

RF Exposure Evaluation

For

Pulsa Inc.

Frontier

Test Model: F100

Prepared for : Pulsa Inc.
Address : 607 Market St. Suite 200, San Francisco, CALIFORNIA 94105 USA

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : December 25, 2024
Number of tested samples : 2
Sample No. : A241008116-1, A241008116-2
Serial number : Prototype
Date of Test : December 25, 2024 ~ March 21, 2025
Date of Report : April 07, 2025



**RF Exposure Evaluation****Report Reference No. : LCSA10294036EC**

Date of Issue..... : April 07, 2025

Testing Laboratory Name..... : Shenzhen LCS Compliance Testing Laboratory Ltd.Address..... : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei,
Shajing Street, Baoan District, Shenzhen, 518000, ChinaTesting Location/ Procedure..... : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □**Applicant's Name..... : Pulsa Inc.**

Address..... : 607 Market St. Suite 200, San Francisco, CALIFORNIA 94105 USA

Test SpecificationStandard..... : FCC KDB publication 447498 D01 General 1 RF Exposure
Guidance v06
FCC CFR 47 part1 1.1310
FCC CFR 47 part2 2.1091**Test Report Form No..... : TRF-4-E-214 A/0**

TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

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EUT Description..... : Frontier

Trade Mark..... : Pulsa

Test Model..... : F100

Ratings..... : DC 3.6V by Battery, 38Ah

Result : **Positive****Compiled by:**

Li Huan/ Administrator

Supervised by:

Jack Liu/ Technique principal

Approved by:

Gavin Liang/ Manager



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**FCC -- TEST REPORT**

Test Report No. :	LCSA10294036EC	<u>April 07, 2025</u> Date of issue
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EUT.....	: Frontier
Test Model.....	: F100
Applicant.....	: Pulsa Inc.
Address.....	: 607 Market St. Suite 200, San Francisco, CALIFORNIA 94105 USA
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: Pulsa Inc.
Address.....	: 607 Market St. Suite 200, San Francisco, CALIFORNIA 94105 USA
Telephone.....	: /
Fax.....	: /
Factory.....	: Pulsa Inc.
Address.....	: 607 Market St. Suite 200, San Francisco, CALIFORNIA 94105 USA
Telephone.....	: /
Fax.....	: /

Test Result:	Positive
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.





Revision History

Report Version	Issue Date	Revision Content	Revised By
000	April 07, 2025	Initial Issue	---





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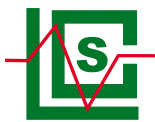




1. Product Information

EUT	: Frontier
Test Model	: F100
Ratings	: DC 3.6V by Battery, 38Ah
Hardware Version	: 001
Software Version	: 5.27
2G	:
Support Band	: ☒ GSM 900 (EU-Band) ☒ DCS 1800 (EU-Band) ☒ GSM 850 (U.S.-Band) ☒ PCS 1900 (U.S.-Band)
Release Version	: R99
GPRS Class	: Class 12
EGPRS Class	: Class 12
Type Of Modulation	: GMSK for GSM/GPRS; GMSK/8PSK for EGPRS
Antenna Description	: Internal Antenna 0.11dBi (max.) For GSM 850 1.74dBi (max.) For PCS 1900
CatM1	:
Support Band	: ☒ CatM1 Band 2(U.S.-Band) ☒ CatM1 Band 4(U.S.-Band) ☒ CatM1 Band 5(U.S.-Band) ☒ CatM1 Band 12(U.S.-Band) ☒ CatM1 Band 13(U.S.-Band) ☒ CatM1 Band 25(U.S.-Band) ☒ CatM1 Band 26(U.S.-Band) ☒ CatM1 Band 66(U.S.-Band) ☒ CatM1 Band 85(U.S.-Band)
Release Version	: R13
Type Of Modulation	: QPSK, 16QAM
Antenna Description	: Internal Antenna 1.74dBi (max.) For CatM1 Band 2 1.74dBi (max.) For CatM1 Band 4 0.11dBi (max.) For CatM1 Band 5 0.11dBi (max.) For CatM1 Band 12 0.11dBi (max.) For CatM1 Band 13 1.74dBi (max.) For CatM1 Band 25 0.11dBi (max.) For CatM1 Band 26 1.74dBi (max.) For CatM1 Band 66 0.11dBi (max.) For CatM1 Band 85
Power Class	: Class 3
Extreme temp. Tolerance	: -30°C to +50°C
Extreme vol. Limits	: 3.1VDC to 4.1VDC (nominal: 3.6VDC)
Exposure category	: General population/uncontrolled environment
EUT Type	: Production Unit
Device Type	: Mobile Devices
Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.	





2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3. 1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.

3. 2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

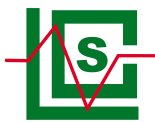


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4. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

5. Conducted Power

[GSM Max Average Power]

Test Mode	Channel	Frequency (MHz)	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)
GSM 850	Low	824.2	32.68	32.0±1.0
	Middle	836.6	32.69	32.0±1.0
	High	848.8	32.64	32.0±1.0
PCS 1900	Low	1850.2	29.67	29.0±1.0
	Middle	1880.0	29.70	29.0±1.0
	High	1909.8	29.65	29.0±1.0

[LTE Max Average Power]

Test Mode		Channel	Max Average Power (dBm)	ANT Max. Tune Up Power (dBm)
CatM1	Band 2	LCH	25.05	25.0±1.0
		MCH	25.50	25.0±1.0
		HCH	25.70	25.0±1.0
	Band 4	LCH	25.22	25.0±1.0
		MCH	25.39	25.0±1.0
		HCH	25.39	25.0±1.0
	Band 5	LCH	25.24	25.0±1.0
		MCH	25.53	25.0±1.0
		HCH	25.38	25.0±1.0
	Band 12	LCH	25.94	25.0±1.0
		MCH	25.58	25.0±1.0
		HCH	25.56	25.0±1.0
	Band 13	LCH	20.38	20.0±1.0
		MCH	20.41	20.0±1.0
		HCH	20.72	20.0±1.0
	Band 25	LCH	18.75	18.0±1.0
		MCH	19	19.0±1.0
		HCH	18.94	18.0±1.0
	Band 26	LCH	20.26	20.0±1.0
		MCH	20.29	20.0±1.0
		HCH	20.28	20.0±1.0
	Band 66	LCH	18.83	18.0±1.0
		MCH	18.88	18.0±1.0
		HCH	19.23	19.0±1.0
	Band 85	LCH	20.28	20.0±1.0
		MCH	19.95	19.0±1.0
		HCH	19.98	19.0±1.0



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6. Measurement Results

6.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r = 20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GSM 850	33.0	1995.2623	0.11	1.0257	0.4071	0.5493
GSM 1900	30.0	1000.0000	1.74	1.4928	0.2970	1.0000
CatM1 Band 2	26.0	398.1072	1.74	1.4928	0.1182	1.0000
CatM1 Band 4	26.0	398.1072	1.74	1.4928	0.1182	1.0000
CatM1 Band 5	26.0	398.1072	0.11	1.0257	0.0812	0.5493
CatM1 Band 12	26.0	398.1072	0.11	1.0257	0.0812	0.4660
CatM1 Band 13	21.0	125.8925	0.11	1.0257	0.0257	0.4973
CatM1 Band 25	20.0	100.0000	1.74	1.4928	0.0297	1.0000
CatM1 Band 26	21.0	125.8925	0.11	1.0257	0.0257	0.5427
CatM1 Band 66	20.0	100.0000	1.74	1.4928	0.0297	1.0000
CatM1 Band 85	21.0	125.8925	0.11	1.0257	0.0257	0.4653

Remark:

1. Output power including tune-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.





6.2 Simultaneous Transmission MPE Evaluation

The EUT equipped with one antenna. So no need consider simultaneous transmission.

7. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

8. Description of Test Facility

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

Test Firm Registration Number: 254912.

9. Measurement Uncertainty

GSM/CatM1:

Test Item		Frequency Range	Uncertainty	Note
Output power	:	1GHz-40GHz	$\pm 0.57\text{dB}$	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

-----THE END OF REPORT-----

