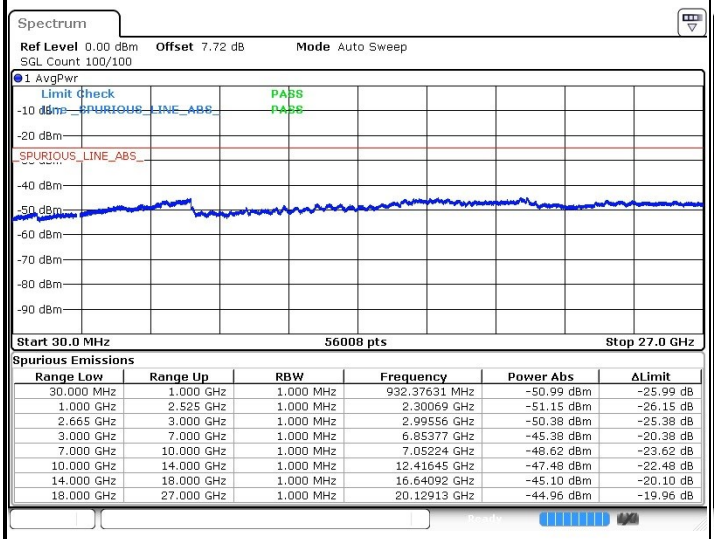
LTE Band 38 / 20MHz+20MHz

QPSK

Lowest Channel

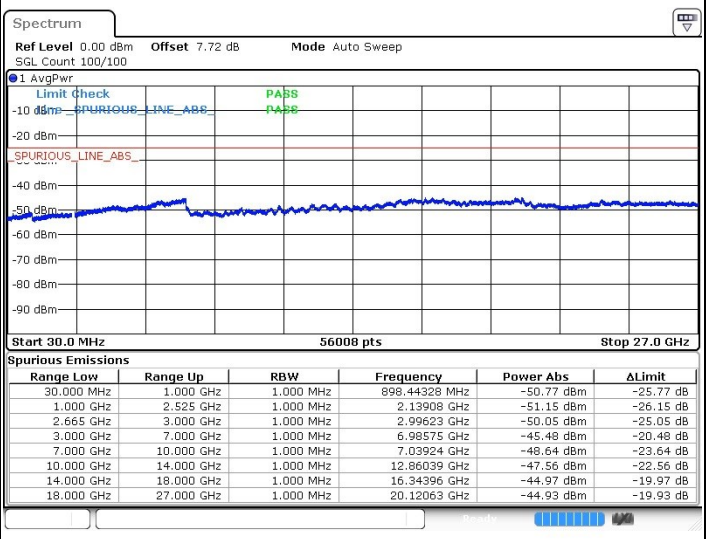


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	932.37631 MHz	-50.99 dBm	-25.99 dB
1.000 GHz	2.525 GHz	1.000 MHz	2.30069 GHz	-51.15 dBm	-26.15 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.99556 GHz	-50.38 dBm	-25.38 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.85377 GHz	-45.38 dBm	-20.38 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.05224 GHz	-48.62 dBm	-23.62 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.41645 GHz	-47.48 dBm	-22.48 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.64092 GHz	-45.10 dBm	-20.10 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.12913 GHz	-44.96 dBm	-19.96 dB

Date: 4.APR.2019 18:55:59

Middle Channel

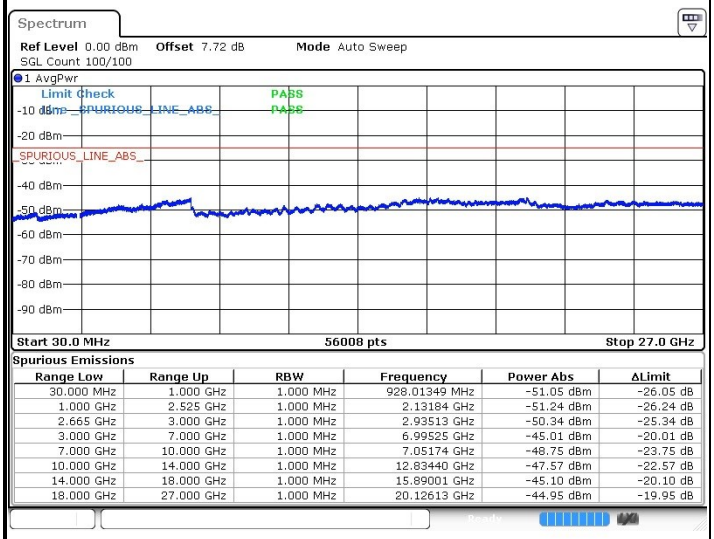


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	898.44328 MHz	-50.77 dBm	-25.77 dB
1.000 GHz	2.525 GHz	1.000 MHz	2.13908 GHz	-51.15 dBm	-26.15 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.99623 GHz	-50.05 dBm	-25.05 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98575 GHz	-45.48 dBm	-20.48 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.03924 GHz	-48.64 dBm	-23.64 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.86039 GHz	-47.56 dBm	-22.56 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.34396 GHz	-44.97 dBm	-19.97 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.12063 GHz	-44.93 dBm	-19.93 dB

Date: 4.APR.2019 18:54:54

Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	928.01349 MHz	-51.05 dBm	-26.05 dB
1.000 GHz	2.525 GHz	1.000 MHz	2.13184 GHz	-51.24 dBm	-26.24 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.93513 GHz	-50.34 dBm	-25.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99525 GHz	-45.01 dBm	-20.01 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.05174 GHz	-48.75 dBm	-23.75 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.83440 GHz	-47.57 dBm	-22.57 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.89001 GHz	-45.10 dBm	-20.10 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.12613 GHz	-44.95 dBm	-19.95 dB

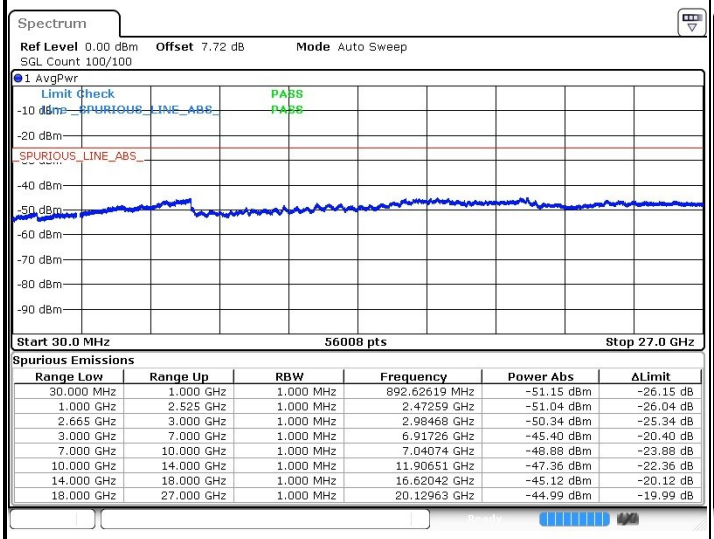
Date: 4.APR.2019 18:53:51

N/A

LTE Band 38 / 20MHz+20MHz

16QAM

Lowest Channel

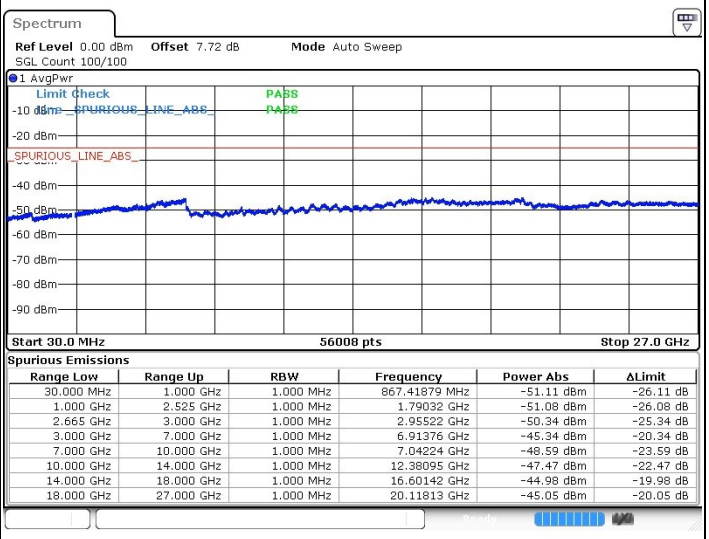


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	892.62619 MHz	-51.15 dBm	-26.15 dB
1.000 GHz	2.525 GHz	1.000 MHz	2.47259 GHz	-51.04 dBm	-26.04 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.98468 GHz	-50.34 dBm	-25.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.91726 GHz	-45.40 dBm	-20.40 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.04074 GHz	-48.88 dBm	-23.88 dB
10.000 GHz	14.000 GHz	1.000 MHz	11.90651 GHz	-47.36 dBm	-22.36 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.62042 GHz	-45.12 dBm	-20.12 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.12963 GHz	-44.99 dBm	-19.99 dB

Date: 4.APR.2019 18:57:31

Middle Channel

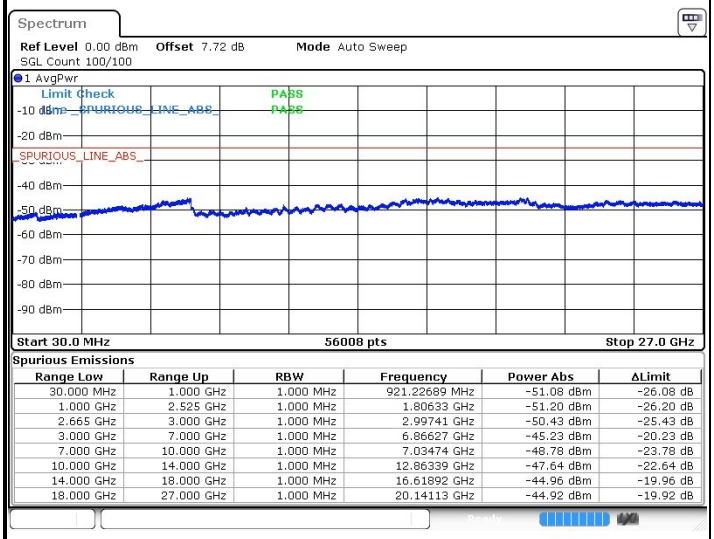


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	867.41879 MHz	-51.11 dBm	-26.11 dB
1.000 GHz	2.525 GHz	1.000 MHz	1.79032 GHz	-51.08 dBm	-26.08 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.95522 GHz	-50.34 dBm	-25.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.91376 GHz	-45.34 dBm	-20.34 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.04224 GHz	-48.59 dBm	-23.59 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.38095 GHz	-47.47 dBm	-22.47 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.60142 GHz	-44.98 dBm	-19.98 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.11813 GHz	-45.05 dBm	-20.05 dB

Date: 4.APR.2019 18:58:22

Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	921.22689 MHz	-51.08 dBm	-26.08 dB
1.000 GHz	2.525 GHz	1.000 MHz	1.80633 GHz	-51.20 dBm	-26.20 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.99741 GHz	-50.43 dBm	-25.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86627 GHz	-45.23 dBm	-20.23 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.03474 GHz	-48.78 dBm	-23.78 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.86339 GHz	-47.64 dBm	-22.64 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.61892 GHz	-44.96 dBm	-19.96 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.14113 GHz	-44.92 dBm	-19.92 dB

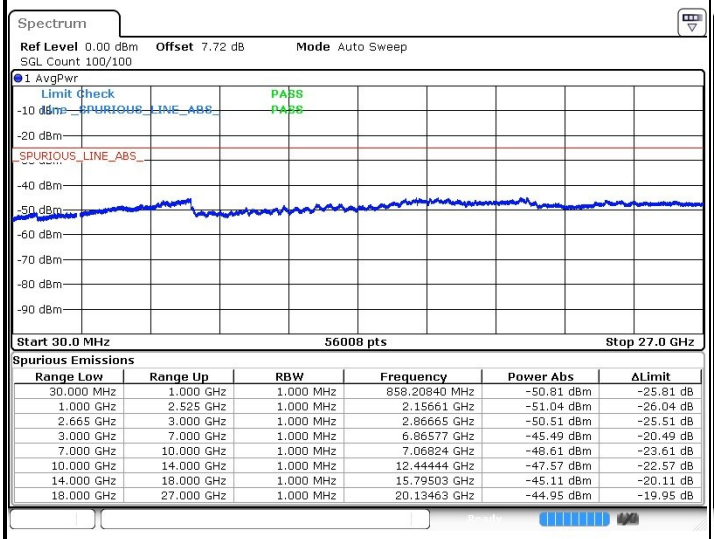
Date: 4.APR.2019 18:59:30

N/A

LTE Band 38 / 20MHz+20MHz

64QAM

Lowest Channel

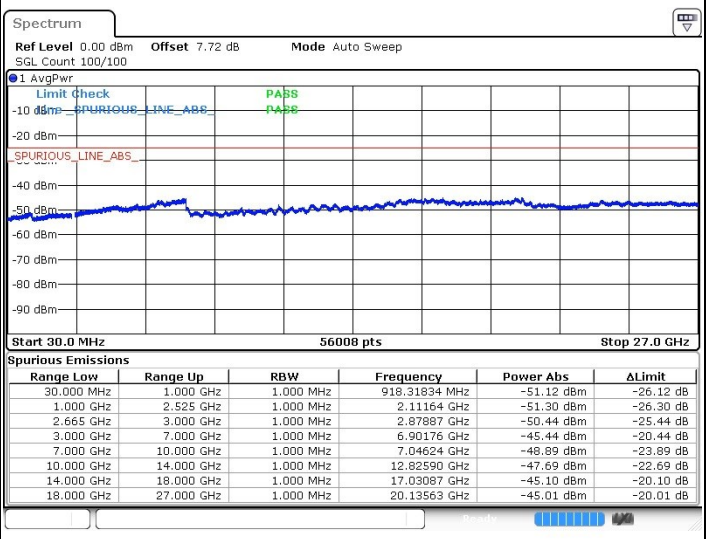


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	858.20840 MHz	-50.81 dBm	-25.81 dB
1.000 GHz	2.525 GHz	1.000 MHz	2.15661 GHz	-51.04 dBm	-26.04 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.86665 GHz	-50.51 dBm	-25.51 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.86577 GHz	-45.49 dBm	-20.49 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.06824 GHz	-48.61 dBm	-23.61 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.44444 GHz	-47.57 dBm	-22.57 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.79503 GHz	-45.11 dBm	-20.11 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.13463 GHz	-44.95 dBm	-19.95 dB

Date: 4.APR.2019 19:09:41

Middle Channel

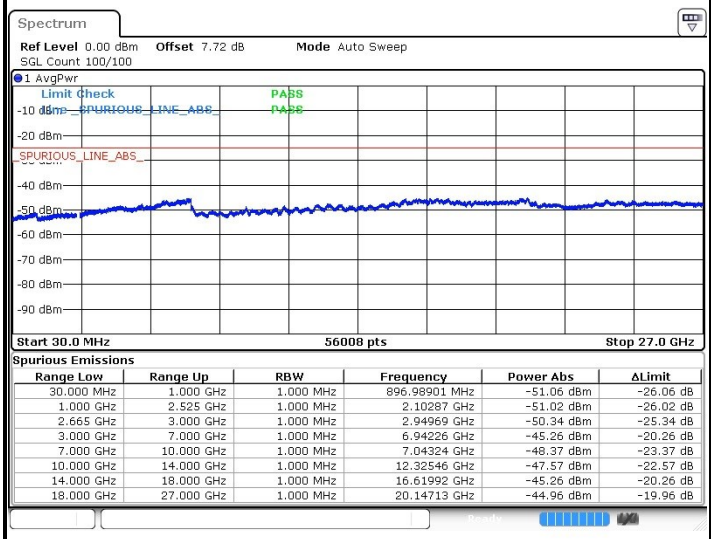


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	918.31834 MHz	-51.12 dBm	-26.12 dB
1.000 GHz	2.525 GHz	1.000 MHz	2.11164 GHz	-51.30 dBm	-26.30 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.87887 GHz	-50.44 dBm	-25.44 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.90176 GHz	-45.44 dBm	-20.44 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.04624 GHz	-48.89 dBm	-23.89 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.82590 GHz	-47.69 dBm	-22.69 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.03087 GHz	-45.10 dBm	-20.10 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.13563 GHz	-45.01 dBm	-20.01 dB

Date: 4.APR.2019 19:07:22

Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	896.98901 MHz	-51.06 dBm	-26.06 dB
1.000 GHz	2.525 GHz	1.000 MHz	2.10287 GHz	-51.02 dBm	-26.02 dB
2.665 GHz	3.000 GHz	1.000 MHz	2.94969 GHz	-50.34 dBm	-25.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.94226 GHz	-45.26 dBm	-20.26 dB
7.000 GHz	10.000 GHz	1.000 MHz	7.04324 GHz	-48.37 dBm	-23.37 dB
10.000 GHz	14.000 GHz	1.000 MHz	12.32546 GHz	-47.57 dBm	-22.57 dB
14.000 GHz	18.000 GHz	1.000 MHz	16.61992 GHz	-45.26 dBm	-20.26 dB
18.000 GHz	27.000 GHz	1.000 MHz	20.14713 GHz	-44.96 dBm	-19.96 dB

Date: 4.APR.2019 19:06:17

N/A

Frequency Stability

Test Conditions		LTE Band 2 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0020	PASS
40	Normal Voltage	0.0018	
30	Normal Voltage	0.0003	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0028	
0	Normal Voltage	0.0007	
-10	Normal Voltage	0.0003	
-20	Normal Voltage	0.0008	
-30	Normal Voltage	0.0012	
20	Maximum Voltage	0.0001	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0018	

Note:

1. Normal Voltage =3.85 V.；Battery End Point (BEP) =3.5 V.；Maximum Voltage =4.35 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Test Conditions		LTE Band 4 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0020	PASS
40	Normal Voltage	0.0017	
30	Normal Voltage	0.0003	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0026	
0	Normal Voltage	0.0007	
-10	Normal Voltage	0.0003	
-20	Normal Voltage	0.0008	
-30	Normal Voltage	0.0013	
20	Maximum Voltage	0.0001	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0019	

Note:

1. Normal Voltage =3.85V.；Battery End Point (BEP) =3.5 V.；Maximum Voltage =4.35 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Test Conditions		LTE Band 5 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	2.5ppm
		Deviation (ppm)	Result
50	Normal Voltage	0.0020	PASS
40	Normal Voltage	0.0018	
30	Normal Voltage	0.0003	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0028	
0	Normal Voltage	0.0008	
-10	Normal Voltage	0.0003	
-20	Normal Voltage	0.0009	
-30	Normal Voltage	0.0013	
20	Maximum Voltage	0.0001	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0017	

Note: Normal Voltage =3.85 V.；Battery End Point (BEP) =3.5 V.；Maximum Voltage =4.35 V.

Test Conditions		LTE Band 7 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0020	PASS
40	Normal Voltage	0.0016	
30	Normal Voltage	0.0003	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0029	
0	Normal Voltage	0.0007	
-10	Normal Voltage	0.0003	
-20	Normal Voltage	0.0009	
-30	Normal Voltage	0.0013	
20	Maximum Voltage	0.0008	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0013	

Note:

1. Normal Voltage =3.85 V.；Battery End Point (BEP) =3.5 V.；Maximum Voltage =4.35 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Test Conditions		LTE Band 38 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0020	PASS
40	Normal Voltage	0.0016	
30	Normal Voltage	0.0003	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0025	
0	Normal Voltage	0.0006	
-10	Normal Voltage	0.0003	
-20	Normal Voltage	0.0009	
-30	Normal Voltage	0.0013	
20	Maximum Voltage	0.0001	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0018	

Note:

1. Normal Voltage =3.85 V.；Battery End Point (BEP) =3.5 V.；Maximum Voltage =4.35 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Pre-scanned in three orthogonal panels, X, Y, Z for WWAN Bottom / Top Antenna which can't transmit simultaneously. The worse cases were recorded in this report.

LTE Band 2 / 5MHz / QPSK for Bottom Antenna								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3755.68	-61.09	-13	-48.09	-73.35	2.641	14.90	H
	5634	-57.20	-13	-44.20	-69.06	2.94	14.80	H
	7512	-52.37	-13	-39.37	-62.14	3.39	13.16	H
	3756	-61.08	-13	-48.08	-73.34	2.64	14.90	V
	5633.52	-59.38	-13	-46.38	-71.24	2.94	14.80	V
	7512	-52.07	-13	-39.07	-61.84	3.39	13.16	V

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

LTE Band 4 / 20MHz / QPSK for Bottom Antenna								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3447	-59.30	-13	-46.30	-70.04	2.604	13.34	H
	5170.77	-56.18	-13	-43.18	-66.69	3.011	13.52	H
	6894	-55.16	-13	-42.16	-65.36	3.271	13.47	H
	3447	-60.63	-13	-47.63	-71.37	2.604	13.34	V
	5172	-57.55	-13	-44.55	-68.06	3.011	13.52	V
	6894	-54.41	-13	-41.41	-64.61	3.271	13.47	V

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

LTE Band 5 / 5MHz / QPSK for Bottom Antenna								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1668	-66.86	-13	-53.86	-73.83	1.58	10.70	H
	2502	-61.34	-13	-48.34	-69.59	2.102	12.50	H
	3336	-65.42	-13	-52.42	-74.31	2.856	13.90	H
	1668	-63.06	-13	-50.06	-70.03	1.58	10.70	V
	2606	-64.04	-13	-51.04	-72.29	2.10	12.50	V
	3336	-65.12	-13	-52.12	-74.01	2.86	13.90	V

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

LTE Band 7 / 20MHz / QPSK for Bottom Antenna								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5050	-59.67	-25	-34.67	-69.88	3.03	13.24	H
	7580	-49.80	-25	-24.80	-59.25	3.56	13.01	H
	10107	-56.02	-25	-31.02	-65.54	3.92	13.44	H
	5050	-60.98	-25	-35.98	-71.19	3.03	13.24	V
	7580	-48.40	-25	-23.40	-57.85	3.56	13.01	V
	10107	-55.97	-25	-30.97	-65.49	3.92	13.44	V

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

LTE Band 38 / 15MHz / QPSK for Bottom Antenna								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5176	-61.04	-25	-36.04	-71.25	3.03	13.24	H
	7764	-48.73	-25	-23.73	-58.18	3.56	13.01	H
	10350	-58.85	-25	-33.85	-68.37	3.92	13.44	H
	5176	-57.95	-25	-32.95	-68.16	3.03	13.24	V
	7764	-50.56	-25	-25.56	-60.01	3.56	13.01	V
	10350	-58.88	-25	-33.88	-68.40	3.92	13.44	V

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

For CA:

LTE Band 7C_CA / 20M+20M / QPSK for Bottom Antenna								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5030	-62.49	-25	-37.49	-72.70	3.03	13.24	H
	7550	-48.27	-25	-23.27	-57.72	3.56	13.01	H
	10062	-56.96	-25	-31.96	-66.48	3.92	13.44	H
	5030	-62.73	-25	-37.73	-72.94	3.03	13.24	V
	7550	-51.78	-25	-26.78	-61.23	3.56	13.01	V
	10062	-57.11	-25	-32.11	-66.63	3.92	13.44	V

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

LTE Band 38C_CA / 20M+20M / QPSK for Bottom Antenna								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5150	-60.28	-25	-35.28	-70.49	3.03	13.24	H
	7728.27	-53.21	-25	-28.21	-62.66	3.56	13.01	H
	10305	-57.78	-25	-32.78	-67.30	3.92	13.44	H
	5150	-62.34	-25	-37.34	-72.55	3.03	13.24	V
	7730	-51.12	-25	-26.12	-60.57	3.56	13.01	V
	10305	-58.35	-25	-33.35	-67.87	3.92	13.44	V

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