL : Tested and failed the requirements
- N/A : Test not relevant to this specimen (evaluated by the test laboratory)
- : Test not performed (instructed by the applicant)
- * : An asterisk (*) placed after the verdict in the Result column indicates test items that are not within Nemko's scope of accreditation
- # : A grid (#) placed after the verdict in the Result column indicates test items that are only partly covered by Nemko's scope of accreditation. Further information is detailed in the test section

ABOUT REFERENCE STANDARDS AND TEST LEVELS

Product standards with dated references to basic standards may have been performed according to the newest edition of the basic standard. This may impact the compliance criteria or technical performance of the test, still this is adequate if the test is expected to confirm compliance to the intention of the product standard. The table above lists the actual editions of the basic standards which have been used during testing.

The choice of immunity test levels could be higher than those specified by the reference standards when we consider the nature of the specimen and its intended use or based on customer requests.

NOTES

None

Test Results

CONDUCTED EMISSIONS

TEST DESCRIPTION

Method

The reference method for this test is listed in the table under clause TEST SUMMARY.

Set-up

The measurement was performed at the power supply terminal of the specimen. Nominal supply voltage was provided. The specimen was energized and in normal operating mode during the measurement.

- The specimen and its cables were elevated 10 cm above a ground plane.
- The specimen and its cables were elevated 40 cm above a ground plane.
- The specimen and its cables were placed 40 cm from a vertical ground plane, 80 cm over ground plane.
- The specimen was mounted directly on, and bonded to a ground plane. Cables and auxiliary equipment were elevated by 1 cm

- The specimen was connected to an Artificial Mains Network (AMN) by its power supply cable, which was adjusted to 100cm length by folding.
- The specimen was connected to an Artificial Mains Network (AMN) by a 0.8 m shielded power supply cable directly connected to the AMN.

Conditions

- Frequency range was 9kHz – 30MHz.
- Frequency range was 10kHz – 30MHz.
- Frequency range was 150kHz – 30MHz.

The measuring bandwidth is 200Hz in the frequency range 9 kHz – 150 kHz. Measurement was made with a 100 Hz step size and 100ms dwell time.

The measuring bandwidth is 9 kHz in the frequency range 150 kHz – 30MHz. Measurement was made with a 4.5 kHz step size and 20ms dwell time.

Measurement uncertainty: ± 3.7 dB (9 kHz – 150 kHz); ± 3.3 dB (150 kHz – 30 MHz)

Instruments used during measurement

Instrument list: AC Power Source: Agilent / 6812B (LR-1515) (COU)
AMN: R&S / ENV216 (LR-1665) (01/2026)
EMI Receiver: R&S / ESR 7 (LR-1675) (01/2026)
Multimeter: Fluke / Model 87 V (N-4671) (11/2026)

Conformity

Verdict:

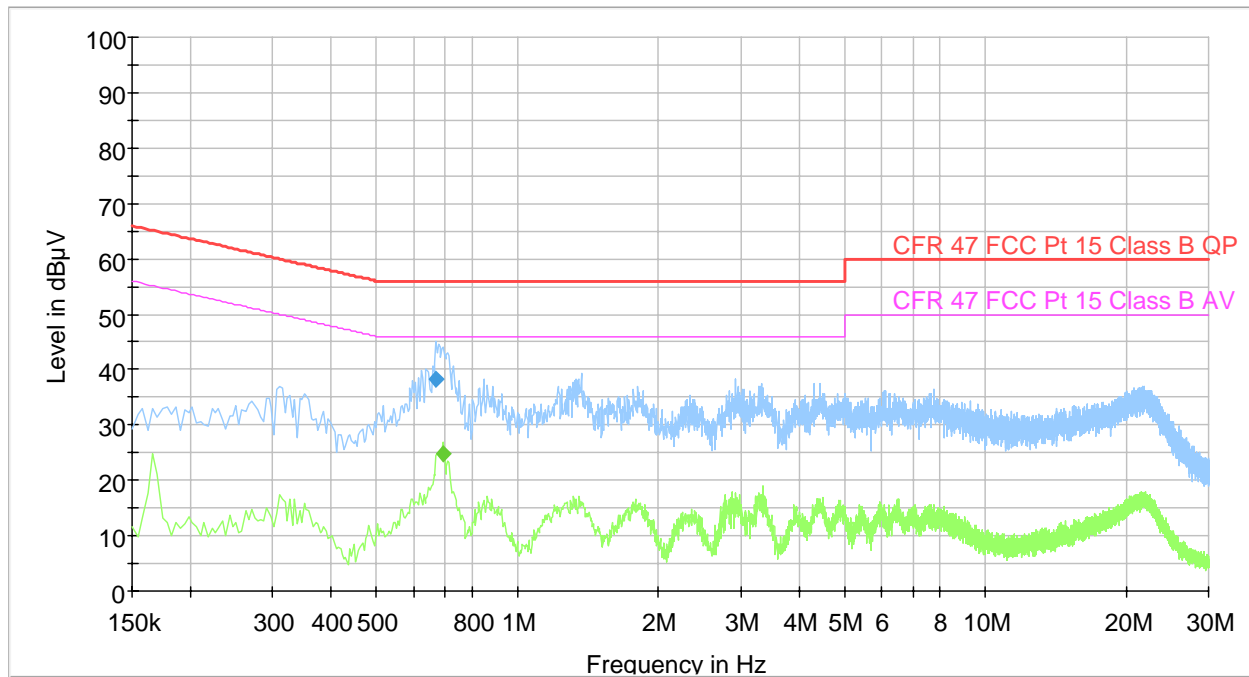
PASS

Test engineer:

Frode Sveinsen

EMISSION SPECTRUM

Full Spectrum



- Preview Result 2-AVG
- Preview Result 1-PK+
- CFR 47 FCC Pt 15 Class B QP
- CFR 47 FCC Pt 15 Class B AV
- ◆ Final_Result QPK
- ◆ Final_Result CAV

The plot shows the maximum of L1 and N.

MEASUREMENT DATA

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.670000	38.21	---	56.00	17.79	15000.0	9.000	N	OFF	9.6
0.694000	---	24.79	46.00	21.21	15000.0	9.000	N	OFF	9.7

RADIATED EMISSIONS (BELOW 1GHZ)

TEST DESCRIPTION

Method

The reference method for this test is listed in the table under clause TEST SUMMARY.

Set-up

The measurements were performed in a semi-anechoic chamber (SAC). Nominal supply voltage was provided. The specimen was energized and in normal operating mode during the measurement.

- The specimen and its cables were elevated 10 cm above the site ground plane and placed in the centre of the turntable.
- The specimen and its cables were placed on a table 80 cm above the site ground plane and placed in the centre of the turntable.
- Ferrite clamps type CMAD were applied to cables leaving the test volume.
- A CDNE was applied to the power supply cable.

Antenna type = Hybrid BiLog antenna

Antenna elevation = 100-400 cm above the ground reference plane.

Specimen rotation = 0-360°.

- Band-stop filter(s) was used to suppress the wanted RF transmission band to protect the measurement equipment.

Frequency range:

- 30-300MHz
- 30-1000MHz
- Other:

Measurement distance:

- 3m
- 5m
- 10m

Conditions

The measuring bandwidth is 120 kHz in the frequency range 30 MHz – 1000MHz.

Measurement uncertainty: ± 4.9 dB (3m distance in SAC10); ± 4.6 dB (3m distance in SAC3); ± 4.6 dB (10m distance in SAC10)

Instruments used during measurement

Instrument list: AC Power Source: Agilent / 6812B (LR-1515) (COU)
Antenna, Biconical-log hybrid: Schwarzbeck / VULB9163 (LR 1616) (09/2026)
EMI Receiver: R&S / ESU40 (LR-1639) (01/2026)
Preamplifier: Sonoma / 310N (LR-1686) (08/2025)
Multimeter: Fluke / Model 87 V (N-4671) (11/2026)

Conformity

Verdict:

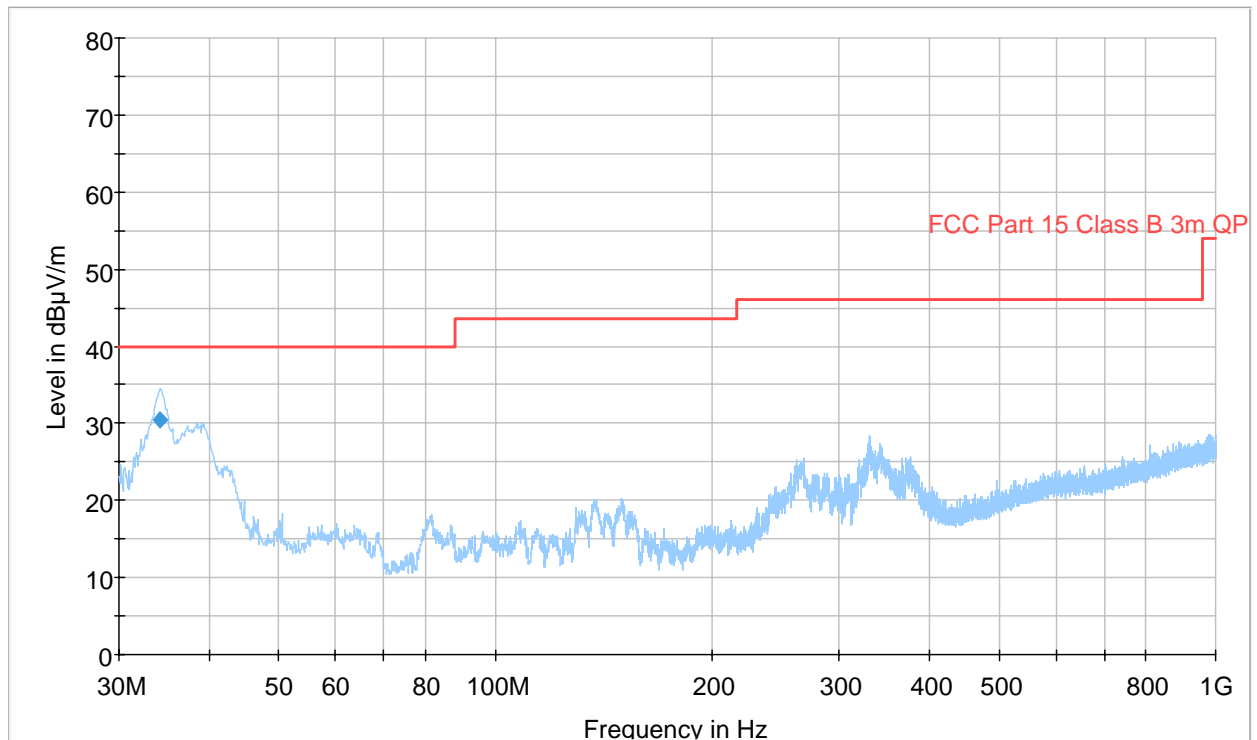
PASS

Test engineer:

Frode Sveinsen

EMISSION SPECTRUM

Full Spectrum



— Preview Result 1-PK+ — FCC Part 15 Class B 3m QP ◆ Final_Result QPK

The plot shows the maximum of Horizontal and Vertical Polarisation.

MEASUREMENTS DATA

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
34.249730	30.44	40.00	9.56	15000.0	120.000	150.0	V	179.0	-14.1

Test Set-ups

