FCC ID: S9E-N7NEM75T

Date: 2025-05-28

Description of Permissive Change

The application is prepared for FCC class II permissive change for adding a portable host (Model:135100) to the certified module (FCC ID: S9E-N7NEM75T; Grant issued date: 04/21/2025), also down LTE B48 power from 23 dBm to 21 dBm via software for SAR testing.

The information about the host is as below, and more datil about antenna gain please refer p.2

Product	Brand	Model
Rugged Controller	Trimble or Trimble	135100

The modules mentioned above has been approved and is electronically and mechanically identical to the original instructions and requirements.

Except for the changes mentioned above, no other modification is performed.

Model	Sysgration_Swallowtail_WWAN(White)_3D_Gain_617-5000MHz (Main Antenna)																																										
Test / Position	3D Gain / FS																																										
Frequency	617	652	681	698	706	710	717	723	738	746	777	787	791	798	814	824	830	837	845	859	862	880	894	925	960	1710	1750	1780	1805	1850	1880	1900	1930	1960	2010	2140	2300	2355	2500	2595	2690	3300	3400	3500	3600	3700	3800	4700	5000
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-4.37	-4.95	-4.88	-4.37	-4.12	-4.09	-3.87	-3.66	-3.26	-3.01	-2.13	-1.92	-1.88	-1.90	-2.05	-2.46	-2.70	-3.03	-2.72	-3.02	-3.08	-3.67	-4.38	-5.70	-7.03	-2.74	-2.77	-2.65	-2.54	-2.67	-2.67	-2.45	-2.52	-2.63	-3.15	-4.04	-3.80	-3.81	-4.90	-6.19	-5.84	-4.64	-5.88	-4.45	-4.36	-4.32	-4.09	-6.62	-4.22
Peak EIRP (dBm)	-3.69	-3.38	-2.37	-1.75	-1.35	-1.31	-1.02	-0.78	-0.27	0.11	1.62	2.10	2.20	2.27	2.12	1.88	1.73	1.50	1.80	1.38	1.26	0.06	-1.02	-2.15	-3.68	2.38	2.52	2.53	2.67	2.45	2.20	2.26	2.08	1.89	1.24	0.20	1.01	0.32	0.78	0.55	-0.07	0.68	-0.74	0.52	1.44	1.47	2.34	-1.92	1.76
Directivity (dBi)	3.28	2.58	2.52	2.62	2.77	2.79	2.84	2.89	2.99	3.11	3.74	4.02	4.08	4.17	4.17	4.34	4.43	4.53	4.52	4.40	4.34	3.73	3.36	3.55	3.35	5.12	5.29	5.18	5.21	5.12	4.87	4.71	4.60	4.52	4.39	4.23	4.81	4.13	5.68	6.74	5.77	5.32	5.15	4.96	5.81	5.78	6.44	4.70	5.99
Efficiency (dB)	-6.87	-5.95	-4.88	-4.37	-4.12	-4.09	-3.87	-3.66	-3.26	-3.01	-2.13	-1.92	-1.88	-1.90	-2.05	-2.46	-2.70	-3.03	-2.72	-3.02	-3.08	-3.67	-4.38	-5.70	-7.03	-2.74	-2.77	-2.65	-2.54	-2.67	-2.67	-2.45	-2.52	-2.63	-3.15	-4.04	-3.80	-3.81	-4.90	-6.19	-5.84	-4.64	-5.88	-4.45	-4.36	-4.32	-4.09	-6.62	-4.22
Efficiency (%)	20.56	25.38	32.47	36.56	38.76	38.97	41.04	43.01	47.25	50.06	61.29	64.24	64.87	64.53	62.36	56.77	53.75	49.81	53.43	49.89	49.19	42.94	36.44	26.91	19.84	53.17	52.86	54.31	55.69	54.07	54.13	56.90	55.99	54.59	48.43	39.48	41.70	41.57	32.39	24.07	26.04	34.35	25.80	35.91	36.62	37.00	38.98	21.77	37.81
Gain (dBi)	-3.59	-3.38	-2.37	-1.75	-1.35	-1.31	-1.02	-0.78	-0.27	0.11	1.62	2.10	2.20	2.27	2.12	1.88	1.73	1.50	1.80	1.38	1.26	0.06	-1.02	-2.15	-3.68	2.38	2.52	2.53	2.67	2.45	2.20	2.26	2.08	1.89	1.24	0.20	1.01	0.32	0.78	0.55	-0.07	0.68	-0.74	0.52	1.44	1.47	2.34	-1.92	1.76
Note																																																	

Model	Sysgration_Swallowtail_WWAN(Black)_3D_Gain_617-5000MHz (Aux Antenna, RX)																																										
Test / Position	3D Gain / FS																																										
Frequency	617	652	681	698	706	710	717	723	738	746	777	787	791	798	814	824	830	837	845	859	862	880	894	925	960	1710	1750	1780	1805	1850	1880	1900	1930	1960	2010	2140	2300	2355	2500	2595	2690	3300	3400	3500	3600	3700	3800	4700	5000
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-7.85	-8.68	-8.68	-8.21	-8.39	-8.39	-8.28	-8.25	-8.07	-8.94	-3.85	-3.15	-3.02	-2.94	-2.30	-2.27	-2.27	-2.32	-1.97	-2.10	-2.14	-2.44	-2.67	-3.08	-4.27	-3.30	-3.55	-3.50	-3.26	-3.37	-3.52	-3.47	-3.66	-3.88	-5.79	-4.03	-2.83	-3.37	-3.18	-2.89	-3.06	-3.68	-3.44	-3.13	-2.88	-3.58	-3.61	-2.56	-2.47
Peak EIRP (dBm)	-4.31	-4.07	-3.29	-2.95	-2.75	-2.72	-2.56	-2.44	-2.02	-1.67	0.04	0.28	0.37	0.41	1.10	0.96	0.89	0.89	0.98	1.00	1.06	1.23	1.31	0.72	-0.02	1.31	1.32	1.43	1.80	1.66	1.21	1.46	1.54	1.22	-1.72	-0.44	3.45	3.01	2.50	2.31	2.60	3.45	4.05	3.59	2.28	1.31	1.29	3.00	2.58
Directivity (dBi)	3.24	2.59	2.52	2.57	2.65	2.66	2.72	2.81	3.05	3.27	3.69	3.43	3.39	3.24	3.40	3.23	3.15	3.21	2.95	3.10	3.20	3.67	3.99	3.80	4.24	4.62	4.87	4.93	5.06	5.04	4.73	4.93	5.20	5.09	4.08	3.59	6.28	6.37	5.68	5.20	5.66	7.12	7.49	6.72	5.16	4.89	4.90	5.57	5.05
Efficiency (dB)	-7.55	-6.66	-5.80	-5.51	-5.39	-5.39	-5.28	-5.25	-5.07	-4.94	-3.65	-3.15	-3.02	-2.84	-2.30	-2.27	-2.27	-2.32	-1.97	-2.10	-2.14	-2.44	-2.67	-3.08	-4.27	-3.30	-3.55	-3.50	-3.26	-3.37	-3.52	-3.47	-3.66	-3.88	-5.79	-4.03	-2.83	-3.37	-3.18	-2.89	-3.06	-3.68	-3.44	-3.13	-2.88	-3.58	-3.61	-2.56	-2.47
Efficiency (%)	17.58	21.56	26.28	28.10	28.89	28.94	29.66	29.84	31.10	32.10	43.15	48.39	49.00	52.06	58.92	59.27	59.96	58.64	63.58	61.64	61.09	56.97	54.03	49.16	37.43	46.76	44.19	44.71	47.25	46.02	44.46	44.95	43.04	40.94	26.34	39.53	52.12	46.08	48.07	51.38	49.40	42.90	45.27	48.61	51.51	43.88	43.54	55.41	56.64
Gain (dBi)	-4.31	-4.07	-3.29	-2.95	-2.75	-2.72	-2.56	-2.44	-2.02	-1.67	0.04	0.28	0.37	0.41	1.10	0.96	0.89	0.89	0.98	1.00	1.06	1.23	1.31	0.72	-0.02	1.31	1.32	1.43	1.80	1.66	1.21	1.46	1.54	1.22	-1.72	-0.44	3.45	3.01	2.50	2.31	2.60	3.45	4.05	3.59	2.28	1.31	1.29	3.00	2.58
Note																																																	

Model	Sysgration_Swallowtail_WLAN(White)_3D_Gain_2400-7125MHz																							
Test / Position	3D Gain / FS																							
Frequency	2400	2450	2500	5150	5250	5350	5470	5600	5725	5785	5850	5925	6025	6125	6225	6325	6425	6525	6625	6725	6825	6925	7025	7125
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-3.17	-2.97	-3.23	-2.32	-2.26	-2.29	-2.45	-3.06	-2.16	-1.60	-1.55	-1.78	-2.30	-2.50	-2.34	-2.17	-2.11	-2.21	-2.45	-2.60	-2.74	-3.06	-3.43	-3.46
Peak EIRP (dBm)	1.55	2.23	2.47	4.20	3.91	2.86	2.92	2.27	3.54	3.60	3.19	2.35	2.99	3.11	3.03	3.54	3.96	3.72	2.98	2.55	3.04	2.61	1.97	2.26
Directivity (dBi)	4.72	5.20	5.70	6.52	6.18	5.15	5.37	5.33	5.70	5.20	4.75	4.14	5.30	5.61	5.37	5.71	6.07	5.94	5.43	5.15	5.78	5.68	5.40	5.72
Efficiency (dB)	-3.17	-2.97	-3.23	-2.32	-2.26	-2.29	-2.45	-3.06	-2.16	-1.60	-1.55	-1.78	-2.30	-2.50	-2.34	-2.17	-2.11	-2.21	-2.45	-2.60	-2.74	-3.06	-3.43	-3.46
Efficiency (%)	48.19	50.52	47.57	58.57	59.36	58.99	56.94	49.48	60.82	69.16	69.90	66.33	58.84	56.26	58.31	60.67	61.51	60.06	56.87	54.94	53.26	49.38	45.39	45.06
Gain (dBi)	1.55	2.23	2.47	4.20	3.91	2.86	2.92	2.27	3.54	3.60	3.19	2.35	2.99	3.11	3.03	3.54	3.96	3.72	2.98	2.55	3.04	2.61	1.97	2.26
Note																								

Model	Sysgration_Swallowtail_WLAN(Black)_3D_Gain_2400-7125MHz																							
Test / Position	3D Gain / FS																							
Frequency	2400	2450	2500	5150	5250	5350	5470	5600	5725	5785	5850	5925	6025	6125	6225	6325	6425	6525	6625	6725	6825	6925	7025	7125
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-2.55	-2.66	-2.95	-1.83	-1.58	-1.59	-1.75	-1.98	-2.06	-2.36	-2.57	-2.60	-2.48	-2.32	-2.33	-2.41	-2.29	-2.30	-2.48	-2.72	-3.01	-3.29	-3.56	-3.65
Peak EIRP (dBm)	2.62	2.69	1.70	3.39	3.19	3.38	3.66	2.97	2.18	2.07	2.65	2.64	3.18	3.38	2.88	3.16	3.55	3.72	3.37	3.11	2.89	1.47	1.99	1.93
Directivity (dBi)	5.17	5.35	4.65	5.23	4.77	4.97	5.40	4.96	4.24	4.43	5.22	5.25	5.65	5.70	5.21	5.56	5.85	6.03	5.84	5.84	5.90	4.76	5.55	5.58
Efficiency (dB)	-2.55	-2.66	-2.95	-1.83	-1.58	-1.59	-1.75	-1.98	-2.06	-2.36	-2.57	-2.60	-2.48	-2.32	-2.33	-2.41	-2.29	-2.30	-2.48	-2.72	-3.01	-3.29	-3.56	-3.65
Efficiency (%)	55.56	54.24	50.75	65.59	69.44	69.35	66.91	63.32	62.23	58.13	55.31	54.91	56.55	58.59	58.42	57.46	58.96	58.83	56.54	53.41	50.00	46.86	44.08	43.16
Gain (dBi)	2.62	2.69	1.70	3.39	3.19	3.38	3.66	2.97	2.18	2.07	2.65	2.64	3.18	3.38	2.88	3.16	3.55	3.72	3.37	3.11	2.89	1.47	1.99	1.93
Note																								

Note:

All max tune-up conducted output powers and antenna gains for this host are lower than or equal to what was originally evaluated.

Device remains compliant to the applicable ERP/EIRP limits.

FCC ID: S9E-N7NEM75T

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