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CPI Satcom & Antenna Technologies, Inc.

MPE TEST REPORT

SCOPE OF WORK
MPE CALCULATION ON DRU2-1KW.0001

REPORT NUMBER
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MPE TEST REPORT

(FULL COMPLIANCE)

Report Number: 106282107BOX-023.1
Project Number: G106282107

Report Issue Date: 03/23/2026

Model(s) Tested: DRU2-1KW.0001
Model(s) Partially Tested: None
Model(s) Not Tested but declared equivalent by the client: None

Standards: FCC Part 1.1310 Limits for Maximum Permissible Exposure (MPE)

Tested by:
Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719
USA

Client:
CPI Satcom & Antenna Technologies, Inc.
1000 Klein Road
Plano, TX 75074
USA

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1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	MPE Calculation (FCC Part §1.1310)	Pass
6	Revision History	--

3 Client Information

This EUT was tested at the request of:

Client: CPI Satcom & Antenna Technologies, Inc.
1000 Klein Road
Plano, TX 75074
USA

Contact: David Welsch
Email: dave.welsch@cpii.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: CPI Satcom & Antenna Technologies, Inc.
1000 Klein Road
Plano, TX 75074
USA

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Base station SDARS terrestrial repeater	CPI Satcom & Antenna Technologies, Inc.	DRU2-1KW.0001	N/A

Receive Date:	08/12/2025
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)
The EUT is a base station SDARS terrestrial repeater for use by broadcasters to maximize service availability in areas challenged by shadowed satellite coverage. It receives input data either from a modem using UDP (User Datagram Protocol) or from an S-band satellite input. The Dual-Band Exciter 2 (DBE2) LRU transocdes the inputs to Low-Band (LB) and High-Band (HB) COFDM waveforms. High-power amplifiers in the DRU2 system amplify the LB and HB signals in separate paths. Couplers and detectors monitor RF forward and reflected power from each band and the system

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
120/240 VAC 208 VAC	80 A	50/60 Hz	3W+PE 2W+N+PE

Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

5 MPE Calculation

Limit for Maximum Permissible Exposure (MPE)

FCC Human RF Exposure Limits:

The FCC Part §1.1310 The criteria listed in table 1 was used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in FCC Part §1.1307(b), except in the case of portable devices shall be evaluated according to the provisions of FCC Part §2.1093 of this chapter.

FCC Part §1.1310 Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) 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
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

(1) Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure. The phrase *fully aware* in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of *transient* persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. Such training is not required for *transient* persons, but they must receive written and/or verbal information and notification (for example, using signs) concerning their exposure potential and appropriate means available to mitigate their exposure. The phrase *exercise control* means that an exposed person is allowed to and knows how to reduce or avoid exposure by administrative or engineering controls and work practices, such as use of personal protective equipment or time averaging of exposure.

(2) General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Test Procedure

RF exposure for licensed transmitter is handled at the time of licensing, however, an MPE calculation was performed in order to show the distance at which the device is compliant with the limits of FCC Part §1.1310, assuming antenna gains of 10 dBi. The highest measured conducted output power was used.

FCC Limit For General Population/Uncontrolled Exposure at Low band: 2.324244 to 2.328256 GHz and High band: 2.336225 to 2.341285 GHz = 1 mW/cm^2

Power Density = [EIRP] / [4π x (D_{cm})^2]

Where EIRP is in milliwatts and D is in centimeters. Setting the power density equal to the limit of 1 mW/cm^2 and solving for D_{cm} yields the following results.

Results:
EUT EIRP = Conducted power + Antenna gain in dBi

Low Band: 60.094 dBm, EIRP = 60.094 + 10 = 70.094 dBm or 10218802.369 mW
High Band: 60.502 dBm, EIRP = 60.502 + 10 = 70.502 dBm or 11225352.819 mW

EIRP $_{total}$ = 21444155.200 mW

Power Density Limit = [EIRP] / [4π x (D_{cm})^2]
1 mW/cm^2 = [EIRP] / [4π x (D_{cm})^2]
D_{cm} = ([21444155.2] / [4*3.14159265359])$^{1/2}$

Therefore, the minimum safe distance D_{cm} = 1306.32 cm

Note: Peak Output Power from Intertek report #106282107BOX-023 was used for calculation.

6 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	03/23/2026	106282107BOX-023.1	VFV	KPS	Original Issue