

Frequency Stability

Test Conditions		FR1 n77 (BPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0054	PASS
40	Normal Voltage	0.0008	
30	Normal Voltage	0.0064	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0065	
0	Normal Voltage	0.0078	
-10	Normal Voltage	0.0052	
-20	Normal Voltage	0.0088	
-30	Normal Voltage	0.0062	
20	Maximum Voltage	0.0005	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0054	

Note:

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.30 V. ; Maximum Voltage =4.25 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



Appendix B. Test Results of Radiated Test

<Ant. 4>

5G NR n77

5G NR n77 / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	7401	-44.17	-13	-31.17	-71.56	-51.34	1.94	11.26	H
	11102	-41.12	-13	-28.12	-72.8	-47.39	2.61	11.02	H
	14808	-33.28	-13	-20.28	-71.16	-40.18	2.94	11.99	H
	18510	-55.78	-13	-42.78	-74.37	-69.63	1.90	17.90	H
	22207	-54.75	-13	-41.75	-77.47	-69.37	2.05	18.82	H
	25914	-52.11	-13	-39.11	-78.49	-67.09	1.95	19.08	H
	7401	-44.25	-13	-31.25	-71.48	-51.42	1.94	11.26	V
	11102	-40.96	-13	-27.96	-72.47	-47.23	2.61	11.02	V
	14808	-35.39	-13	-22.39	-71.32	-42.29	2.94	11.99	V
	18510	-56.67	-13	-43.67	-74.4	-70.52	1.90	17.90	V
	22207	-55.02	-13	-42.02	-77.76	-69.64	2.05	18.82	V
	25914	-50.54	-13	-37.54	-78.02	-65.52	1.95	19.08	V
Middle	7663	-44.97	-13	-31.97	-71.39	-51.94	2.01	11.13	H
	11496	-39.75	-13	-26.75	-71.94	-46.65	2.44	11.50	H
	15324	-33.26	-13	-20.26	-71.11	-42.83	3.09	14.80	H
	19154	-56.72	-13	-43.72	-76.01	-70.81	1.82	18.05	H
	22983	-53.25	-13	-40.25	-77.59	-67.34	1.98	18.22	H
	26824	-51.52	-13	-38.52	-78.42	-65.94	2.17	18.74	H
	7663	-44.66	-13	-31.66	-70.95	-51.63	2.01	11.13	V
	11494	-39.98	-13	-26.98	-72.02	-46.88	2.44	11.49	V
	15324	-34.61	-13	-21.61	-71.04	-44.18	3.09	14.80	V
	19154	-56.73	-13	-43.73	-75.33	-70.82	1.82	18.05	V
	22983	-53.32	-13	-40.32	-77.68	-67.41	1.98	18.22	V
	26824	-50.08	-13	-37.08	-78.46	-64.50	2.17	18.74	V



Highest	7923	-44.77	-13	-31.77	-71.83	-51.76	2.05	11.18	H
	11884	-38.92	-13	-25.92	-71.73	-46.78	2.56	12.58	H
	15845	-32.82	-13	-19.82	-70.98	-44.78	3.06	17.17	H
	19809	-55.95	-13	-42.95	-76.07	-70.27	1.93	18.40	H
	23772	-51.74	-13	-38.74	-77.01	-65.61	1.98	18.00	H
	27734	-51.98	-13	-38.98	-78.36	-66.83	2.29	19.29	H
	7923	-45.01	-13	-32.01	-71.86	-52.00	2.05	11.18	V
	11884	-38.40	-13	-25.40	-71.68	-46.26	2.56	12.58	V
	15845	-32.73	-13	-19.73	-71.11	-44.69	3.06	17.17	V
	19809	-56.77	-13	-43.77	-76.28	-71.09	1.93	18.40	V
	23772	-51.66	-13	-38.66	-77.33	-65.53	1.98	18.00	V
	27734	-50.06	-13	-37.06	-77.77	-64.91	2.29	19.29	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**EN-DC 2A-n77A**

EN-DC 2A-n77A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7663	-45.25	-13	-32.25	-71.67	-52.22	2.01	11.13	H
	11496	-40.04	-13	-27.04	-72.23	-46.94	2.44	11.50	H
	15324	-33.23	-13	-20.23	-71.08	-42.80	3.09	14.80	H
	19154	-56.90	-13	-43.90	-76.19	-70.99	1.82	18.05	H
	22983	-52.85	-13	-39.85	-77.19	-66.94	1.98	18.22	H
	26818	-51.45	-13	-38.45	-78.36	-65.86	2.17	18.74	H
	7663	-45.31	-13	-32.31	-71.6	-52.28	2.01	11.13	V
	11496	-40.21	-13	-27.21	-72.25	-47.11	2.44	11.50	V
	15324	-34.40	-13	-21.40	-70.83	-43.97	3.09	14.80	V
	19154	-56.62	-13	-43.62	-75.22	-70.71	1.82	18.05	V
	22987	-53.11	-13	-40.11	-77.47	-67.19	1.98	18.21	V
	26813	-50.21	-13	-37.21	-78.6	-64.62	2.18	18.74	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**EN-DC 5A-n77A**

EN-DC 5A-n77A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7663	-45.13	-13	-32.13	-71.55	-52.10	2.01	11.13	H
	11496	-39.81	-13	-26.81	-72	-46.71	2.44	11.50	H
	15324	-33.05	-13	-20.05	-70.9	-42.62	3.09	14.80	H
	19154	-55.98	-13	-42.98	-75.27	-70.07	1.82	18.05	H
	22987	-52.99	-13	-39.99	-77.33	-67.07	1.98	18.21	H
	26813	-51.10	-13	-38.10	-78.02	-65.51	2.18	18.74	H
	7663	-45.40	-13	-32.40	-71.69	-52.37	2.01	11.13	V
	11496	-40.01	-13	-27.01	-72.05	-46.91	2.44	11.50	V
	15324	-34.27	-13	-21.27	-70.7	-43.84	3.09	14.80	V
	19154	-57.19	-13	-44.19	-75.79	-71.28	1.82	18.05	V
	22987	-52.76	-13	-39.76	-77.12	-66.84	1.98	18.21	V
	26813	-50.07	-13	-37.07	-78.47	-64.48	2.18	18.74	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**EN-DC 12A-n77A**

EN-DC 12A-n77A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7663	-45.23	-13	-32.23	-71.65	-52.20	2.01	11.13	H
	11496	-40.02	-13	-27.02	-72.21	-46.92	2.44	11.50	H
	15324	-33.14	-13	-20.14	-70.99	-42.71	3.09	14.80	H
	19154	-56.33	-13	-43.33	-75.62	-70.42	1.82	18.05	H
	22987	-53.33	-13	-40.33	-77.67	-67.41	1.98	18.21	H
	26813	-51.40	-13	-38.40	-78.32	-65.81	2.18	18.74	H
	7663	-45.39	-13	-32.39	-71.68	-52.36	2.01	11.13	V
	11496	-40.10	-13	-27.10	-72.14	-47.00	2.44	11.50	V
	15324	-34.40	-13	-21.40	-70.83	-43.97	3.09	14.80	V
	19154	-57.08	-13	-44.08	-75.68	-71.17	1.82	18.05	V
	22987	-53.04	-13	-40.04	-77.4	-67.12	1.98	18.21	V
	26813	-50.00	-13	-37.00	-78.4	-64.41	2.18	18.74	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC 13A-n77A

EN-DC 13A-n77A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7663	-45.19	-13	-32.19	-71.61	-52.16	2.01	11.13	H
	11496	-40.13	-13	-27.13	-72.32	-47.03	2.44	11.50	H
	15324	-33.01	-13	-20.01	-70.86	-42.58	3.09	14.80	H
	19154	-56.25	-13	-43.25	-75.54	-70.34	1.82	18.05	H
	22987	-53.16	-13	-40.16	-77.5	-67.24	1.98	18.21	H
	26813	-51.65	-13	-38.65	-78.57	-66.06	2.18	18.74	H
	7663	-45.06	-13	-32.06	-71.35	-52.03	2.01	11.13	V
	11496	-40.13	-13	-27.13	-72.17	-47.03	2.44	11.50	V
	15324	-34.28	-13	-21.28	-70.71	-43.85	3.09	14.80	V
	19154	-56.88	-13	-43.88	-75.48	-70.97	1.82	18.05	V
	22987	-52.94	-13	-39.94	-77.3	-67.02	1.98	18.21	V
	26813	-50.23	-13	-37.23	-78.63	-64.64	2.18	18.74	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC 14A-n77A

EN-DC 14A-n77A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7663	-45.18	-13	-32.18	-71.6	-52.15	2.01	11.13	H
	11496	-40.17	-13	-27.17	-72.36	-47.07	2.44	11.50	H
	15324	-33.04	-13	-20.04	-70.89	-42.61	3.09	14.80	H
	19154	-56.16	-13	-43.16	-75.45	-70.25	1.82	18.05	H
	22983	-53.02	-13	-40.02	-77.36	-67.11	1.98	18.22	H
	26824	-51.73	-13	-38.73	-78.63	-66.15	2.17	18.74	H
	7663	-45.37	-13	-32.37	-71.66	-52.34	2.01	11.13	V
	11496	-40.04	-13	-27.04	-72.08	-46.94	2.44	11.50	V
	15324	-34.47	-13	-21.47	-70.9	-44.04	3.09	14.80	V
	19154	-56.92	-13	-43.92	-75.52	-71.01	1.82	18.05	V
	22983	-53.15	-13	-40.15	-77.45	-67.24	1.98	18.22	V
	26824	-50.30	-13	-37.30	-78.68	-64.72	2.17	18.74	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

**EN-DC 30A-n77A**

EN-DC 30A-n77A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7663	-44.31	-13	-31.31	-70.73	-51.28	2.01	11.13	H
	11496	-39.74	-13	-26.74	-71.93	-46.64	2.44	11.50	H
	15324	-33.13	-13	-20.13	-70.98	-42.70	3.09	14.80	H
	19154	-56.56	-13	-43.56	-75.85	-70.65	1.82	18.05	H
	22987	-52.89	-13	-39.89	-77.23	-66.97	1.98	18.21	H
	26813	-51.41	-13	-38.41	-78.33	-65.82	2.18	18.74	H
	7663	-44.65	-13	-31.65	-70.94	-51.62	2.01	11.13	V
	11496	-40.11	-13	-27.11	-72.15	-47.01	2.44	11.50	V
	15324	-34.65	-13	-21.65	-71.08	-44.22	3.09	14.80	V
	19154	-56.93	-13	-43.93	-75.53	-71.02	1.82	18.05	V
	22987	-53.04	-13	-40.04	-77.4	-67.12	1.98	18.21	V
	26813	-50.13	-13	-37.13	-78.53	-64.54	2.18	18.74	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC 66A-n77A

EN-DC 66A-n77A / 20MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7663	-45.20	-13	-32.20	-71.62	-52.17	2.01	11.13	H
	11496	-40.10	-13	-27.10	-72.29	-47.00	2.44	11.50	H
	15324	-33.17	-13	-20.17	-71.02	-42.74	3.09	14.80	H
	19154	-55.92	-13	-42.92	-75.21	-70.01	1.82	18.05	H
	22983	-52.62	-13	-39.62	-76.96	-66.71	1.98	18.22	H
	26813	-51.25	-13	-38.25	-78.17	-65.66	2.18	18.74	H
	7663	-45.35	-13	-32.35	-71.64	-52.32	2.01	11.13	V
	11496	-40.24	-13	-27.24	-72.28	-47.14	2.44	11.50	V
	15324	-34.47	-13	-21.47	-70.9	-44.04	3.09	14.80	V
	19154	-56.50	-13	-43.50	-75.1	-70.59	1.82	18.05	V
	22983	-52.32	-13	-39.32	-76.68	-66.41	1.98	18.22	V
	26813	-49.98	-13	-36.98	-78.38	-64.39	2.18	18.74	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.