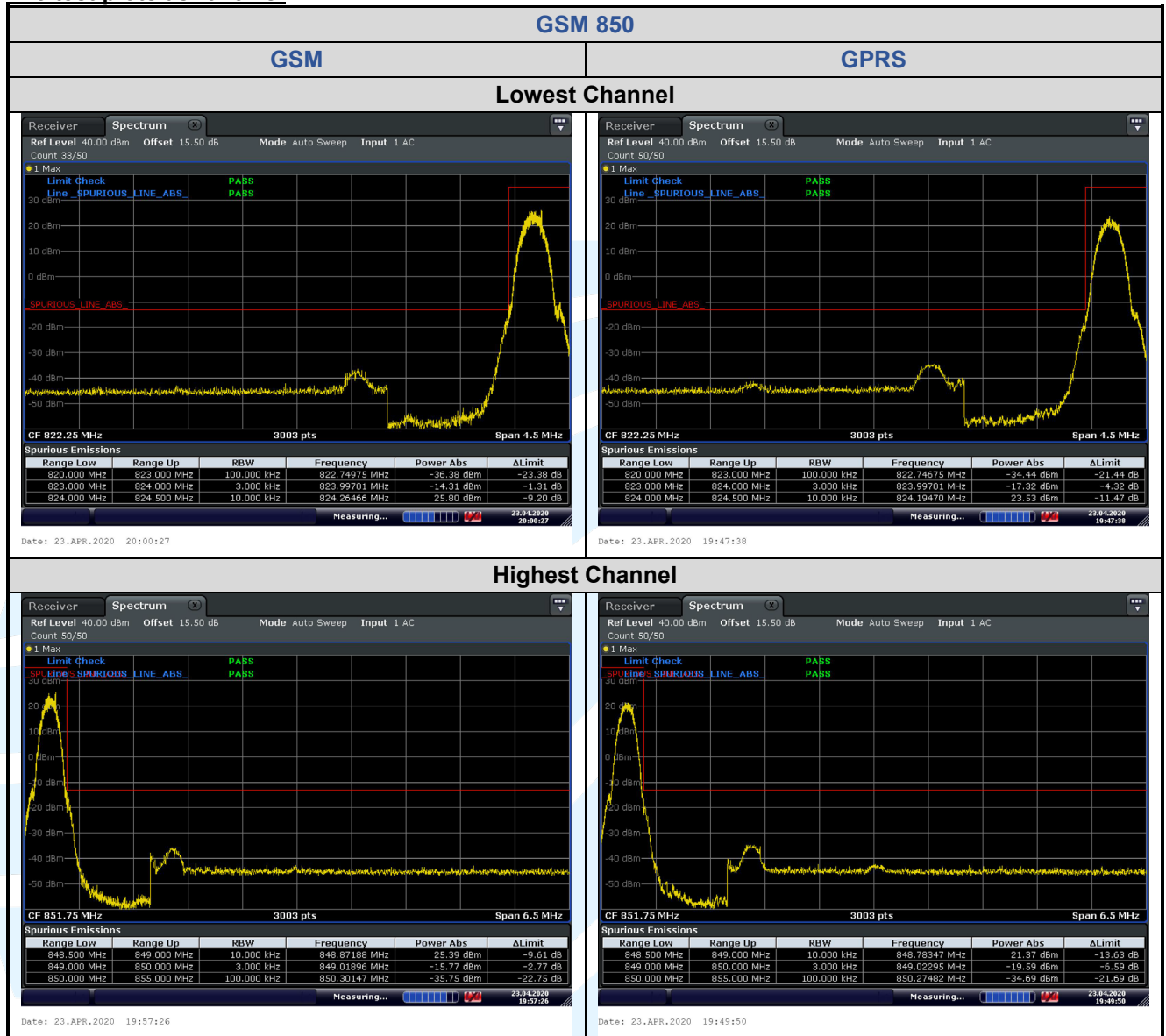
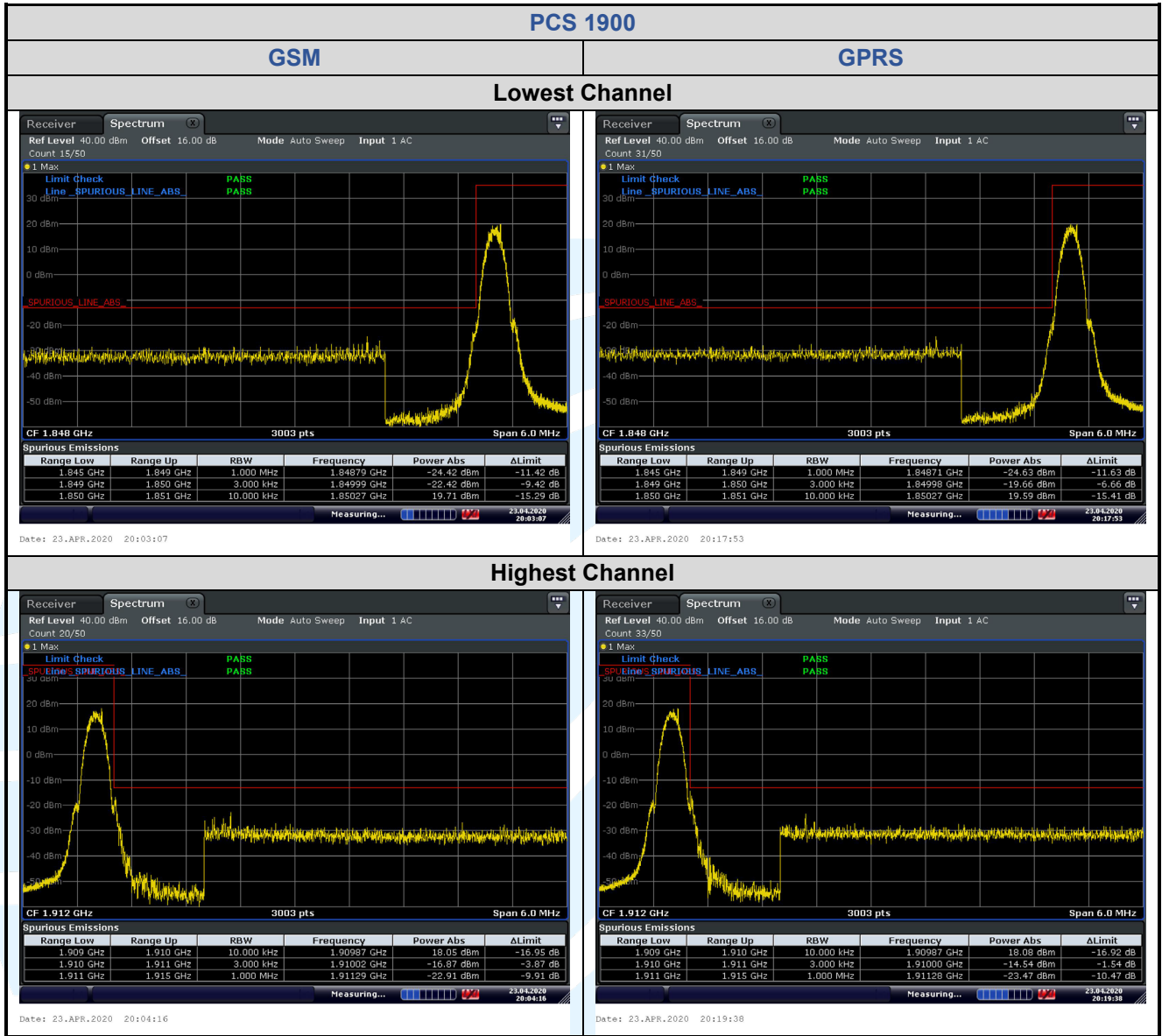
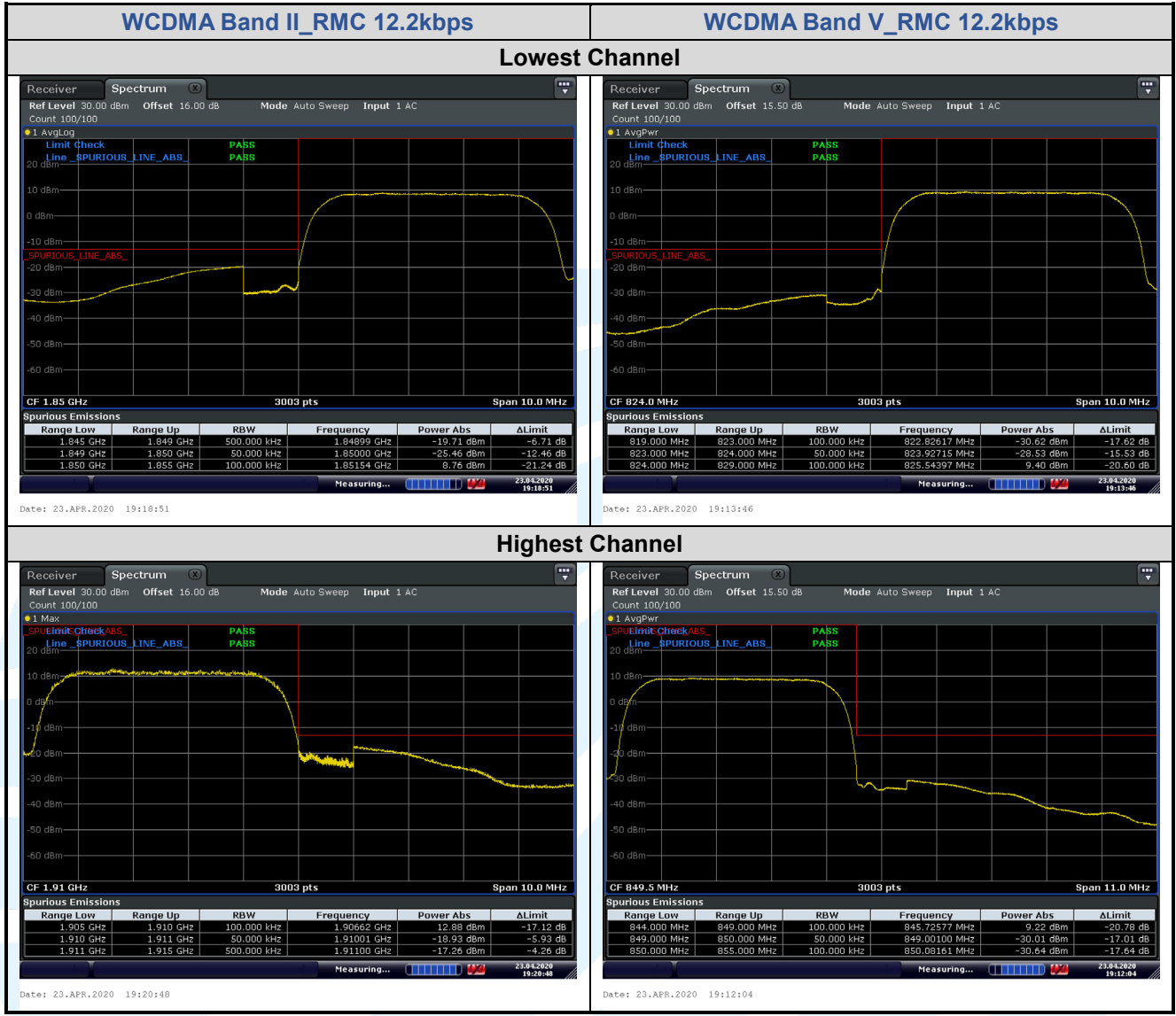


The test plots as follows:







### 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.

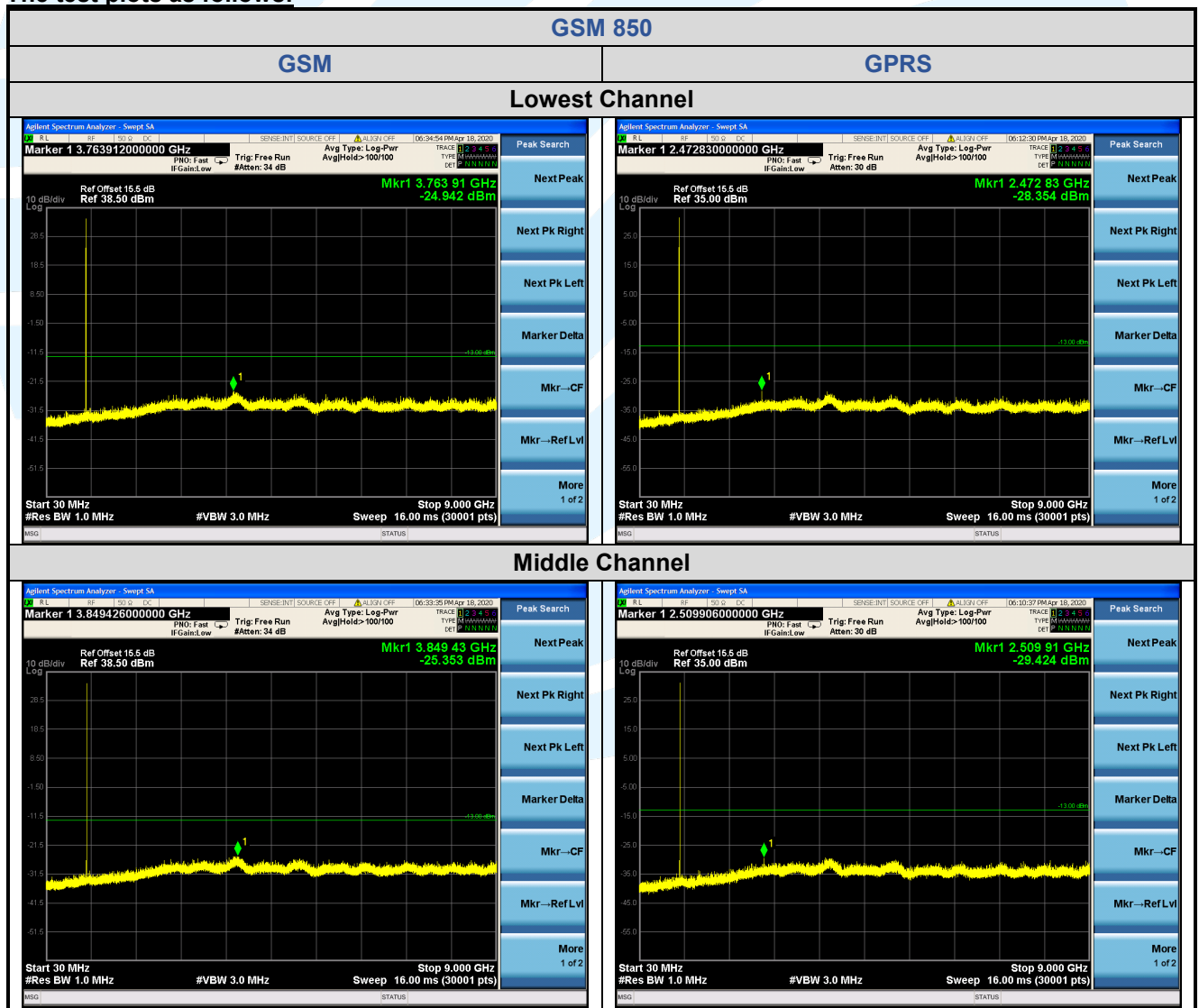
**Test Setup:** Refer to section 4.2.2 for details.

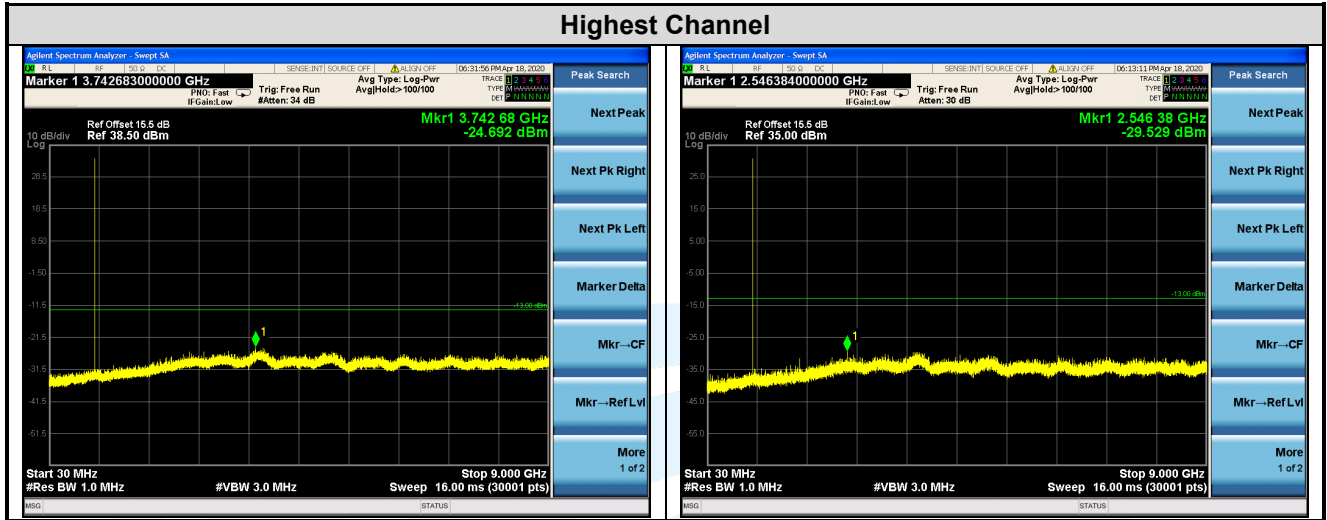
**Instruments Used:** Refer to section 3 for details

**Test Mode:** Link mode

**Test Results:** Pass

The test plots as follows:





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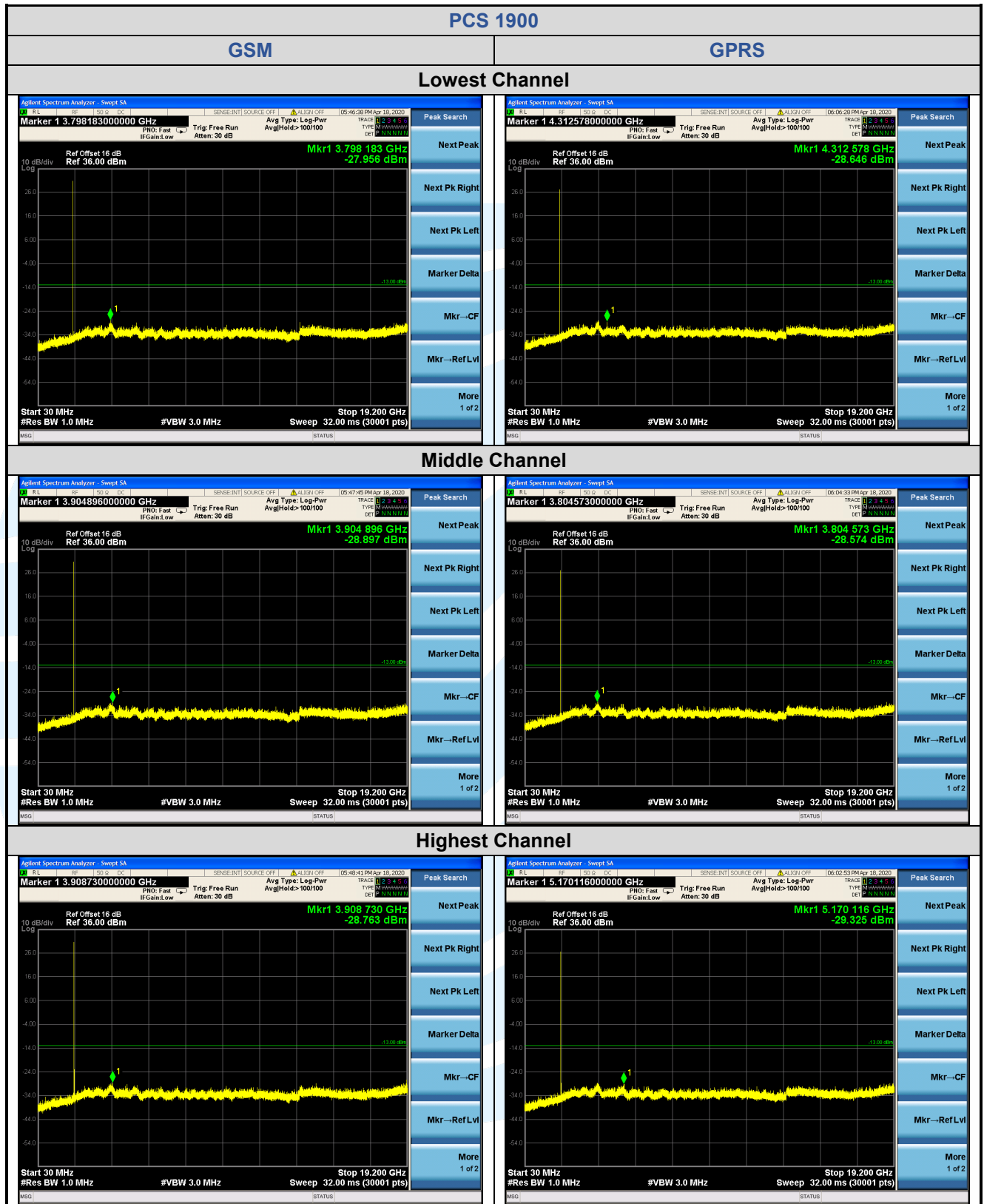
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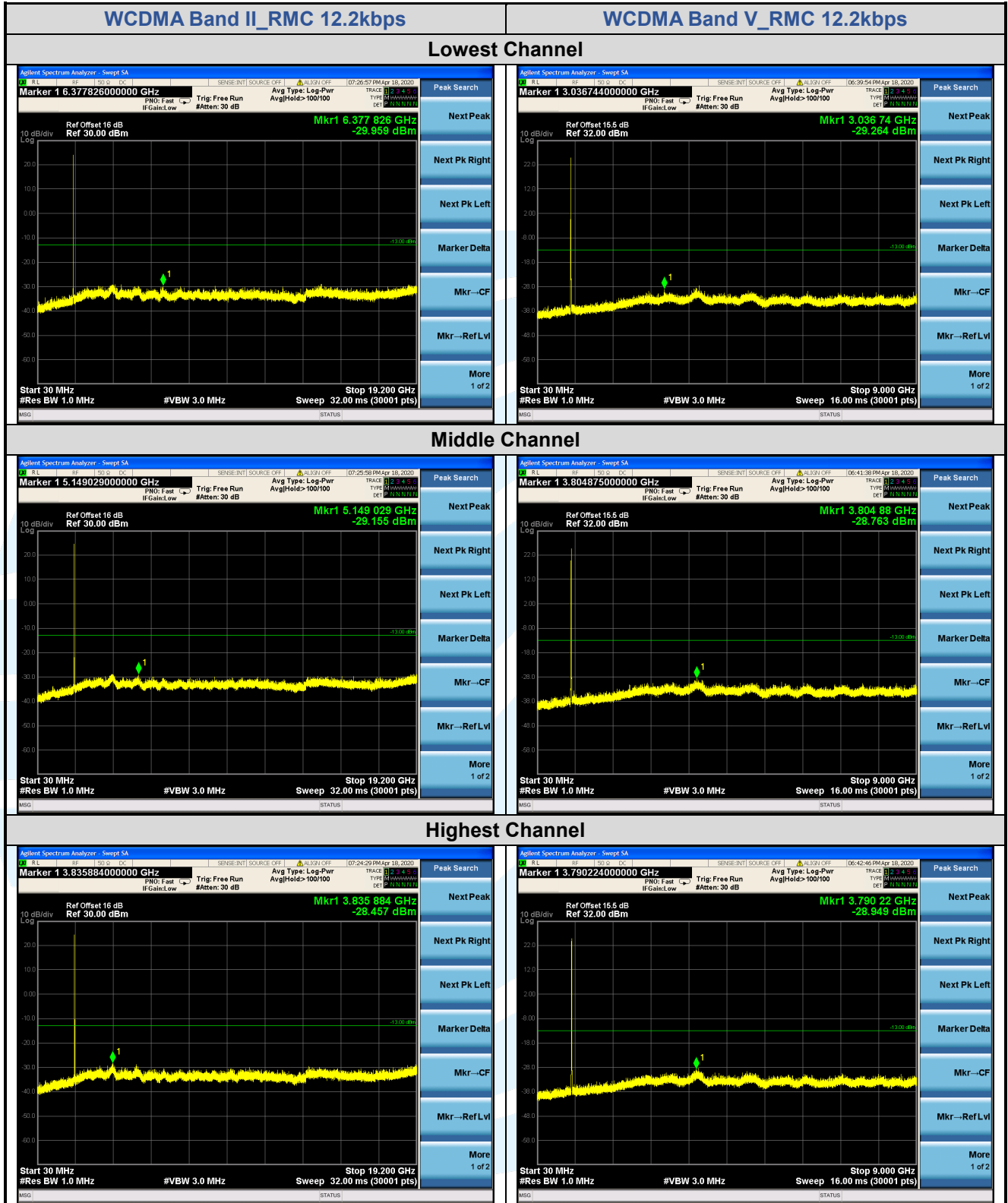
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**Remark:**

1) All the above radiation data, the fundamental frequency is not marked, it may exceed the limit, please ignore it.

### 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 (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
GSM_ Lowest Channel							
1	30.855	-91.08	38.61	-52.47	-13.00	-39.47	Horizontal
2	157.529	-89.15	33.62	-55.53	-13.00	-42.53	Horizontal
3	760.287	-87.60	47.56	-40.04	-13.00	-27.04	Horizontal
4	31.292	-92.34	38.52	-53.82	-13.00	-40.82	Vertical
5	284.261	-89.54	37.14	-52.40	-13.00	-39.40	Vertical
6	734.037	-88.31	46.21	-42.10	-13.00	-29.10	Vertical
GSM_ Middle Channel							
1	31.735	-91.63	38.15	-53.48	-13.00	-40.48	Horizontal
2	298.593	-89.70	37.44	-52.26	-13.00	-39.26	Horizontal
3	642.292	-86.94	46.27	-40.67	-13.00	-27.67	Horizontal
4	30.639	-92.35	38.94	-53.41	-13.00	-40.41	Vertical
5	270.616	-89.20	36.83	-52.37	-13.00	-39.37	Vertical
6	809.924	-88.38	47.79	-40.59	-13.00	-27.59	Vertical
GSM_ Middle Channel							
1	33.101	-91.72	37.45	-54.27	-13.00	-41.27	Horizontal
2	270.616	-89.87	36.83	-53.04	-13.00	-40.04	Horizontal
3	815.635	-88.03	48.28	-39.75	-13.00	-26.75	Horizontal
4	31.073	-90.72	38.65	-52.07	-13.00	-39.07	Vertical
5	240.144	-89.55	35.86	-53.69	-13.00	-40.69	Vertical
6	562.014	-88.07	44.93	-43.14	-13.00	-30.14	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	-55.84	3.17	-52.67	-13.00	-39.67	Horizontal
2	2472.600	-66.66	11.44	-55.22	-13.00	-42.22	Horizontal
3	1648.400	-56.75	3.25	-53.50	-13.00	-40.50	Vertical
4	2472.600	-69.60	11.24	-58.36	-13.00	-45.36	Vertical
GSM_ Middle Channel							
1	1673.200	-55.07	3.44	-51.63	-13.00	-38.63	Horizontal
2	2509.800	-70.60	11.46	-59.14	-13.00	-46.14	Horizontal
3	1673.200	-55.60	3.50	-52.10	-13.00	-39.10	Vertical
4	2509.800	-68.89	11.26	-57.63	-13.00	-44.63	Vertical
GSM_ Highest Channel							
1	1697.600	-49.31	3.71	-45.60	-13.00	-32.60	Horizontal
2	2546.400	-57.90	11.46	-46.44	-13.00	-33.44	Horizontal
3	1697.600	-53.36	3.75	-49.61	-13.00	-36.61	Vertical
4	2546.400	-63.55	11.25	-52.30	-13.00	-39.30	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	50.461	-72.34	1.07	-71.27	-13.00	-58.27	Horizontal
2	106.281	-77.14	3.23	-73.91	-13.00	-60.91	Horizontal
3	781.961	-81.90	18.59	-63.31	-13.00	-50.31	Horizontal
4	30.855	-81.09	9.76	-71.33	-13.00	-58.33	Vertical
5	243.543	-80.72	7.73	-72.99	-13.00	-59.99	Vertical
6	881.184	-82.50	19.32	-63.18	-13.00	-50.18	Vertical
GSM_ Middle Channel							
1	34.285	-77.62	7.81	-69.81	-13.00	-56.81	Horizontal
2	54.135	-72.67	0.82	-71.85	-13.00	-58.85	Horizontal
3	958.714	-82.38	23.01	-59.37	-13.00	-46.37	Horizontal
4	34.285	-77.68	7.55	-70.13	-13.00	-57.13	Vertical
5	222.281	-80.52	6.56	-73.96	-13.00	-60.96	Vertical
6	881.184	-81.23	19.32	-61.91	-13.00	-48.91	Vertical
GSM_ Highest Channel							
1	54.135	-70.93	0.82	-70.11	-13.00	-57.11	Horizontal
2	106.281	-76.89	3.23	-73.66	-13.00	-60.66	Horizontal
3	979.139	-81.86	23.24	-58.62	-13.00	-45.62	Horizontal
4	33.335	-80.95	8.17	-72.78	-13.00	-59.78	Vertical
5	54.135	-76.69	0.79	-75.90	-13.00	-62.90	Vertical
6	906.304	-82.98	20.13	-62.85	-13.00	-49.85	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)	
<b>GSM_ Lowest Channel</b>							
1	3700.400	-66.50	15.35	-51.15	-13.00	-38.15	Horizontal
2	5550.600	-68.98	17.05	-51.93	-13.00	-38.93	Horizontal
3	3700.400	-67.89	15.09	-52.80	-13.00	-39.80	Vertical
4	5550.600	-68.69	16.85	-51.84	-13.00	-38.84	Vertical
<b>GSM_ Middle Channel</b>							
1	3760.000	-70.38	15.54	-54.84	-13.00	-41.84	Horizontal
2	5640.000	-69.38	17.18	-52.20	-13.00	-39.20	Horizontal
3	3760.000	-65.55	15.29	-50.26	-13.00	-37.26	Vertical
4	5640.000	-67.20	16.98	-50.22	-13.00	-37.22	Vertical
<b>GSM_ Highest Channel</b>							
1	3819.600	-70.62	15.73	-54.89	-13.00	-41.89	Horizontal
2	5729.400	-70.19	17.51	-52.68	-13.00	-39.68	Horizontal
3	3819.600	-70.87	15.49	-55.38	-13.00	-42.38	Vertical
4	5729.400	-68.14	17.31	-50.83	-13.00	-37.83	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)	
<b>RMC 12.2kbps_ Lowest Channel</b>							
1	34.045	-76.94	7.94	-69.00	-13.00	-56.00	Horizontal
2	54.135	-72.50	0.82	-71.68	-13.00	-58.68	Horizontal
3	102.612	-77.97	3.28	-74.69	-13.00	-61.69	Horizontal
4	35.016	-79.22	7.11	-72.11	-13.00	-59.11	Vertical
5	53.379	-76.41	0.77	-75.64	-13.00	-62.64	Vertical
6	684.226	-80.98	16.42	-64.56	-13.00	-51.56	Vertical
<b>RMC 12.2kbps_ Middle Channel</b>							
1	54.135	-71.63	0.82	-70.81	-13.00	-57.81	Horizontal
2	103.335	-77.15	3.26	-73.89	-13.00	-60.89	Horizontal
3	693.910	-81.24	18.24	-63.00	-13.00	-50.00	Horizontal
4	54.135	-76.47	0.79	-75.68	-13.00	-62.68	Vertical
5	132.149	-79.13	3.09	-76.04	-13.00	-63.04	Vertical
6	925.613	-83.09	20.84	-62.25	-13.00	-49.25	Vertical
<b>RMC 12.2kbps_ Highest Channel</b>							
1	53.756	-70.41	0.84	-69.57	-13.00	-56.57	Horizontal
2	101.893	-76.15	3.29	-72.86	-13.00	-59.86	Horizontal
3	938.714	-82.11	22.26	-59.85	-13.00	-46.85	Horizontal
4	54.135	-76.86	0.79	-76.07	-13.00	-63.07	Vertical
5	250.486	-80.14	8.13	-72.01	-13.00	-59.01	Vertical
6	798.620	-82.08	18.11	-63.97	-13.00	-50.97	Vertical

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WCDMA Band II_Above 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
<b>RMC 12.2kbps_ Lowest Channel</b>							
1	3704.800	-42.58	15.37	-27.21	-13.00	-14.21	Horizontal
2	5557.200	-53.28	17.05	-36.23	-13.00	-23.23	Horizontal
3	3704.800	-50.59	15.11	-35.48	-13.00	-22.48	Vertical
4	5557.200	-56.77	16.85	-39.92	-13.00	-26.92	Vertical
<b>RMC 12.2kbps_ Middle Channel</b>							
1	3760.000	-50.15	15.54	-34.61	-13.00	-21.61	Horizontal
2	5640.000	-56.00	17.18	-38.82	-13.00	-25.82	Horizontal
3	3760.000	-53.71	15.29	-38.42	-13.00	-25.42	Vertical
4	5640.000	-52.12	16.98	-35.14	-13.00	-22.14	Vertical
<b>RMC 12.2kbps_ Highest Channel</b>							
1	3815.200	-53.93	15.72	-38.21	-13.00	-25.21	Horizontal
2	5722.800	-57.04	17.48	-39.56	-13.00	-26.56	Horizontal
3	3815.200	-53.32	15.48	-37.84	-13.00	-24.84	Vertical
4	5722.800	-56.76	17.28	-39.48	-13.00	-26.48	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)	
<b>RMC 12.2kbps_ Lowest Channel</b>							
1	38.096	-91.95	34.36	-57.59	-13.00	-44.59	Horizontal
2	158.640	-90.04	32.82	-57.22	-13.00	-44.22	Horizontal
3	771.047	-87.59	46.42	-41.17	-13.00	-28.17	Horizontal
4	32.640	-90.78	37.20	-53.58	-13.00	-40.58	Vertical
5	430.305	-88.44	40.99	-47.45	-13.00	-34.45	Vertical
6	703.731	-87.96	45.25	-42.71	-13.00	-29.71	Vertical
<b>RMC 12.2kbps_ Middle Channel</b>							
1	34.527	-91.59	36.23	-55.36	-13.00	-42.36	Horizontal
2	166.639	-90.06	32.43	-57.63	-13.00	-44.63	Horizontal
3	804.252	-88.28	47.01	-41.27	-13.00	-28.27	Horizontal
4	32.640	-91.93	37.20	-54.73	-13.00	-41.73	Vertical
5	123.181	-89.69	30.82	-58.87	-13.00	-45.87	Vertical
6	821.387	-88.34	46.71	-41.63	-13.00	-28.63	Vertical
<b>RMC 12.2kbps_ Highest Channel</b>							
1	33.335	-91.50	36.87	-54.63	-13.00	-41.63	Horizontal
2	259.443	-88.66	35.70	-52.96	-13.00	-39.96	Horizontal
3	815.635	-87.95	46.93	-41.02	-13.00	-28.02	Horizontal
4	30.639	-90.91	38.52	-52.39	-13.00	-39.39	Vertical
5	101.180	-89.53	31.21	-58.32	-13.00	-45.32	Vertical
6	793.028	-87.36	45.91	-41.45	-13.00	-28.45	Vertical

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WCDMA Band V _Above 1G							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
<b>RMC 12.2kbps_ Lowest Channel</b>							
1	1652.800	-66.56	3.22	-63.34	-13.00	-50.34	Horizontal
2	2479.200	-53.60	11.45	-42.15	-13.00	-29.15	Horizontal
3	1652.800	-67.66	3.30	-64.36	-13.00	-51.36	Vertical
4	2479.200	-58.10	11.25	-46.85	-13.00	-33.85	Vertical
<b>RMC 12.2kbps_ Middle Channel</b>							
1	1672.800	-59.87	3.44	-56.43	-13.00	-43.43	Horizontal
2	2509.200	-48.98	11.46	-37.52	-13.00	-24.52	Horizontal
3	1672.800	-63.49	3.50	-59.99	-13.00	-46.99	Vertical
4	2509.200	-52.60	11.26	-41.34	-13.00	-28.34	Vertical
<b>RMC 12.2kbps_ Highest Channel</b>							
1	1693.200	-58.83	3.66	-55.17	-13.00	-42.17	Horizontal
2	2539.800	-54.44	11.46	-42.98	-13.00	-29.98	Horizontal
3	1693.200	-62.07	3.71	-58.36	-13.00	-45.36	Vertical
4	2539.800	-55.56	11.25	-44.31	-13.00	-31.31	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

### 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  $\pm 2.5$  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. =  $-30^{\circ}$  to  $+50^{\circ}\text{C}$
  - b) Voltage = low voltage, 3.5 Vdc, Normal, 3.8 Vdc and High voltage, 4.35 Vdc.

2) Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to  $20^{\circ}\text{C}$  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	Result
						(ppm)	
<b>GSM 850</b>							
GMSK	190 / 836.6	VL	TN	29	0.0347	$\pm 2.5$	Pass
		VN		34	0.0406	$\pm 2.5$	Pass
		VH		31	0.0371	$\pm 2.5$	Pass
		VN	50	29	0.0347	$\pm 2.5$	Pass
			40	45	0.0538	$\pm 2.5$	Pass
			30	28	0.0335	$\pm 2.5$	Pass
			20	33	0.0394	$\pm 2.5$	Pass
			10	37	0.0442	$\pm 2.5$	Pass
			0	35	0.0418	$\pm 2.5$	Pass
			-10	35	0.0418	$\pm 2.5$	Pass
			-20	35	0.0418	$\pm 2.5$	Pass
			-30	26	0.0311	$\pm 2.5$	Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
GMSK	661 / 1880.0	VL	TN	26	0.0138	N/A	Pass
		VN		35	0.0186		Pass
		VH		33	0.0176		Pass
		VN	50	31	0.0165		Pass
			40	36	0.0191		Pass
			30	33	0.0176		Pass
			20	37	0.0197		Pass
			10	35	0.0186		Pass
			0	34	0.0181		Pass
			-10	37	0.0197		Pass
			-20	31	0.0165		Pass
			-30	31	0.0165		Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
RMC 12.2kbps	9400 / 1880.0	VL	TN	31	0.0165	N/A	Pass
		VN		29	0.0154		Pass
		VH		34	0.0181		Pass
		VN	50	29	0.0154		Pass
			40	33	0.0176		Pass
			30	31	0.0165		Pass
			20	27	0.0144		Pass
			10	34	0.0181		Pass
			0	29	0.0154		Pass
			-10	29	0.0154		Pass
			-20	24	0.0128		Pass
			-30	26	0.0138		Pass

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
RMC 12.2kbps	4182 / 836.4	VL	TN	33	0.0395	± 2.5	Pass
		VN		27	0.0323	± 2.5	Pass
		VH		31	0.0371	± 2.5	Pass
		VN	50	28	0.0335	± 2.5	Pass
			40	25	0.0299	± 2.5	Pass
			30	34	0.0407	± 2.5	Pass
			20	31	0.0371	± 2.5	Pass
			10	33	0.0395	± 2.5	Pass
			0	28	0.0335	± 2.5	Pass
			-10	29	0.0347	± 2.5	Pass
			-20	31	0.0371	± 2.5	Pass
			-30	27	0.0323	± 2.5	Pass

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## 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 \*\*\*

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