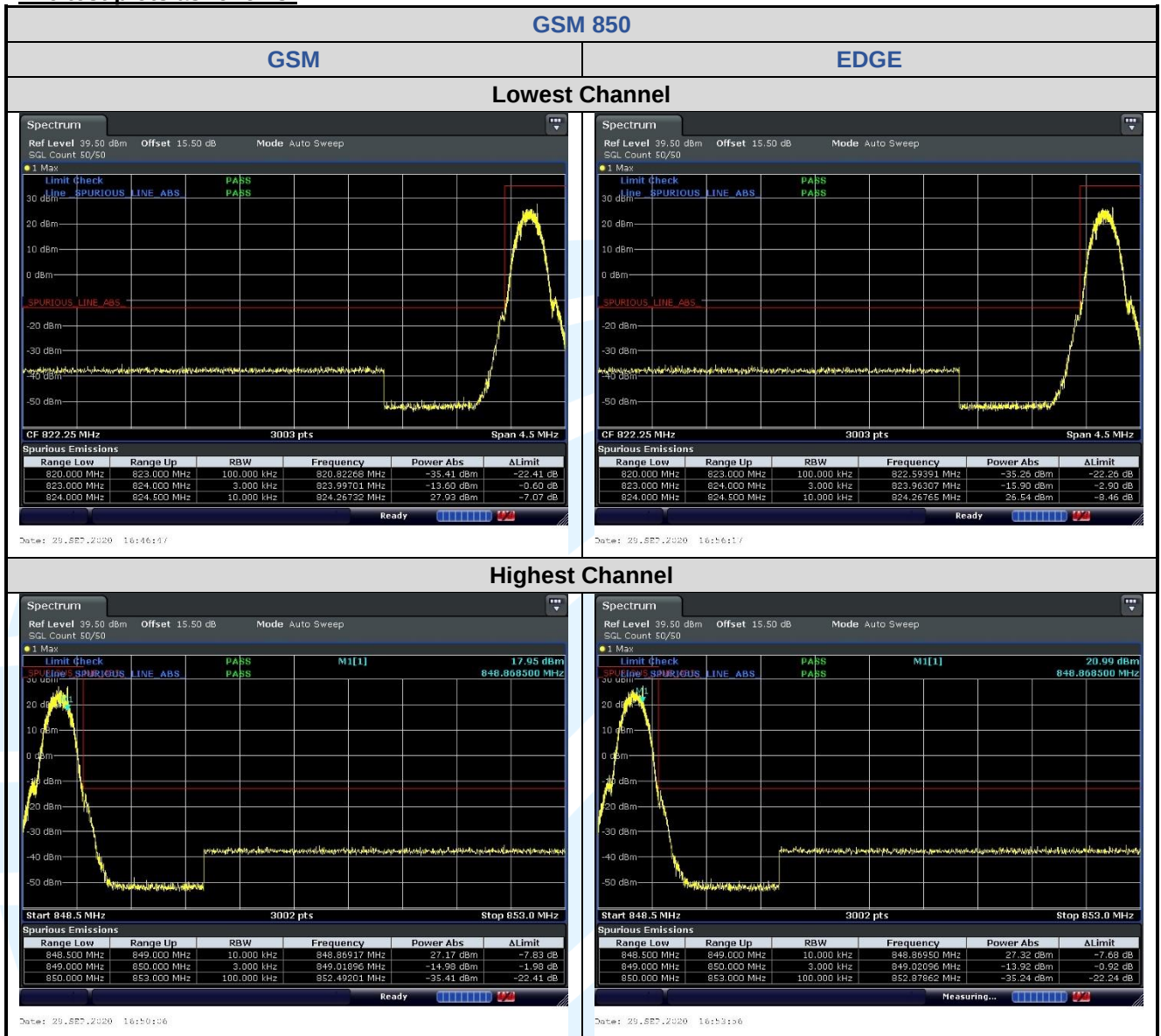
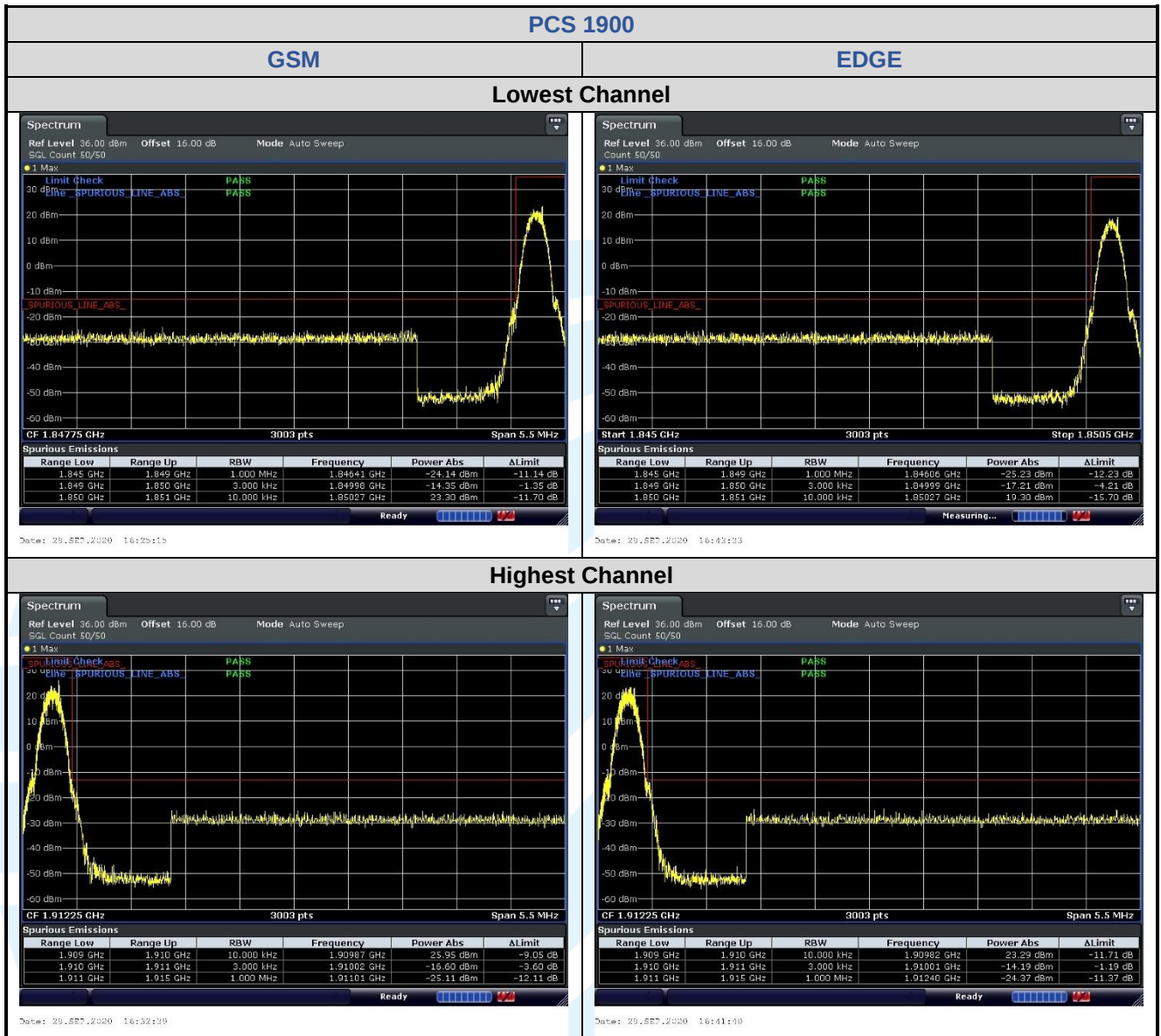
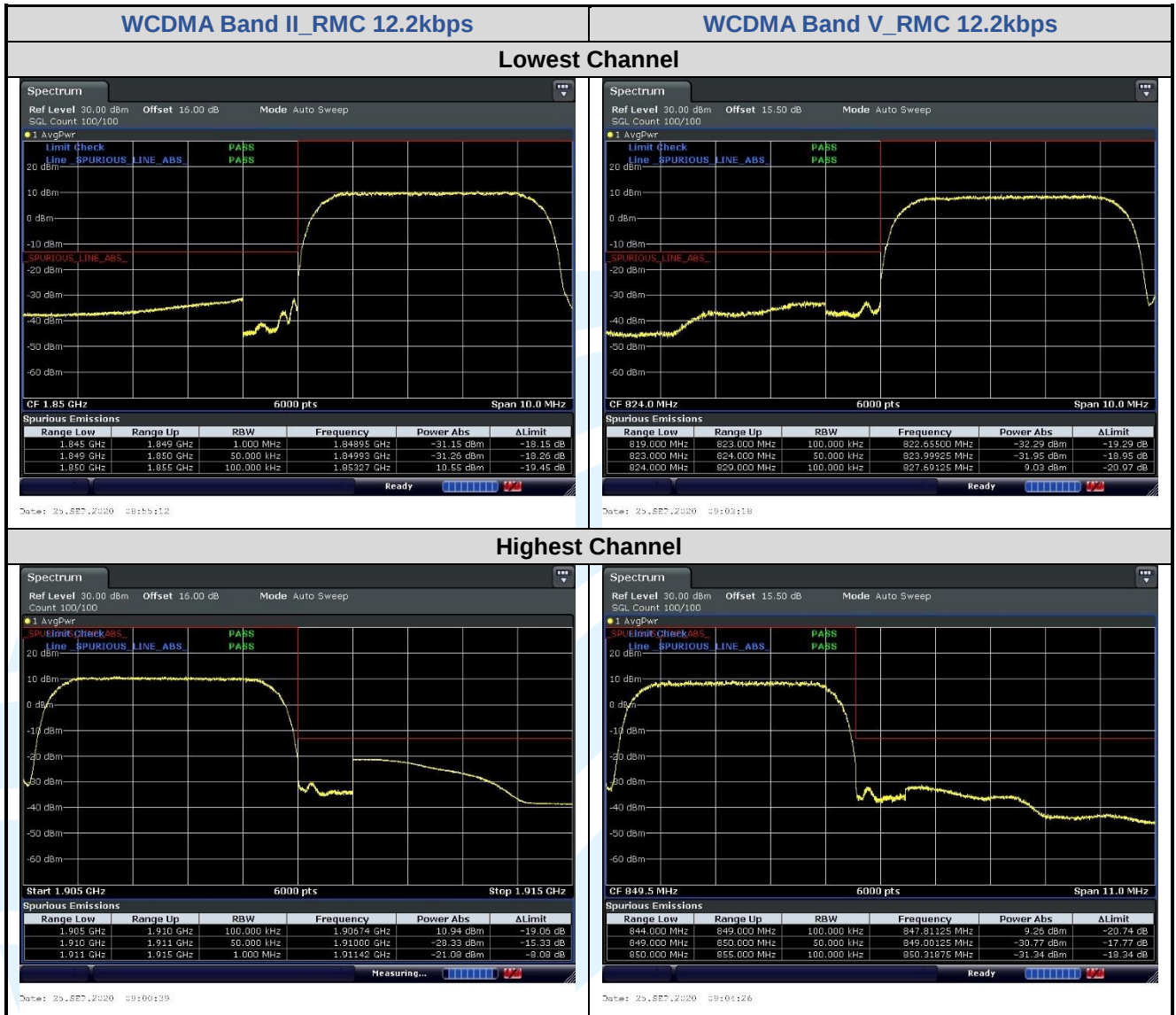


The test plots as follows:







5.7 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Test Requirement: FCC 47 CFR Part 2.1051,
FCC 47 CFR Part 22.917(a)(b),
FCC 47 CFR Part 24.238(a)(b),
Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limit:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

Test Procedure:

The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range. b. Measuring frequency range is from 30 MHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

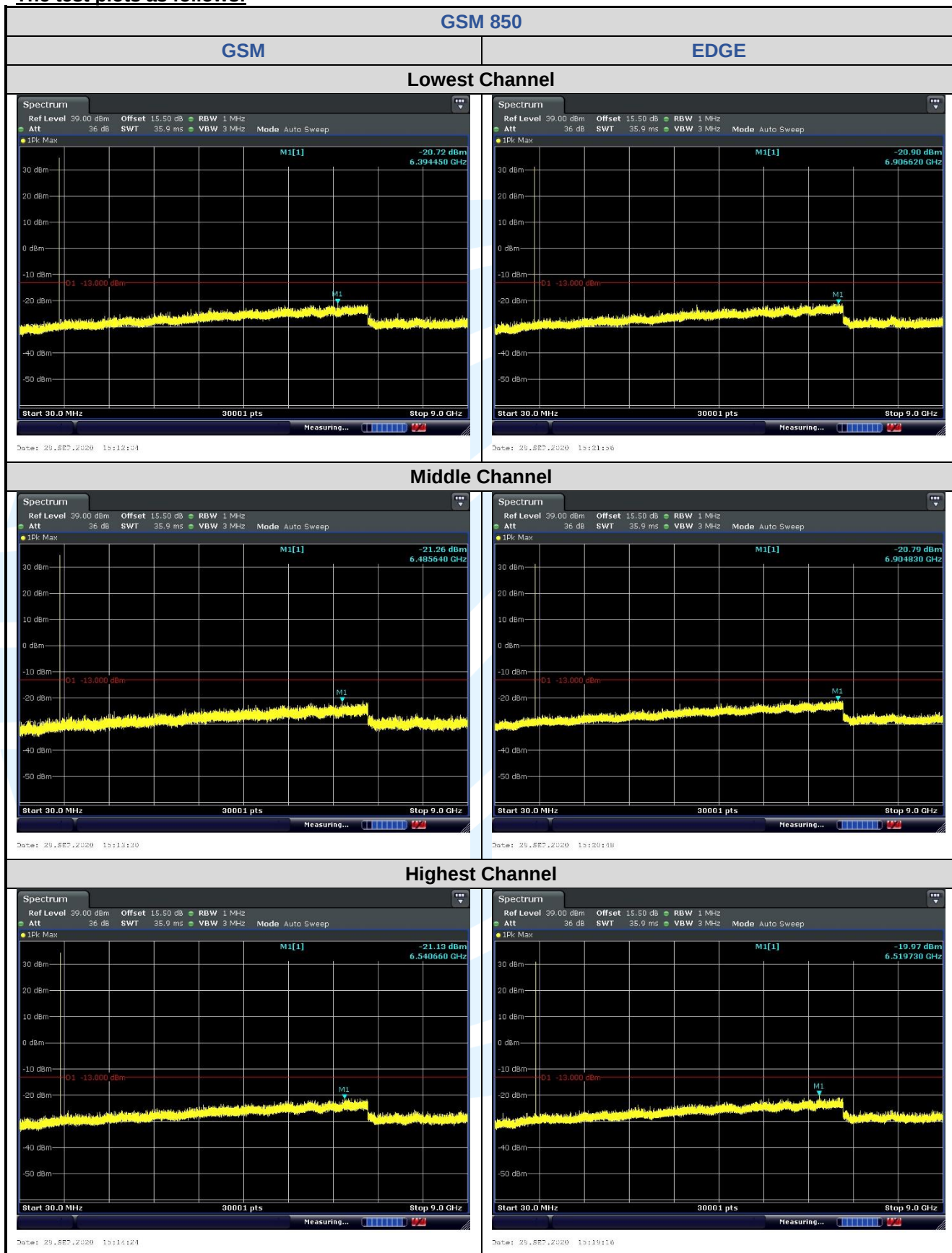
Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

The test plots as follows:



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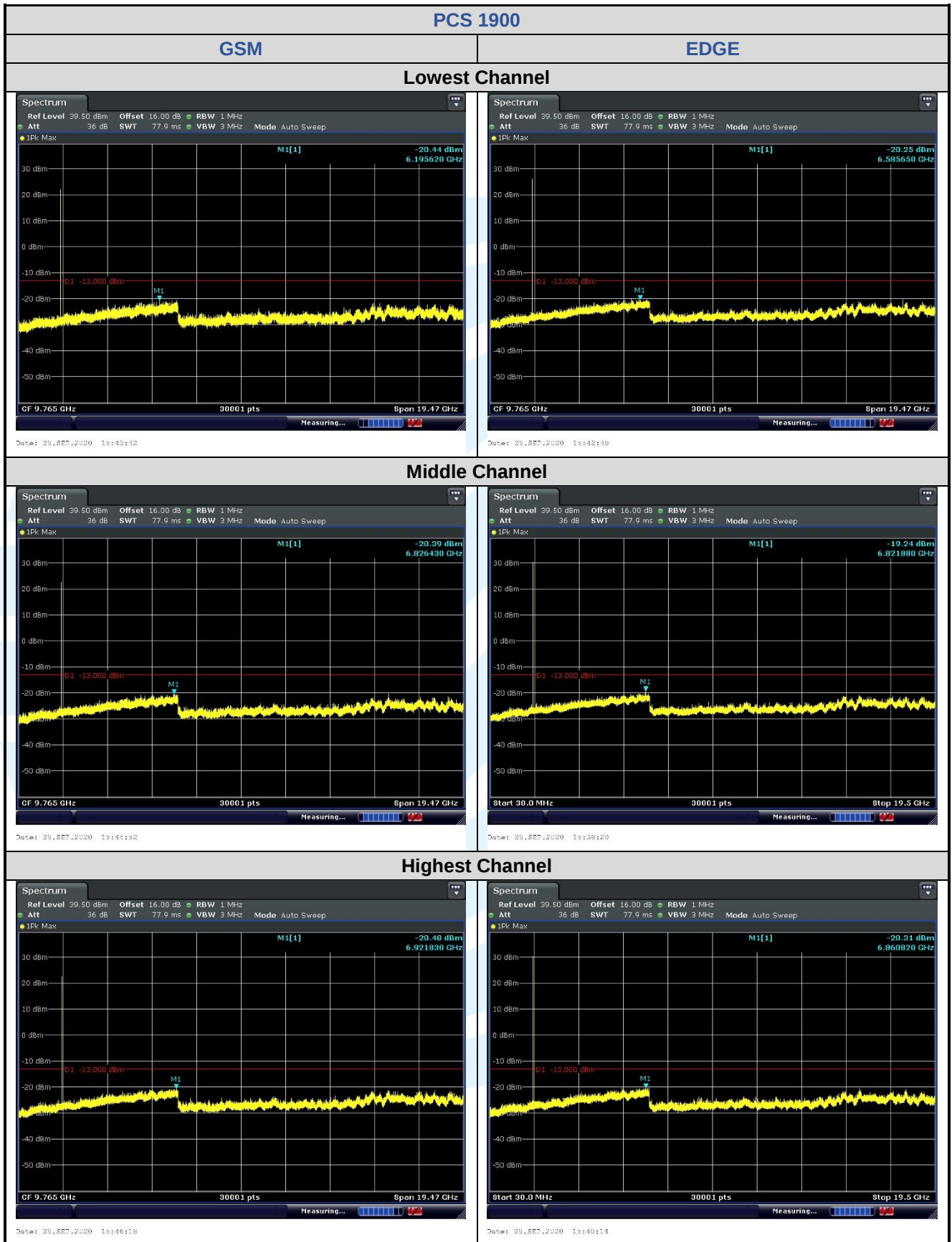
Tel: +86-755-28230888

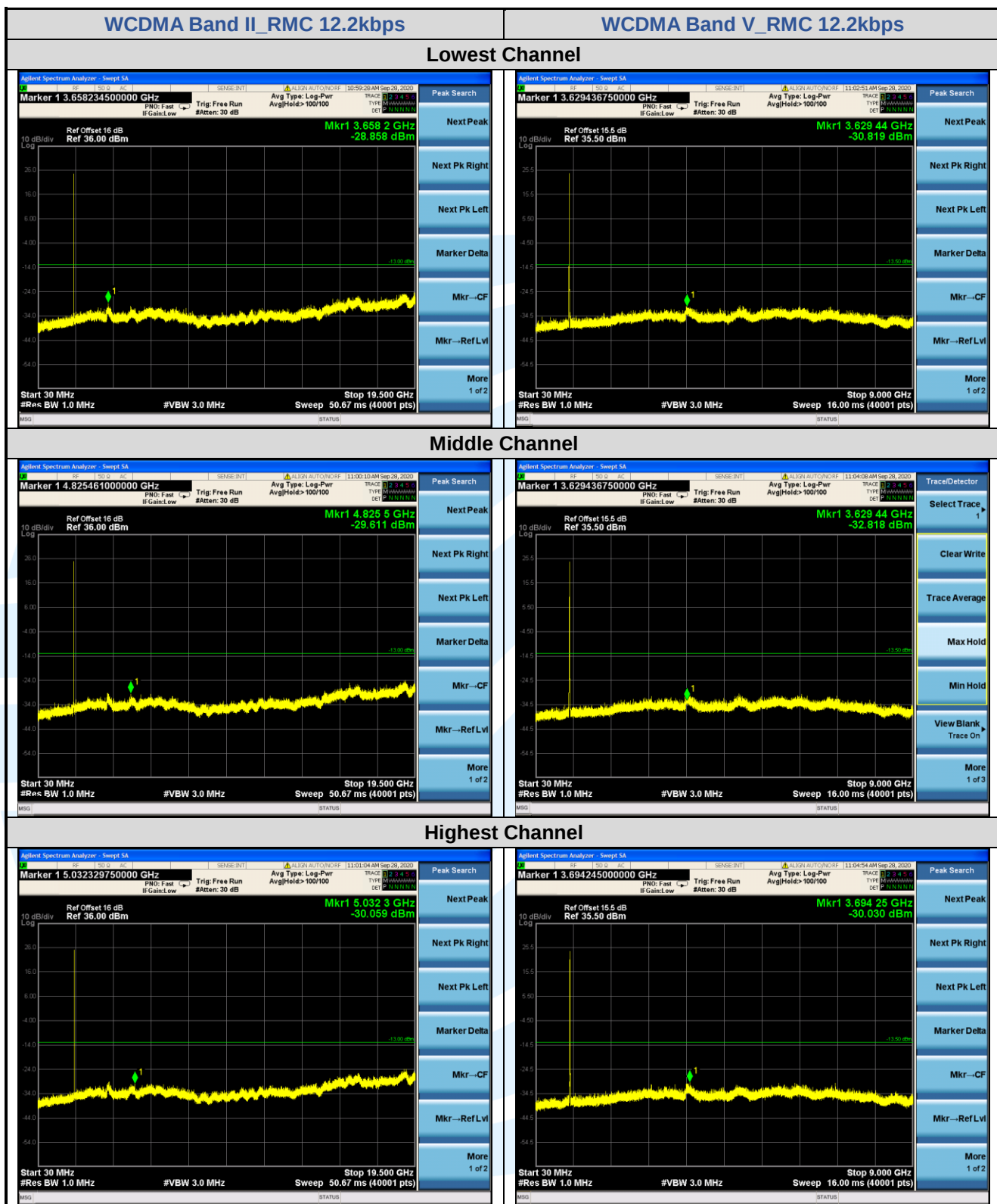
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5.8 FIELD STRENGTH OF SPURIOUS RADIATION

Test Requirement: FCC 47 CFR Part 2.1053,
FCC 47 CFR Part 22.917(a)(b),
FCC 47 CFR Part 24.238(a)(b),

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01 Section 7

Limits:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

Test Setup: Refer to section 4.2.1 for details.

Test Procedures: KDB 971168 D01v03r01 Section 7

Equipment Used: Refer to section 3 for details.

Test Result: Pass

The measurement data as follows:

GSM 850_Below 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
GSM_ Lowest Channel							
1	54.135	-71.74	22.92	-48.82	-13.00	-35.82	Horizontal
2	69.230	-72.20	22.82	-49.38	-13.00	-36.38	Horizontal
3	986.044	-82.61	46.63	-35.98	-13.00	-22.98	Horizontal
4	47.703	-73.57	24.64	-48.93	-13.00	-35.93	Vertical
5	398.296	-79.19	35.25	-43.94	-13.00	-30.94	Vertical
6	972.283	-80.83	45.92	-34.91	-13.00	-21.91	Vertical
GSM_ Middle Channel							
1	47.703	-72.34	23.89	-48.45	-13.00	-35.45	Horizontal
2	95.649	-75.81	25.03	-50.78	-13.00	-37.78	Horizontal
3	958.714	-82.16	45.71	-36.45	-13.00	-23.45	Horizontal
4	50.461	-74.29	24.02	-50.27	-13.00	-37.27	Vertical
5	128.486	-77.62	26.82	-50.80	-13.00	-37.80	Vertical
6	965.474	-81.52	45.84	-35.68	-13.00	-22.68	Vertical
GSM_ Highest Channel							
1	47.703	-72.11	23.89	-48.22	-13.00	-35.22	Horizontal
2	793.028	-80.87	42.38	-38.49	-13.00	-25.49	Horizontal
3	979.139	-81.40	46.34	-35.06	-13.00	-22.06	Horizontal
4	43.845	-74.41	25.56	-48.85	-13.00	-35.85	Vertical
5	151.025	-79.19	26.85	-52.34	-13.00	-39.34	Vertical
6	958.714	-81.40	45.77	-35.63	-13.00	-22.63	Vertical

GSM 850_Above 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
GSM_ Lowest Channel							
1	1648.400	-59.95	0.04	-59.91	-13.00	-46.91	Horizontal
2	2472.600	-62.29	2.72	-59.57	-13.00	-46.57	Horizontal
3	1648.400	-59.95	-0.74	-60.69	-13.00	-47.69	Vertical
4	2472.600	-61.13	2.32	-58.81	-13.00	-45.81	Vertical
GSM_ Middle Channel							
1	1673.200	-59.49	0.19	-59.30	-13.00	-46.30	Horizontal
2	2509.800	-61.52	2.82	-58.70	-13.00	-45.70	Horizontal
3	1673.200	-60.92	-0.57	-61.49	-13.00	-48.49	Vertical I
4	2509.800	-62.45	2.41	-60.04	-13.00	-47.04	Vertical
GSM_ Highest Channel							
1	1697.600	-60.02	0.34	-59.68	-13.00	-46.68	Horizontal
2	2546.400	-63.48	2.93	-60.55	-13.00	-47.55	Horizontal
3	1697.600	-60.79	-0.40	-61.19	-13.00	-48.19	Vertical
4	2546.400	-63.53	2.50	-61.03	-13.00	-48.03	Vertical

PCS 1900_Below 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
GSM_ Lowest Channel							
1	47.703	-72.14	0.89	-71.25	-13.00	-58.25	Horizontal
2	101.893	-77.31	2.43	-74.88	-13.00	-61.88	Horizontal
3	972.283	-82.32	23.03	-59.29	-13.00	-46.29	Horizontal
4	30.639	-80.78	9.86	-70.92	-13.00	-57.92	Vertical
5	512.948	-79.30	14.43	-64.87	-13.00	-51.87	Vertical
6	979.139	-81.86	23.14	-58.72	-13.00	-45.72	Vertical
GSM_ Middle Channel							
1	53.756	-71.41	-0.05	-71.46	-13.00	-58.46	Horizontal
2	101.893	-77.32	2.43	-74.89	-13.00	-61.89	Horizontal
3	952.000	-81.45	22.42	-59.03	-13.00	-46.03	Horizontal
4	43.845	-75.09	2.52	-72.57	-13.00	-59.57	Vertical
5	128.486	-78.33	4.03	-74.30	-13.00	-61.30	Vertical
6	945.334	-81.11	22.33	-58.78	-13.00	-45.78	Vertical
GSM_ Highest Channel							
1	47.703	-72.10	0.89	-71.21	-13.00	-58.21	Horizontal
2	101.893	-76.48	2.43	-74.05	-13.00	-61.05	Horizontal
3	979.139	-80.97	23.31	-57.66	-13.00	-44.66	Horizontal
4	43.845	-74.08	2.52	-71.56	-13.00	-58.56	Vertical
5	128.486	-76.28	4.03	-72.25	-13.00	-59.25	Vertical
6	958.714	-80.47	22.68	-57.79	-13.00	-44.79	Vertical

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PCS 1900_ Above 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
GSM_ Lowest Channel							
1	3700.400	-61.34	6.78	-54.56	-13.00	-41.56	Horizontal
2	5550.600	-62.94	10.87	-52.07	-13.00	-39.07	Horizontal
3	3700.400	-60.21	6.76	-53.45	-13.00	-40.45	Vertical
4	5550.600	-62.28	11.36	-50.92	-13.00	-37.92	Vertical
GSM_ Middle Channel							
1	3760.000	-61.28	6.93	-54.35	-13.00	-41.35	Horizontal
2	5640.000	-62.58	10.84	-51.74	-13.00	-38.74	Horizontal
3	3760.000	-61.25	6.93	-54.32	-13.00	-41.32	Vertical I
4	5640.000	-62.89	11.32	-51.57	-13.00	-38.57	Vertical
GSM_ Highest Channel							
1	3819.600	-60.83	7.08	-53.75	-13.00	-40.75	Horizontal
2	5729.400	-62.52	10.82	-51.70	-13.00	-38.70	Horizontal
3	3819.600	-61.04	7.11	-53.93	-13.00	-40.93	Vertical
4	5729.400	-62.92	11.27	-51.65	-13.00	-38.65	Vertical

WCDMA Band II_ Below 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
RMC 12.2kbps_ Lowest Channel							
1	47.703	-72.52	0.89	-71.63	-13.00	-58.63	Horizontal
2	101.893	-76.18	2.43	-73.75	-13.00	-60.75	Horizontal
3	979.139	-82.00	23.31	-58.69	-13.00	-45.69	Horizontal
4	50.461	-73.98	1.04	-72.94	-13.00	-59.94	Vertical
5	128.486	-78.73	4.03	-74.70	-13.00	-61.70	Vertical
6	952.000	-80.02	22.59	-57.43	-13.00	-44.43	Vertical
RMC 12.2kbps_ Middle Channel							
1	54.135	-71.26	-0.06	-71.32	-13.00	-58.32	Horizontal
2	624.490	-79.24	16.75	-62.49	-13.00	-49.49	Horizontal
3	972.283	-82.01	23.03	-58.98	-13.00	-45.98	Horizontal
4	51.176	-74.00	0.93	-73.07	-13.00	-60.07	Vertical
5	128.486	-78.45	4.03	-74.42	-13.00	-61.42	Vertical
6	979.139	-81.59	23.14	-58.45	-13.00	-45.45	Vertical
RMC 12.2kbps_ Highest Channel							
1	49.063	-72.03	0.43	-71.60	-13.00	-58.60	Horizontal
2	101.893	-76.92	2.43	-74.49	-13.00	-61.49	Horizontal
3	815.635	-79.83	19.09	-60.74	-13.00	-47.74	Horizontal
4	50.461	-73.62	1.04	-72.58	-13.00	-59.58	Vertical
5	481.511	-80.87	13.30	-67.57	-13.00	-54.57	Vertical
6	798.620	-80.62	19.22	-61.40	-13.00	-48.40	Vertical

WCDMA Band II_ Above 1G

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No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
RMC 12.2kbps_ Lowest Channel							
1	3704.800	-54.45	6.79	-47.66	-13.00	-34.66	Horizontal
2	5557.200	-62.27	10.87	-51.40	-13.00	-38.40	Horizontal
3	3704.800	-52.64	6.77	-45.87	-13.00	-32.87	Vertical
4	5557.200	-57.05	11.36	-45.69	-13.00	-32.69	Vertical
RMC 12.2kbps_ Middle Channel							
1	3760.000	-58.29	6.93	-51.36	-13.00	-38.36	Horizontal
2	5640.000	-61.92	10.84	-51.08	-13.00	-38.08	Horizontal
3	3760.000	-51.43	6.93	-44.50	-13.00	-31.50	Vertical
4	5640.000	-59.49	11.32	-48.17	-13.00	-35.17	Vertical
RMC 12.2kbps_ Highest Channel							
1	3815.200	-56.66	7.07	-49.59	-13.00	-36.59	Horizontal
2	5722.800	-62.51	10.83	-51.68	-13.00	-38.68	Horizontal
3	3815.200	-48.29	7.10	-41.19	-13.00	-28.19	Vertical
4	5722.800	-56.19	11.28	-44.91	-13.00	-31.91	Vertical
WCDMA Band V _Below 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
RMC 12.2kbps_ Lowest Channel							
1	54.135	-71.86	22.92	-48.94	-13.00	-35.94	Horizontal
2	101.893	-77.50	25.31	-52.19	-13.00	-39.19	Horizontal
3	723.793	-81.05	41.74	-39.31	-13.00	-26.31	Horizontal
4	45.733	-74.57	25.11	-49.46	-13.00	-36.46	Vertical
5	442.572	-79.04	35.61	-43.43	-13.00	-30.43	Vertical
6	965.474	-81.03	45.84	-35.19	-13.00	-22.19	Vertical
RMC 12.2kbps_ Middle Channel							
1	47.703	-71.97	23.89	-48.08	-13.00	-35.08	Horizontal
2	674.677	-80.03	41.15	-38.88	-13.00	-25.88	Horizontal
3	986.044	-81.96	46.63	-35.33	-13.00	-22.33	Horizontal
4	45.095	-74.96	25.27	-49.69	-13.00	-36.69	Vertical
5	765.648	-79.55	41.86	-37.69	-13.00	-24.69	Vertical
6	979.139	-81.98	46.17	-35.81	-13.00	-22.81	Vertical
RMC 12.2kbps_ Highest Channel							
1	47.703	-72.78	23.89	-48.89	-13.00	-35.89	Horizontal
2	718.725	-79.77	41.73	-38.04	-13.00	-25.04	Horizontal
3	958.714	-81.10	45.71	-35.39	-13.00	-22.39	Horizontal
4	43.845	-74.60	25.56	-49.04	-13.00	-36.04	Vertical
5	703.731	-79.69	41.96	-37.73	-13.00	-24.73	Vertical
6	938.714	-81.40	45.14	-36.26	-13.00	-23.26	Vertical

WCDMA Band V _Above 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
RMC 12.2kbps_ Lowest Channel							
1	1652.800	-59.33	0.07	-59.26	-13.00	-46.26	Horizontal
2	2479.200	-62.11	2.74	-59.37	-13.00	-46.37	Horizontal
3	1652.800	-61.47	-0.71	-62.18	-13.00	-49.18	Vertical
4	2479.200	-62.49	2.34	-60.15	-13.00	-47.15	Vertical
RMC 12.2kbps_ Middle Channel							
1	1672.800	-60.86	0.19	-60.67	-13.00	-47.67	Horizontal
2	2509.200	-62.87	2.82	-60.05	-13.00	-47.05	Horizontal
3	1672.800	-60.41	-0.57	-60.98	-13.00	-47.98	Vertical
4	2509.200	-63.01	2.41	-60.60	-13.00	-47.60	Vertical
RMC 12.2kbps_ Highest Channel							
1	1693.200	-61.90	0.32	-61.58	-13.00	-48.58	Horizontal
2	2539.800	-62.80	2.91	-59.89	-13.00	-46.89	Horizontal
3	1693.200	-60.41	-0.43	-60.84	-13.00	-47.84	Vertical
4	2539.800	-61.33	2.48	-58.85	-13.00	-45.85	Vertical

Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit

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5.9 FREQUENCY STABILITY

Test Requirement: FCC 47 CFR Part 2.1055 &
FCC 47 CFR Part 22.355 &
FCC 47 CFR Part 24.235 &

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limits:

FCC 47 CFR Part 22.355,

The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

FCC 47 CFR Part 24.235,

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Setup: Refer to section 4.2.2 for details.

Test Procedures:

1) Use CMW 500 with Frequency Error measurement capability.

a) Temp. = -30° to $+50^{\circ}\text{C}$

b) Voltage = low voltage, 3.4 Vdc, Normal, 3.8Vdc and High voltage, 4.2 Vdc.

2) Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

3) Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

Equipment Used: Refer to section 3 for details.

Test Result: Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature ($^{\circ}\text{C}$)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850							
GPRS	190 / 836.6	VL	TN	35	0.0418	± 2.5	Pass
		VN		43	0.0514	± 2.5	Pass
		VH		32	0.0383	± 2.5	Pass
		VN	50	34	0.0406	± 2.5	Pass
			40	43	0.0514	± 2.5	Pass
			30	38	0.0454	± 2.5	Pass
			20	36	0.0430	± 2.5	Pass
			10	40	0.0478	± 2.5	Pass
			0	42	0.0502	± 2.5	Pass
			-10	37	0.0442	± 2.5	Pass
			-20	36	0.0430	± 2.5	Pass
			-30	34	0.0406	± 2.5	Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Pass/ Fail
GSM 850							
EDGE	190 / 836.6	VL	TN	40	0.0478	± 2.5	Pass
		VN		32	0.0383	± 2.5	Pass
		VH		38	0.0454	± 2.5	Pass
		VN	50	42	0.0502	± 2.5	Pass
			40	40	0.0478	± 2.5	Pass
			30	41	0.0490	± 2.5	Pass
			20	43	0.0514	± 2.5	Pass
			10	35	0.0418	± 2.5	Pass
			0	36	0.0430	± 2.5	Pass
			-10	34	0.0406	± 2.5	Pass
			-20	32	0.0383	± 2.5	Pass
			-30	36	0.0430	± 2.5	Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
PCS 1900							
GPRS	661 / 1880.0	VL	TN	26	0.0138	N/A	Pass
		VN		27	0.0144		Pass
		VH		34	0.0181		Pass
		VN	50	30	0.0160		Pass
			40	40	0.0213		Pass
			30	26	0.0138		Pass
			20	25	0.0133		Pass
			10	26	0.0138		Pass
			0	27	0.0144		Pass
			-10	33	0.0176		Pass
			-20	30	0.0160		Pass
			-30	34	0.0181		Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Pass/ Fail
PCS 1900							
EDGE	661 / 1880.0	VL	TN	32	0.0170	N/A	Pass
		VN		33	0.0176		Pass
		VH		28	0.0149		Pass
		VN	50	31	0.0165		Pass
			40	30	0.0160		Pass
			30	29	0.0154		Pass
			20	28	0.0149		Pass
			10	33	0.0176		Pass
			0	30	0.0160		Pass
			-10	34	0.0181		Pass
			-20	26	0.0138		Pass
			-30	28	0.0149		Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
WCDMA Band II							
RMC 12.2kbps	9400 / 1880.0	VL	TN	-34	-0.0181	N/A	Pass
		VN		-32	-0.0170		Pass
		VH		-30	-0.0160		Pass
		VN	50	-31	-0.0165		Pass
			40	-28	-0.0149		Pass
			30	-35	-0.0186		Pass
			20	-34	-0.0181		Pass
			10	-30	-0.0160		Pass
			0	-32	-0.0170		Pass
			-10	-31	-0.0165		Pass
			-20	-34	-0.0181		Pass
			-30	-29	-0.0154		Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
WCDMA Band V							
RMC 12.2kbps	4182 / 836.4	VL	TN	-30	-0.0359	± 2.5	Pass
		VN		-32	-0.0383	± 2.5	Pass
		VH		-28	-0.0335	± 2.5	Pass
		VN	50	-24	-0.0287	± 2.5	Pass
			40	-32	-0.0383	± 2.5	Pass
			30	-30	-0.0359	± 2.5	Pass
			20	-29	-0.0347	± 2.5	Pass
			10	-28	-0.0335	± 2.5	Pass
			0	-27	-0.0323	± 2.5	Pass
			-10	-30	-0.0359	± 2.5	Pass
			-20	-28	-0.0335	± 2.5	Pass
			-30	-31	-0.0371	± 2.5	Pass

APPENDIX 1 PHOTOS OF TEST SETUP

See test photos attached in Appendix 1 for the actual connections between Product and support equipment.

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

*** End of Report ***

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.
