



RF SPOT CHECK EVALUATION

FCC ID : PKRISGM3000D
Equipment : M3000D
Model Name : M3000D
Applicant : Inseego Corp.
9710 Scranton Road Suite 200, San Diego,, CA 92121
Manufacturer : Inseego Corp.
9710 Scranton Road Suite 200, San Diego,, CA 92121
Standard : 47 CFR Part 2, 22(H), 24(E), 27, 90(S)
FCC Part 15 Subpart C §15.247
FCC Part 15 Subpart E §15.407

The product was received on Nov. 21, 2022 and testing was performed from Nov. 23, 2022 to Dec. 15, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

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History of this test report

Version	Description	Issue Date
01	Initial issue of report	Dec. 15, 2022



1. Introduction Section

FCC ID: PKRISGM3000A (parent model) and FCC ID: PKRISGM3000D (variant model) use the same identical internal printed circuit board layouts, while the variant model depopulates some LTE and NR band related components, details are available in the operational description. Based on their similarity, the FCC Part 15C (equipment class: DTS) and FCC Part 15E (equipment class: NII) and FCC Part 22, 24, 27, 90 (equipment class: PCE) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 v01. The spot check data in this report is used to justify the data reuse

The applicant should take full responsibility that the test data as referenced in this report represent compliance for this FCC ID: PKRISGM3000D.



2. Model Difference Information

PKRISGM3000A and PKRISGM3000D use the identical internal printed circuit board layout, and the difference in the components population:

- PKRISGM3000D: Does Not support 5G NR FR2 (mmW). All components related to mmW operation are depopulated.
- PKRISGM3000D: Supported frequency bands for M3000A and M3000D are configured (disabled/enabled) in the software at the factory during production.

The detail of similarity and difference is illustrated in the operational description, and based on the information spot check on conducted power and emission was performed for ensure compliance



3. Spot Check Verification Data Section

Conducted power test and radiated spurious emission test configurations were selected from the worst cases identified in the parent model and tested to demonstrate the test data from original model remains representative for the variant model.

Summary for power and RSE spot check for each rule entry and technology is listed as below:

Test Item	Mode	PKRISGM3000A Parent Worst Result	PKRISGM3000D Variant Check Result	Difference (dB)
Conducted Power (dBm)	WLAN 2.4GHz	20.91	20.73	-0.18
	WLAN 5GHz	17.71	17.48	-0.23
	WWAN WCDMA Band II	23.98	23.66	-0.32
	WWAN WCDMA Band IV	23.97	23.79	-0.18
	WWAN WCDMA Band V	23.81	23.45	-0.36
	WWAN LTE Band 2	24.29	24.01	-0.28
	WWAN LTE Band 4	24.22	23.93	-0.29
	WWAN LTE Band 5	23.83	23.59	-0.24
	WWAN LTE Band 7	23.69	23.46	-0.23
	WWAN LTE Band 12	23.86	23.78	-0.08
	WWAN LTE Band 13	23.70	23.94	0.24
	WWAN LTE Band 17	23.85	23.99	0.14
	WWAN LTE Band 25	23.71	23.99	0.28
	WWAN LTE Band 26	23.92	23.64	-0.28
	WWAN LTE Band 30	23.85	23.83	-0.02
	WWAN LTE Band 38	23.85	23.62	-0.23
	WWAN LTE Band 41	27.34	27.33	-0.01
	WWAN LTE Band 66	24.25	24.12	-0.13
	WWAN LTE Band 71	23.66	23.42	-0.24
	WWAN NR n2	24.41	24.18	-0.23
	WWAN NR n5	23.73	23.47	-0.26
	WWAN NR n7	24.21	23.94	-0.27
	WWAN NR n12	23.99	23.69	-0.30
	WWAN NR n25	24.49	24.38	-0.11
	WWAN NR n38	24.50	24.28	-0.22
	WWAN NR n41	27.28	27.47	0.19
	WWAN NR n41 MIMO	24.39	24.65	0.26
	WWAN NR n66	24.49	24.23	-0.26
	WWAN NR n71	23.94	23.85	-0.09
	WWAN NR n78	25.59	25.84	0.25
	WWAN NR n78 MIMO	24.49	24.49	0.00



Test Item	Mode	ANT	PKRISGM3000A Parent Worst Result	PKRISGM3000D Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBuV/m)	WLAN 2.4GHz	0+1	49.01	46.28	-2.73
	WLAN 5GHz	0+1	52.63	48.75	-3.88
Radiated Spurious Emission (dBm)	WWAN WCDMA Band II	0	-54.21	-53.24	0.97
	WWAN WCDMA Band IV	0	-54.28	-54.20	0.08
	WWAN WCDMA Band V	0	-58.33	-56.88	1.45
	WWAN LTE Band 2	0	-53.83	-53.67	0.16
	WWAN LTE Band 26	0	-57.91	-57.30	0.61
	WWAN LTE Band 7	0	-49.92	-47.97	1.95
	WWAN LTE Band 12	0	-58.01	-58.14	-0.13
	WWAN LTE Band 13	0	-63.77	-63.15	0.62
	WWAN LTE Band 30	0	-49.79	-50.32	-0.53
	WWAN LTE Band 41	0	-48.29	-48.78	-0.49
	WWAN LTE Band 71	0	-58.45	-59.25	-0.80
	WWAN LTE Band 66	0	-54.03	-51.32	2.71
	WWAN NR n5	0	-52.55	-57.45	-4.90
	WWAN NR n7	0	-49.21	-50.08	-0.87
	WWAN NR n12	0	-58.62	-58.19	0.43
	WWAN NR n25	0	-54.25	-52.24	2.01
	WWAN NR n38	8	-46.95	-50.22	-3.27
	WWAN NR n41	8	-38.24	-50.52	-12.28
	WWAN NR n41 MIMO	8+0	-46.12	-50.25	-4.13
	WWAN NR n66	0	-48.21	-53.21	-5.00
	WWAN NR n71	0	-59.04	-58.75	0.29
	WWAN NR n78	4	-28.73	-29.22	-0.49
	WWAN NR n78 MIMO	4+6	-16.26	-16.76	-0.50

Conclusion:

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

The spot check emission level is not degraded more than 3dB, and the margin to the limit is greater than 1.5dB, data referencing is justified according to the guidance in the KDB inquiry



4. List of Measuring Equipment

<Radiation for FCC Part 22, 24, 27, 90>

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	35419 & 03	30MHz~1GHz	Apr. 24, 2022	Dec. 08, 2022~ Dec. 09, 2022	Apr. 23, 2023	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00227856	1GHz ~ 18GHz	Sep. 27, 2022	Dec. 08, 2022~ Dec. 09, 2022	Sep. 26, 2023	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101 800-30-10P	1590075	1GHz~18GHz	Apr. 21, 2022	Dec. 08, 2022~ Dec. 09, 2022	Apr. 20, 2023	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz~1GHz	Oct. 03, 2022	Dec. 08, 2022~ Dec. 09, 2022	Oct. 02, 2023	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Oct. 03, 2022	Dec. 08, 2022~ Dec. 09, 2022	Oct. 02, 2023	Radiation (03CH07-HY)
Preamplifier	EMEC	EM18G40G	0600789	18-40GHz	Jul. 21, 2022	Dec. 08, 2022~ Dec. 09, 2022	Jul. 20, 2023	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9030A	MY52350276	3Hz~44GHz	Jul. 22, 2022	Dec. 08, 2022~ Dec. 09, 2022	Jul. 21, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY15682/4	30MHz to 18GHz	Feb. 23, 2022	Dec. 08, 2022~ Dec. 09, 2022	Feb. 22, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24971/4	9kHz to 18GHz	Feb. 23, 2022	Dec. 08, 2022~ Dec. 09, 2022	Feb. 22, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4	9kHz to 18GHz	Feb. 23, 2022	Dec. 08, 2022~ Dec. 09, 2022	Feb. 22, 2023	Radiation (03CH07-HY)
Controller	EMEC	EM1000	N/A	Control Ant Mast	N/A	Dec. 08, 2022~ Dec. 09, 2022	N/A	Radiation (03CH07-HY)
Controller	MF	MF-7802	N/A	Control Turn table	N/A	Dec. 08, 2022~ Dec. 09, 2022	N/A	Radiation (03CH07-HY)
Antenna Mast	EMEC	AM-BS-4500E	N/A	Boresight mast 1M~4M	N/A	Dec. 08, 2022~ Dec. 09, 2022	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Dec. 08, 2022~ Dec. 09, 2022	N/A	Radiation (03CH07-HY)
Software	Audix	E3	N/A	N/A	N/A	Dec. 08, 2022~ Dec. 09, 2022	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB2495	N/A	Mar. 07, 2022	Dec. 08, 2022~ Dec. 09, 2022	Mar. 06, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2858/2	18GHz~40GHz	Feb. 23, 2022	Dec. 08, 2022~ Dec. 09, 2022	Feb. 22, 2023	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 20, 2022	Dec. 08, 2022~ Dec. 09, 2022	Sep. 19, 2023	Radiation (03CH07-HY)
Horn Antenna	ETS-Lindgren	3117	00143261	1GHz~18GHz	Feb. 11, 2022	Dec. 08, 2022~ Dec. 09, 2022	Feb. 10, 2023	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1224	18GHz~40GHz	Jul. 05, 2022	Dec. 08, 2022~ Dec. 09, 2022	Jul. 04, 2023	Radiation (03CH07-HY)
Signal Generator	Anritsu	MG3710A	6261943042	2G / 3G / LTE / 5G FR1	May 23, 2022	Dec. 08, 2022~ Dec. 09, 2022	May 22, 2023	Radiation (03CH07-HY)

**<Radiation for FCC Part 27Q>**

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 20, 2022	Dec. 02, 2022~ Dec. 03, 2022	Sep. 19, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	40103 & 07	30MHz~1GHz	Apr. 24, 2022	Dec. 02, 2022~ Dec. 03, 2022	Apr. 23, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 08, 2022	Dec. 02, 2022~ Dec. 03, 2022	Oct. 07, 2023	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Aug. 09, 2022	Dec. 02, 2022~ Dec. 03, 2022	Aug. 08, 2023	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1212	1GHz~18GHz	Mar. 10, 2022	Dec. 02, 2022~ Dec. 03, 2022	Mar. 09, 2023	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 24, 2022	Dec. 02, 2022~ Dec. 03, 2022	Nov. 23, 2023	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 14, 2022	Dec. 02, 2022~ Dec. 03, 2022	May 13, 2023	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 23, 2022	Dec. 02, 2022~ Dec. 03, 2022	Mar. 22, 2023	Radiation (03CH12-HY)
Preamplifier	Aglient	8449B	3008A02375	1GHz~26.5GHz	May 24, 2022	Dec. 02, 2022~ Dec. 03, 2022	May 23, 2023	Radiation (03CH12-HY)
Preamplifier	E-INSTRUME NT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900270	1GHz~18GHz	Dec. 27, 2021	Dec. 02, 2022~ Dec. 03, 2022	Dec. 26, 2022	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 24, 2021	Dec. 02, 2022~ Dec. 03, 2022	Dec. 23, 2022	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY53470118	10Hz~44GHz	Jan. 12, 2022	Dec. 02, 2022~ Dec. 03, 2022	Jan. 11, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	Dec. 02, 2022~ Dec. 03, 2022	Mar. 09, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 10, 2021	Dec. 02, 2022~ Dec. 03, 2022	Dec. 09, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0030/126E	30MHz~18GHz	Feb. 09, 2022	Dec. 02, 2022~ Dec. 03, 2022	Feb. 08, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 21, 2022	Dec. 02, 2022~ Dec. 03, 2022	Feb. 20, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Mar. 08, 2022	Dec. 02, 2022~ Dec. 03, 2022	Mar. 07, 2023	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 07, 2022	Dec. 02, 2022~ Dec. 03, 2022	Nov. 06, 2023	Radiation (03CH12-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 02, 2022~ Dec. 03, 2022	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Dec. 02, 2022~ Dec. 03, 2022	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Dec. 02, 2022~ Dec. 03, 2022	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Dec. 02, 2022~ Dec. 03, 2022	N/A	Radiation (03CH12-HY)

<Conducted for FCC Part 22, 24, 27, 90>

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Aug. 02, 2022	Nov. 23, 2022~ Dec. 06, 2022	Aug. 01, 2023	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8821C	6262025353	LTE FDD/TDD LTE-2CC DLCA/ULCA	Oct. 13, 2022	Nov. 23, 2022~ Dec. 06, 2022	Oct. 12, 2023	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8821C	6262116730	LTE	Jun. 15, 2022	Nov. 23, 2022~ Dec. 06, 2022	Jun. 14, 2023	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8000A	6262134933	FR1	Jun. 13, 2022	Nov. 23, 2022~ Dec. 06, 2022	Jun. 12, 2023	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	50Hz~60Hz	Sep. 29, 2022	Nov. 23, 2022~ Dec. 06, 2022	Sep. 28, 2023	Conducted (TH03-HY)
Hygrometer	TECEPIL	DTM-303B	TP200886	NA	Mar. 21, 2022	Nov. 23, 2022~ Dec. 06, 2022	Mar. 20, 2023	Conducted (TH03-HY)



<Radiation for FCC Part 15C, 15E>

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Double Ridge Horn Antenna	ESCO	3117	00227856	1GHz ~ 18GHz	Sep. 27, 2022	Dec. 14, 2022~ Dec. 15, 2022	Sep. 26, 2023	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101 800-30-10P	1590075	1GHz~18GHz	Apr. 21, 2022	Dec. 14, 2022~ Dec. 15, 2022	Apr. 20, 2023	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Oct. 03, 2022	Dec. 14, 2022~ Dec. 15, 2022	Oct. 02, 2023	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9030A	MY52350276	3Hz~44GHz	Jul. 22, 2022	Dec. 14, 2022~ Dec. 15, 2022	Jul. 21, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY15682/4	30MHz to 18GHz	Feb. 23, 2022	Dec. 14, 2022~ Dec. 15, 2022	Feb. 22, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24971/4	9kHz to 18GHz	Feb. 23, 2022	Dec. 14, 2022~ Dec. 15, 2022	Feb. 22, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4	9kHz to 18GHz	Feb. 23, 2022	Dec. 14, 2022~ Dec. 15, 2022	Feb. 22, 2023	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126	532078/126E	30MHz~18GHz	Sep. 16, 2022	Dec. 14, 2022~ Dec. 15, 2022	Sep. 15, 2023	Radiation (03CH07-HY)
Controller	EMEC	EM1000	N/A	Control Ant Mast	N/A	Dec. 14, 2022~ Dec. 15, 2022	N/A	Radiation (03CH07-HY)
Controller	MF	MF-7802	N/A	Control Turn table	N/A	Dec. 14, 2022~ Dec. 15, 2022	N/A	Radiation (03CH07-HY)
Antenna Mast	EMEC	AM-BS-4500E	N/A	Boresight mast 1M~4M	N/A	Dec. 14, 2022~ Dec. 15, 2022	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Dec. 14, 2022~ Dec. 15, 2022	N/A	Radiation (03CH07-HY)
Software	Audix	E3	N/A	N/A	N/A	Dec. 14, 2022~ Dec. 15, 2022	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB2495	N/A	Mar. 07, 2022	Dec. 14, 2022~ Dec. 15, 2022	Mar. 06, 2023	Radiation (03CH07-HY)

<Conducted for FCC Part 15C, 15E>

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303B	TP200735	N/A	Mar. 22, 2022	Nov. 29, 2022	Mar. 21, 2023	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	15I00041SNO10 (NO:248)	10MHz~6GHz	Dec. 29, 2021	Nov. 29, 2022	Dec. 28, 2022	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101905	10Hz - 40GHz(amp)	Aug. 03, 2022	Nov. 29, 2022	Aug. 02, 2023	Conducted (TH05-HY)



5. Reference detail Section

Rule Part	Equipment Class	Wireless Technology	Frequency Band (MHz)	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)
15C	DTS	Wi-Fi	2400~2483.5	PKRISGM3000A	Original Grant	FR1D2414A	PKRISGM3000D
15E	NII	Wi-Fi	5150~5250 5725~5850	PKRISGM3000A	Original Grant	FR1D2414B FR1D2414C	PKRISGM3000D
22, 24, 27, 90	PCE	WCDMA	Band II, IV, V	PKRISGM3000A	Original Grant	FG1D2414A	PKRISGM3000D
		LTE	2/4/5/7/ 12/13/17/25/26/ 30/38/41/66/71 ULCA 41C	PKRISGM3000A	Original Grant	FG1D2414B FG1D2414F FG1D2414I	PKRISGM3000D
		NR	n2/n5/n7/n12/ n25/n38/n41/ n66/n71/n78 UL MIMO n41/n78	PKRISGM3000A	Original Grant	FG1D2414C FG1D2414K	PKRISGM3000D

————THE END————