



LCIE



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Bluetooth Low Energy Template: Release September 25th, 2024

TEST REPORT

N°: 25313275-809020-B

Version : 02

Subject

**FCC Co-Location Test report:
47 CFR Part 15.247 & 47 CFR Part 22, 24 & 27**

Issued to

ADVEEZ
4 Avenue Jean Monnet
31770 - COLOMIERS
France

Apparatus under test

- Product
- Trade mark
- Manufacturer
- Model under test
- Serial number
- FCC ID
- IC

GPS Tracker
ADVEEZ
ADVEEZ
OTM GSM V2
AD-OG10-4224-025
R8T-OTMGSMV2
21312-OTMGSMV2

Conclusion

See Test Program chapter

Test date

February 5, 2025 to February 12, 2025

Test location

Fontenay Aux Roses & Ecuelles

Test Site

6230B-1

Sample receipt date

February 3, 2025

Registration Number

157910

Designation Number

FR0006 for IC and FR0010 for FCC

Composition of document

17 pages

Document issued on

March 19, 2026

Written by :
Laurent DENEUX
Tests operator

Approved by :
Anthony MERLIN
Technical manager



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LCIE

Laboratoire Central des Industries Electriques
Une société de Bureau Veritas

33, Av du Général Leclerc
92266 Fontenay Aux Roses
FRANCE

Tél : +33 1 40 95 60 60
contact@lcie.fr
www.lcie.fr



PUBLICATION HISTORY

Version	Date	Author	Modification
01	April 29, 2025	Laurent DENEUX	Creation of the document
02	March 19, 2026	Julien Palard	Update to correct Registration Number on page 1

Each new edition of this test report replaces and cancels the previous edition. The control of the old editions of report is under responsibility of client.



SUMMARY

1.	TEST PROGRAM	4
2.	EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)	5
3.	UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS	9
4.	UNCERTAINTIES CHART	17



1. TEST PROGRAM

References

- 47 CFR Part 15.247
- 47 CFR Part 22, 24 & 27
- FCC part 15 subpart C
- KDB 558074 D01 DTS Meas Guidance v05r02 (R)
- ANSI C63.10-2013

Radio requirement:

Clause (47CFR Part 15.247 & 47 CFR Part 22, 24 & 27) Test Description	Test result - Comments
Unwanted Radiated Emissions into Restricted Frequency Bands	☒ PASS ☐ FAIL ☐ NA ☐ NP(1)
This table is a summary of test report, see conclusion of each clause of this test report for detail.	

(1): Limited program

(2): EUT not directly or indirectly connected to the AC Power Public Network

PASS: EUT complies with standard's requirement

FAIL: EUT does not comply with standard's requirement

NA: Not Applicable

NP: Test Not Performed

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):
ADVEEZ OTM GSM V2

Serial Number: AD-OG10-4224-025



Equipment Under Test

Power supply:

Name	Type	Rating	Reference / Sn	Comments
Supply1	☐ AC ☐ DC ☒ Battery	7.2V 12Ah	AKKU_ER18505-2S3P	-

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
-	-	-	☐	☐	☐	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
LCIE Laptop	DELL Latitude 5520	-	Use to set the EUT

Equipment information:

4G BAND LTE		
Band:	☒ Band 1 Tx=1920MHz to 1980MHz Rx=2110MHz to 2170MHz	☒ Band 3 Tx=1710MHz to 1785MHz Rx=1805MHz to 1880MHz
	☒ Band 7 Tx=2500MHz to 2570MHz Rx=2620MHz to 2690MHz	☒ Band 8 Tx=880MHz to 915MHz Rx=925MHz to 960MHz
	☒ Band 20 Tx=832MHz to 862MHz Rx=791MHz to 821MHz	☒ Band 28 Tx=703MHz to 748MHz Rx=758MHz to 803MHz
Power Class:	Power Class 3	

Bluetooth LE Type:	☒ BLE	☐ v4.0	☐ v4.1	☐ v4.2	☒ v5.0
Frequency band:	[2400 – 2483.5] MHz				
Number of Channel:	40				
Spacing channel:	2MHz				
Channel bandwidth:	1MHz				

Antenna Type:	☒ Integral	☐ External	☐ Dedicated
Antenna connector:	☐ Yes	☐ No	☒ Temporary for test
Antenna Requirements §15.203	The transmitter uses an integral antenna and it permanently connected		
Transmit chains:	1 Single antenna		
Receiver chains	1		
Type of equipment:	☒ Stand-alone	☐ Plug-in	☐ Combined
Equipment arrangement:	☐ Tabletop	☒ Floor-standing	☐ Multiple orientations
Ad-Hoc mode:	☐ Yes	☒ No	
Duty cycle:	☒ Continuous duty	☐ Intermittent duty	☐ 100% duty
Equipment type:	☒ Production model	☐ Pre-production model	
Operating temperature range:	Tnom:	20°C	
Type of power source:	☐ AC power supply	☐ DC power supply	☒ Battery
Operating voltage range:	Vnom:	☐ 120V/60Hz	☒ 7.2 VDC
		☐ 240V/50Hz	☐ X VDC

Antenna Characteristic			
Antenna assembly	Gain (dBi)	Frequency Band (MHz)	Impedance(Ω)
BLE	1.5	2400-2500	50
LTE	1.1	698-960	50
	2.4	1710-2690	50

Hardware information		
Firmware (if applicable):	V. :	ADM-F-P60-0.06
Hardware (if applicable):	V. :	ADM-P-148-13

2.2. RUNNING MODE

Test mode	Description of test mode
Test mode 1	Permanent emission with modulation on a fixed channel in the data rate that produced the highest power
Test mode 2	Permanent reception
Test	Running mode
Unwanted Emissions into Restricted Frequency Bands	☒ Test mode 1 (1) ☐ Alternative test mode()

2.3. EQUIPMENT LABELLING



2.4. EQUIPMENT MODIFICATION

☒ None ☐ Modification:

2.5. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follow:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength
- RA = Receiver Amplitude
- AF = Antenna Factor
- CF = Cable Factor
- AG = Amplifier Gain

Assume a receiver reading of 52.5dBμV is obtained. The antenna factor of 7.4 and a cable factor of 1.1 are added. The amplifier gain of 29dB is subtracted, giving a field strength of 32 dBμV/m.

$$FS = 52.5 + 7.4 + 1.1 - 29 = 32 \text{ dB}\mu\text{V/m}$$

The 32 dBμV/m value can be mathematically converted to its corresponding level in μV/m.

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32\text{dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}.$$

2.6. Test distance extrapolation – FCC/ISED

The field strength is extrapolated to the new measurement distance using formula from FCC Part15.31 (f) and §6.5-6.6 RSS-GEN:

Below 30MHz,

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}} \right)$$

Above 30MHz,

$$FS_{\text{limit}} = FS_{\text{max}} - 20 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}} \right)$$

Where:

FS_{limit} is the calculation of field strength at the limit distance, expressed in dBμV/m

FS_{max} is the measured field strength, expressed in dBμV/m

d_{measure} is the distance of the measurement point from the EUT

d_{limit} is the reference limit distance

2.7. CALIBRATION DATE

The calibration intervals are extended at 12+2 months. This extended interval is based on the fact that there is sufficient calibration data to statistically establish a trend or based on experience of use of the test equipment to assure good measurement results for a longer period.

3. UNWANTED EMISSIONS IN RESTRICTED FREQUENCY BANDS

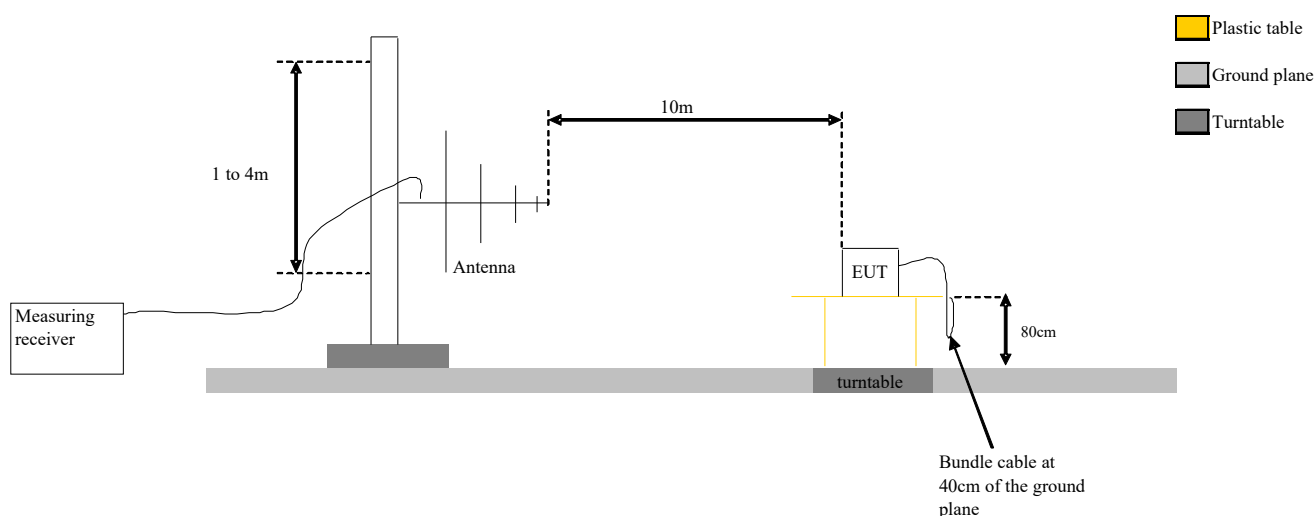
3.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
 Date of test : February 12, 2025
 Ambient temperature : 17 °C
 Relative humidity : 42 %

3.2. TEST SETUP

The product has been tested according to ANSI C63.10 and FCC part 15 subpart C:

Frequency range :	Below 30MHz	From 30MHz to 1GHz	Above 1GHz
Antenna Polarization :	Parallel, Perpendicular And Ground parallel	Horizontal And Vertical	Horizontal And Vertical
Antenna Height :	1m	Varied from 1m to 4m	Centered on EUT (§6.6.5 ANSI C63-10)
Antenna Type :	Loop	Bi-Log	Horn
RBW Filter :	200Hz below 150kHz 9kHz above 150kHz	120kHz	1MHz
Maximization :	Turntable rotation of 360 degrees range		
EUT height :	0.8m		1.5m
Test site :	Open Aera Test Site	Open Aera Test Site	Open Aera Test Site
Distance EUT-Antenna :	3m	10m	3m



Test Set up for radiated measurement in open area test site



Photograph for Unwanted Emission in restricted frequency bands

3.3. LIMIT

Measure at 300m		
Frequency range	Level	Detector
9kHz-490kHz	67.6dB μ V/m /F(kHz)	QPeak
Measure at 30m		
Frequency range	Level	Detector
490kHz-1.705MHz	87.6dB μ V/m /F(kHz)	QPeak
1.705MHz-30MHz	29.5dB μ V/m	QPeak
Measure at 10m		
Frequency range	Level	Detector
30MHz to 88MHz	29.5dB μ V/m	QPeak
88MHz to 216MHz	33dB μ V/m	QPeak
216MHz to 960MHz	35.5dB μ V/m	QPeak
960MHz to 1000MHz	43.5dB μ V/m	QPeak
Above 1000MHz	63.5dB μ V/m	Peak
	43.5dB μ V/m	Average
Measure at 3m		
Frequency range	Level	Detector
30MHz to 88MHz	40dB μ V/m	QPeak
88MHz to 216MHz	43.5dB μ V/m	QPeak
216MHz to 960MHz	46B μ V/m	QPeak
960MHz to 1000MHz	54dB μ V/m	QPeak
Above 1000MHz	74dB μ V/m	Peak
	54dB μ V/m	Average

3.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
OATS	-	-	F2000400	2024/03	2025/03
Receiver	ROHDE & SCHWARZ	ESU	A2642018	2023/03	2025/03
Preamplifier	BONN	BLNA 3018-8F305	A7080053	2023/11	2025/11
Antenna bilog	Schwarzbeck	VULB9160	C2040150	2023/09	2025/09
Horn antenna	ETS	3115	C2042016	2023/09	2025/09
Cable	-	-	A5329449	2024/11	2025/11
Cable	-	-	A5330051	2024/12	2025/12
Cable	-	-	A5329368	2024/02	2025/02
Antenna biconic	Schwarzbeck	VHBB9124 + BBA 9106	C2040295	2023/02	2025/02
Cable	-	-	A5330084	26/11/2024	2025/11
Cable	-	-	A5330052	2024/12	2025/12
Cable	-	-	A5330053	2024/12	2025/12
Cable	-	-	A5330072	2024/06	2025/06
Loop antenna	R&S	HFH2-Z2	C2040269	2025/01	2027/01
Software V3.21.0.9	NEXIO	BAT-EMC	-	-	-
Preamplifier	LCIE	LCIE-ALB-001	A7080073	2023/05	2025/05
Logperiodic antenna	ROHDE & SCHWARZ	HL223	C2040174	2023/09	2025/09
Horn antenna	AH SYSTEMS	SAS 571	C2042041	2024/07	2026/07
EMI receiver	ROHDE & SCHWARZ	FSV40GHz	A4060061	2024/07	2026/07
Cable S36 chamber	PASTERNAK	PE360-3000CM	A5329872	2025/01	2026/01
Cable S36 chamber	PASTERNAK	PE360-1000CM	A5329939	2025/01	2026/01
Cable S36 chamber	PASTERNAK	PE360-1500CM	A5329940	2025/01	2026/01
Cable S36 chamber	PASTERNAK	PE360-1000CM	A5329960	2025/01	2026/01
High Pass Filter 2,4GHz	WAINWRIGHT	WHK12-2494	A7484068	2024/01	2026/01

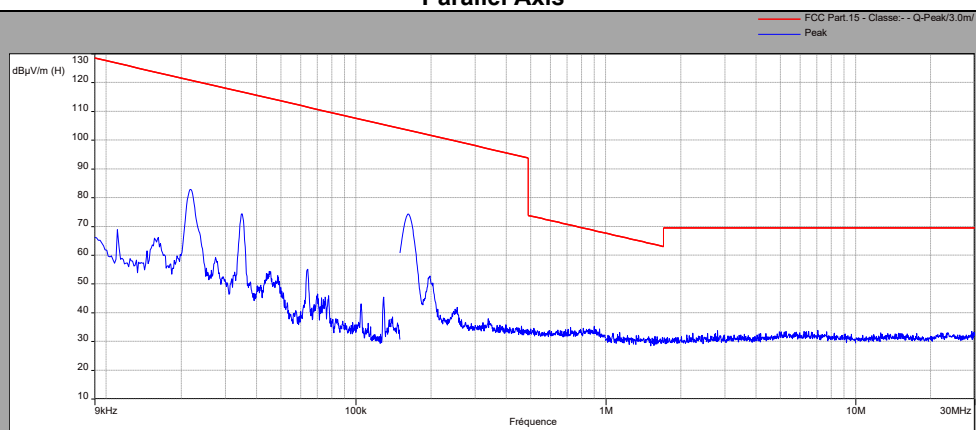
3.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

☒ None ☐ Divergence:

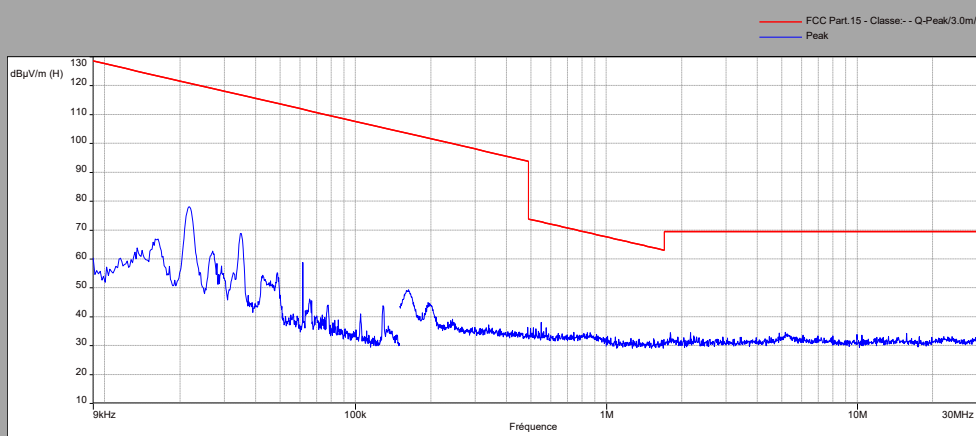
3.6. RESULTS

9kHz to 30MHz

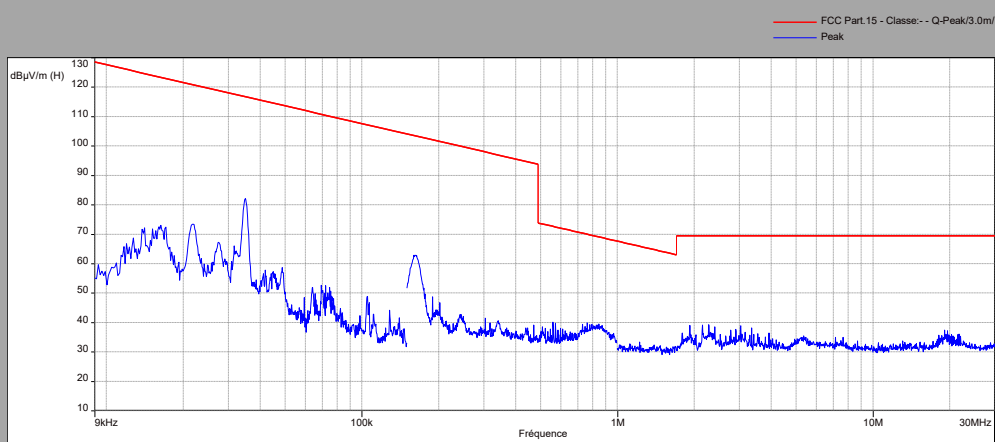
Parallel Axis



Perpendicular Axis



Ground Parallel Axis

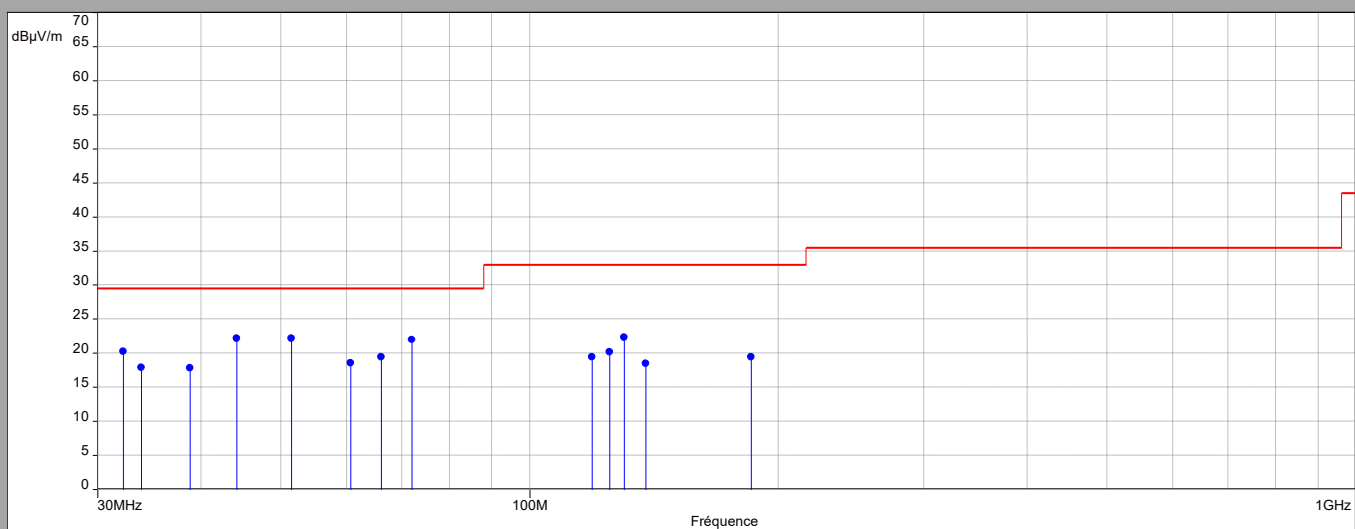


Below 1GHz

Cmin

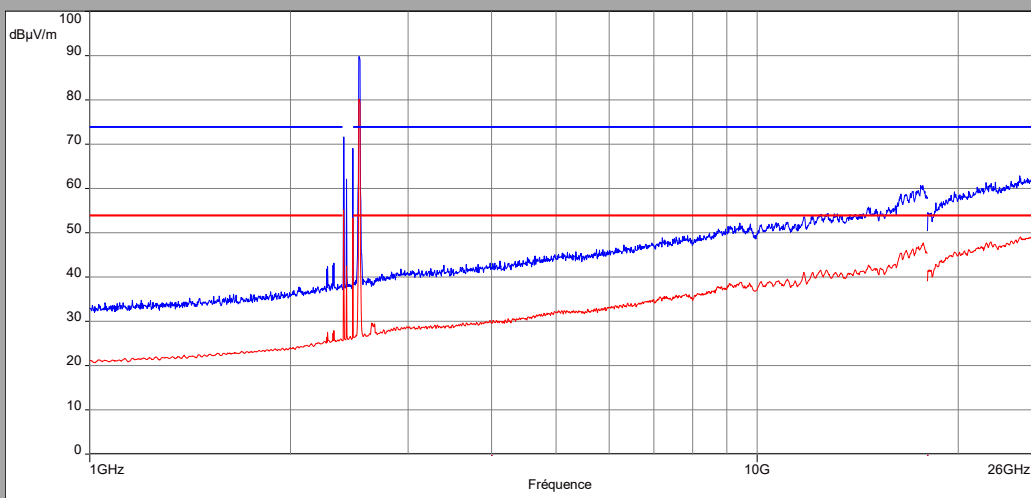
Vertical & horizontal Polarization

— FCC Part 15 (unintentional radiator) §109.10m - Classe:B - Q-Peak/10.0m/
 • Mes. Q-Peak (Verticale)
 • Mes. Q-Peak (Horizontale)



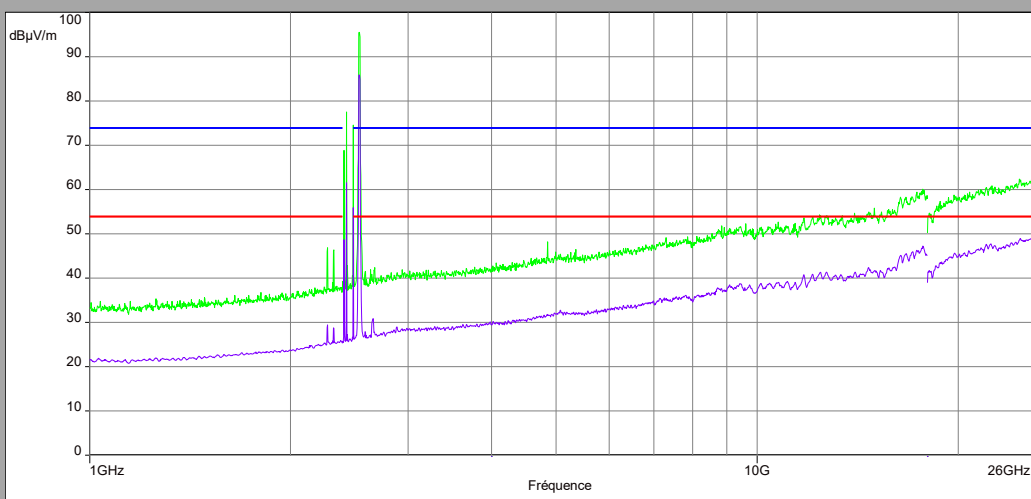
Above 1GHz
BLE & LTE Band 7
Vertical Polarization

— FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
 — FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - QCrête/3.0m/
 — FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
 — OX/OY - Avg (215) - Verticale (Verticale)
 — OX/OY - Peak (215) - Verticale (Verticale)



Horizontal polarization

— FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Moyenne/3.0m/
 — FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - QCrête/3.0m/
 — FCC/FCC 15.209 2400MHz-2483MHz Band - Classe:1 - Crête/3.0m/
 — OZ - Avg (216) - Horizontale (Horizontale)
 — OZ - Peak (216) - Horizontale (Horizontale)



9kHz to 30MHz				
Polarization	Frequency (MHz)	Peak Level (dBµV/m)	QPeak Level (dBµV/m)	Limit (dBµV/m)
all emissions were greater than 20 dB below the limit				

Below 1GHz					
Polarization	Frequency (MHz)	Peak Level (dBµV/m)	QPeak Level (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)
Vertical	32,2	-	20,22	29,5	9,28
Vertical	44,2	-	22,1	29,5	7,4
Vertical	51,5	-	22,2	29,5	7,3
Vertical	66,1	-	19,45	29,5	10,05
Vertical	72	-	22	29,5	7,5
Horizontal	125	-	20,15	33	12,85
Horizontal	130,1	-	22,32	33	10,68
Horizontal	138,2	-	18,46	33	14,54

Above 1GHz								
Cmin/Cnom/Cmax								
Polarization	Frequency (MHz)	Average Level (dBµV/m)	Average Level + Duty Cycle Factor (dBµV/m)	Average Limit (dBµV/m)	Average Margin Level (dBµV/m)	Peak Level (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin Level (dBµV/m)
Horizontale	2266	28,9	32,5	54	21,5	46,1	74	27,9
Verticale	2266	26,4	30	54	24	41,8	74	32,2
Horizontale	2271	29,5	33,1	54	20,9	46,9	74	27,1
Verticale	2271	27,6	31,2	54	22,8	42,4	74	31,6
Horizontale	2316	28,8	32,4	54	21,6	46,3	74	27,7
Verticale	2315	27,4	31	54	23	42,7	74	31,3
Horizontale	2321	28,6	32,2	54	21,8	46,4	74	27,6
Verticale	2320	27,9	31,5	54	22,5	43,2	74	30,8
Horizontale	2659	30,9	34,5	54	19,5	42,4	74	31,6

3.7. CONCLUSION

Unwanted Emission in restricted frequency bands measurement performed on the sample of the product **ADVEEZ OTM GSM V2**, SN: **AD-OG10-4224-025**, in configuration and description presented in this test report, show levels **compliant** for FCC co-location limits.

4. UNCERTAINTIES CHART

Type de mesure / Kind of measurement	Incertitude élargie laboratoire / Wide uncertainty laboratory (k=2) $\pm x$	Incertitude limite du CISPR / CISPR uncertainty limit $\pm y$
Mesure des perturbations conduites en tension sur le réseau d'énergie <i>Measurement of conducted disturbances in voltage on the power port</i> RSIL / LISN - 50Ω/50μH		
9kHz - 150kHz	3.64 dB	3.8 dB
150kHz - 30MHz	3.21 dB	3.4 dB
Mesure des perturbations rayonnées <i>Measurement of radiated disturbances</i> OATS & SAC @3m		
30MHz - 200MHz, Antenne biconique / <i>Biconical antenna</i>	5.74 dB	6.3 dB
30MHz - 1GHz, Antenne hybride / <i>Hybrid antenna</i>	5.65 dB	6.3 dB
Mesure des perturbations rayonnées <i>Measurement of radiated disturbances</i> OATS @10m		
30MHz - 200MHz, Antenne biconique / <i>Biconical antenna</i>	5.72 dB	6.3 dB
30MHz - 1GHz, Antenne hybride / <i>Hybrid antenna</i>	5.91 dB	6.3 dB
Mesure des perturbations rayonnées <i>Measurement of radiated disturbances</i> FAR @3m		
1GHz - 6GHz, Antenne cornet ou hybride / <i>Horn or hybride antenna</i>	4.77 dB	5.2 dB
1GHz - 6GHz, Antenne cornet ou hybride et préamplificateur / <i>Horn or hybride antenna and preamplifier</i>	5.02 dB	5.2 dB
6GHz - 18GHz, Antenne cornet et préamplificateur / <i>Horn antenna and preamplifier</i>	5.41 dB	5.5 dB
Type de mesure / Kind of measurement	Incertitude élargie laboratoire / Wide uncertainty laboratory (k=2) $\pm x$	Incertitude limite du CISPR / CISPR uncertainty limit $\pm y$
<i>Spurious emission, radiated (Semi anechoic chamber & open test site)</i>	5.60 dB	6 dB
<i>Spurious emission, radiated (Full anechoic chamber above 1GHz)</i>	± 3.8 dB	± 6 dB
<i>Occupied Channel Bandwidth</i>	± 2.8 %	± 5 %
<i>RF power, conducted</i>	± 1.2 dB	± 1.5 dB
<i>Power Spectral Density, Conducted</i>	± 1.7 dB	± 3 dB
<i>Spurious emission, conducted</i>	± 2.3 dB	± 3 dB
<i>Temperature</i>	± 0.75 °C	± 3 °C
<i>Supply Voltages</i>	± 1.7 %	± 3 %
<i>Time</i>	± 2.3 %	± 5 %

Les valeurs d'incertitudes calculées du laboratoire étant inférieures aux valeurs d'incertitudes limites établies par le CISPR, la conformité de l'échantillon est établie directement par les niveaux limites applicables. Ce tableau regroupe l'ensemble des incertitudes maximales pour les essais réalisables dans le laboratoire, qu'ils aient été ou non réalisés dans le cadre du présent rapport / *The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report*

Note - L'incertitude de mesure instrumentale est déterminée selon la CISPR 16-4-2. / *The instrumentation measurement uncertainty is determined according to CISPR16-4-2*