

FCC RF Exposure Report

FCC ID: 2ADEN-INTRALOT-GNN2

Project No. : 1712054

Equipment : Genion II

Test Model : PN223

Series : PN323, PN224, PN324, PN223XXXXXXXXXXXXXX,
Model : PN323XXXXXXXXXXXXXX, PN224XXXXXXXXXXXXXX,
PN324XXXXXXXXXXXXXX (where X may be any
alphanumeric character, blank or "-".)

Applicant : INTRALOT S.A.

Address : 64, Kifissias Ave. & 3, Premetis Str. 15125 Athens, Greece

According: FCC Part 2, Subpart J (§2.1093)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE Std C95.1-2005

Authorized Signatory

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Introduction

This document describes genion II is a compact and multi-functional terminal and a paperless access point device with WLAN radio function which the relevant RF output power to meet the FCC criteria for specific absorption rate (SAR) when human body is close to the device. Nevertheless, this document also provides the design concept, user scenario, target power and SAR evaluation test exclusion results for this describes genion II device.

There is 802.11 b/g/n 802.11a/n20/n40/ac20/ac40/ac80 functions in genion II is a compact and multi-functional terminal FCC ID:2ADEN-INTRALOT-GNN and these detail technologies are listed in the table 1-1.

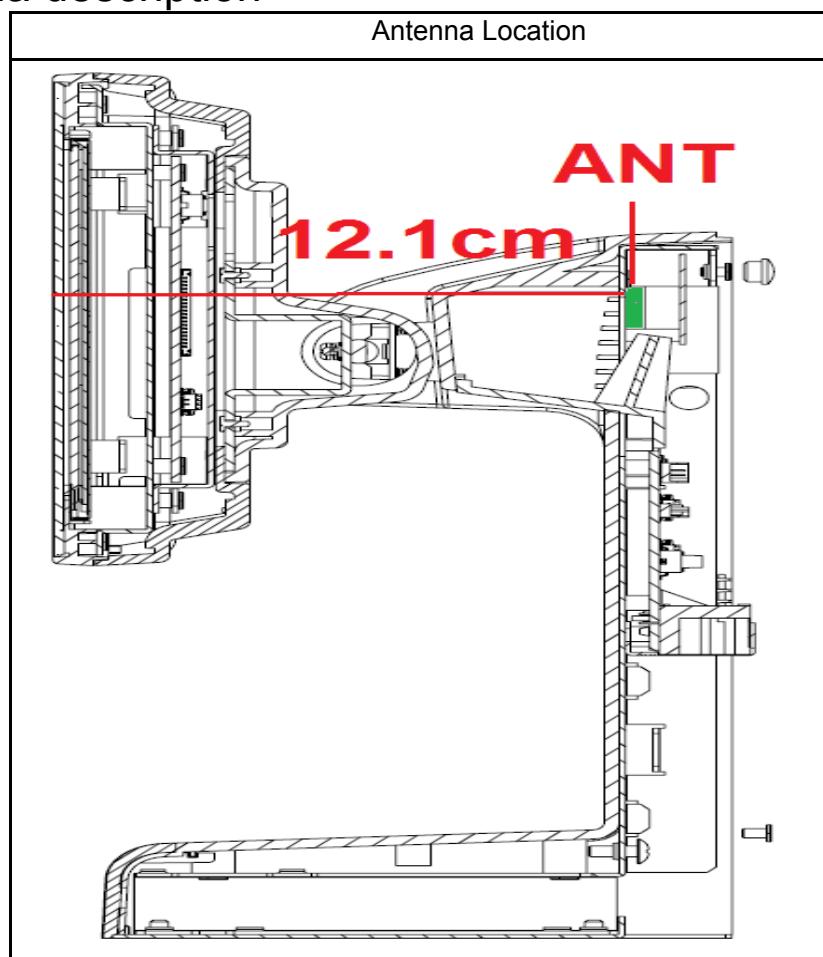
Table 1-1 EUT RF Technology Table

Band	Transmit Frequency (MHz)
802.11 b/g/n20/n40	2412 ~ 2462
802.11a/n20/n40/ac20/ac40/ac80	5180~5805

Antenna configuration and RF Power Spec

Antenna Status	Mode	Power Spec	Max Tune up Power
Ant 0	802.11b	12.5 ± 1 dBm	13.5dBm
	802.11g	12 ± 1 dBm	13 dBm
	802.11n HT20	10 ± 1 dBm	11 dBm
	802.11n HT40	10 ± 1 dBm	11 dBm
	802.11a	10.5 ± 1 dBm	11.5 dBm
	802.11n HT20	10.5 ± 1 dBm	11.5 dBm
	802.11n HT40	10.5 ± 1 dBm	11.5 dBm
	802.11ac VHT20	9 ± 1 dBm	10 dBm
	802.11ac VHT40	9 ± 1 dBm	10 dBm
	802.11ac VHT80	9 ± 1 dBm	10 dBm

Antenna description



The outlook shown in the figure normal degree and strict degree dimension of this Genion PN223.

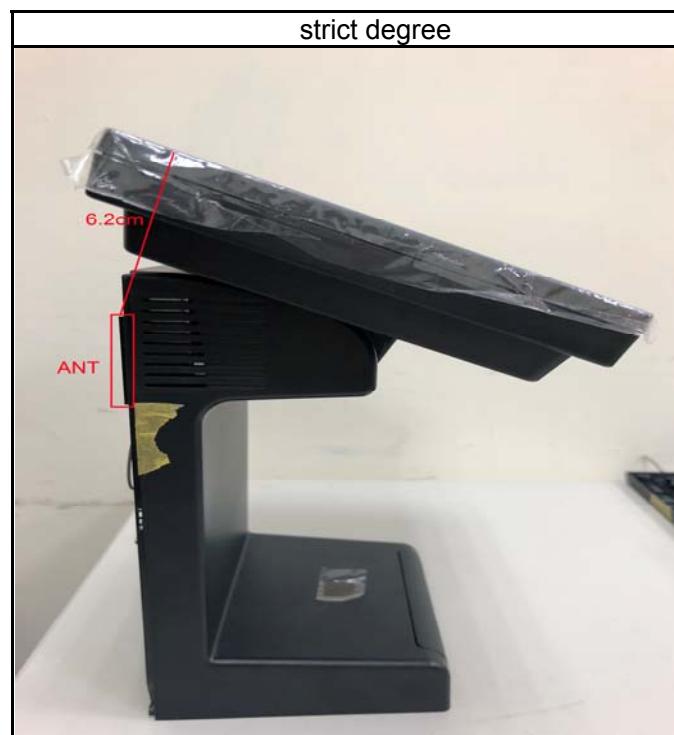


Table for Filed Antenna:

For 2.4G WLAN:

Ant.	Brand	Test Model	Antenna Type	Connector	Gain (dBi)
1	An jie	AJDP1J-C0022	PIFA	I-PEX_I	5.5

For 5G RLAN:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	An jie	AJDP1J-C0022	PIFA	I-PEX_I	3.55	Band 1
					4.9	Band 2
					6.58	Band 3
					6.58	Band 4

RF EXPOSURE
Appendix A
SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	<i>SAR Test Exclusion Threshold (mW)</i>
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	
MHz	30	35	40	45	50	mm
150	232	271	310	349	387	<i>SAR Test Exclusion Threshold (mW)</i>
300	164	192	219	246	274	
450	134	157	179	201	224	
835	98	115	131	148	164	
900	95	111	126	142	158	
1500	73	86	98	110	122	
1900	65	76	87	98	109	
2450	57	67	77	86	96	
3600	47	55	63	71	79	
5200	39	46	53	59	66	
5400	39	45	52	58	65	
5800	37	44	50	56	62	

Note: 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the 1-g *SAR Test Exclusion Thresholds* indicated above. These thresholds do not apply, by extrapolation or other means, to occupational exposure limits.

CALCULATION RESULTS

According to KDB 447498 section 4.3.1, the 1-g SAR test exclusion thresholds at test separation distance ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] \leq 3.0$$

The tune-up power is 12.5 dBm +/- 1dB, therefore the highest tune-up power is 13.50 dBm (22.39mW), Frequency 2412MHz.

so

$$(22.39\text{mW} / 50\text{mm}) * (2.412\text{G}^{0.5}) = 0.695$$

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] = 0.695 < 3.0$$

Therefore, standalone SAR are not required.

The tune-up power is 10.5 dBm +/- 1dB, therefore the highest tune-up power is 11.50 dBm (22.39mW), Frequency MHz.

so

$$(14.13\text{mW} / 50\text{mm}) * (5.24\text{G}^{0.5}) = 0.647$$

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] = 0.647 < 3.0$$

Therefore, standalone SAR are not required.

Frequency (MHz)	Average Power (dBm)	Tune up (dBm)	Average Power (mW)	Distance (mm)	Limit (mW)
2412	13.19	13.50	22.39	50	96
5240	11.45	11.50	14.13	50	66

Note: The device is calculation with the strict degree distance. therefore use 50mm calculation.

CONCLUSION

No SAR evaluation required since transmitter power is below FCC threshold.