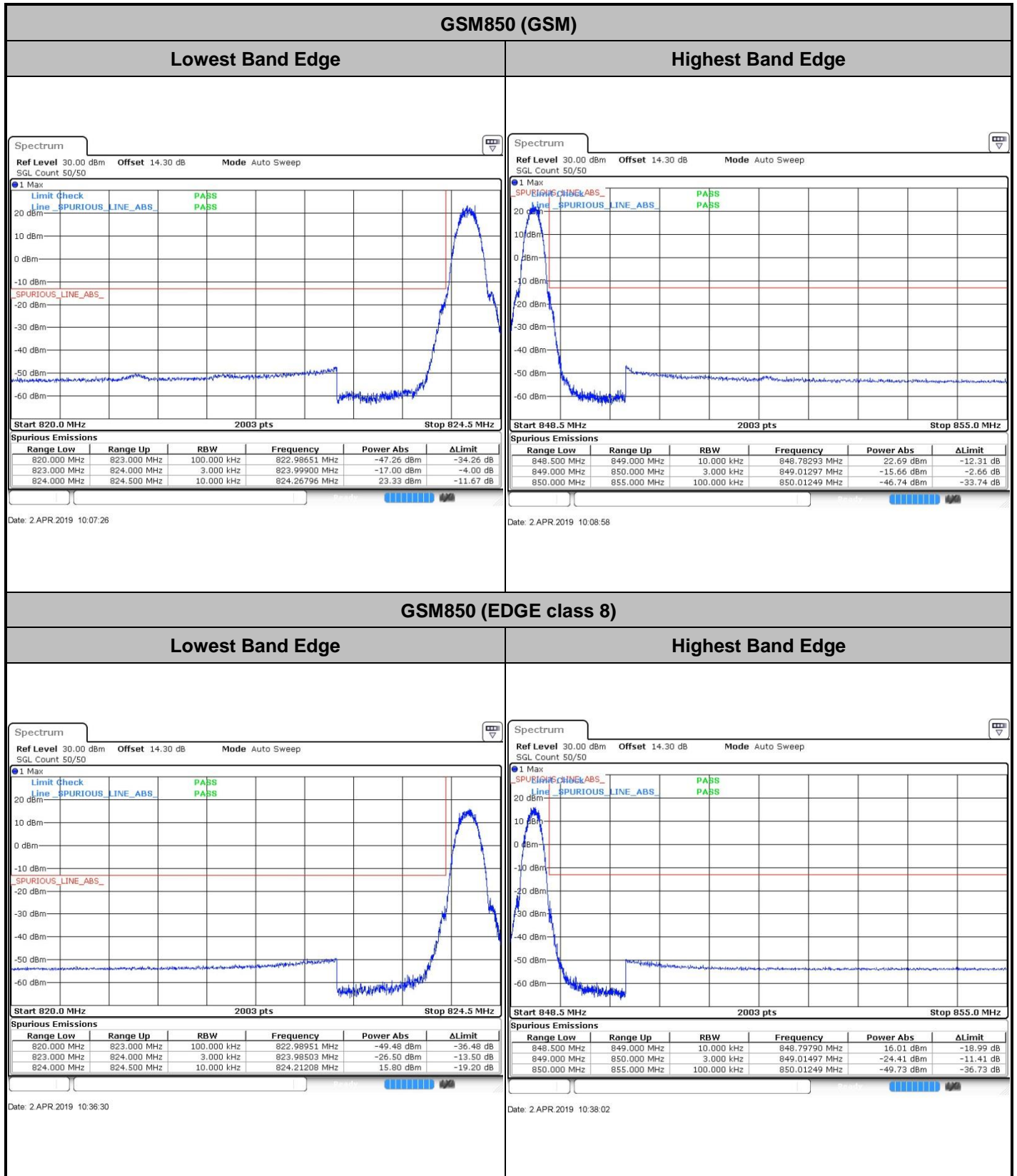
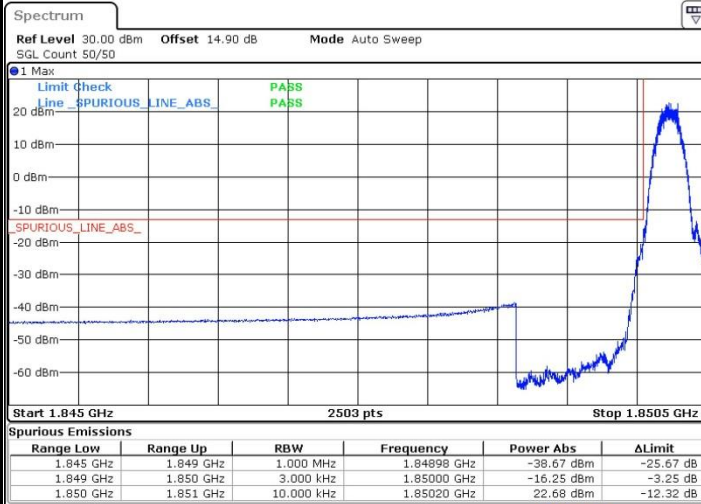


**Conducted Band Edge**

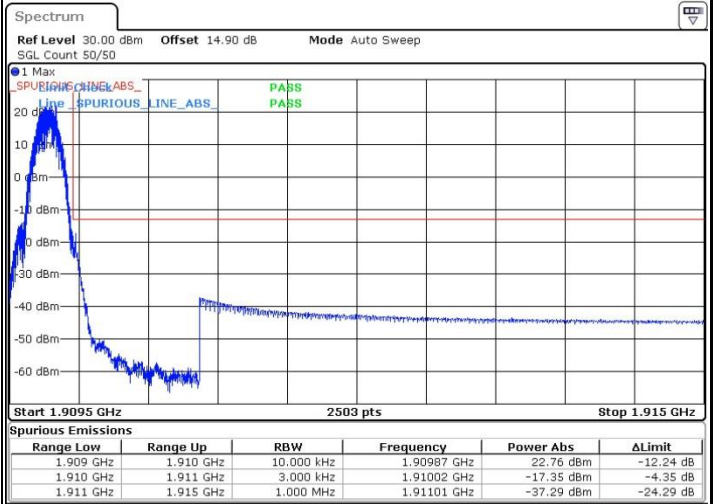


GSM1900 (GSM)

Lowest Band Edge

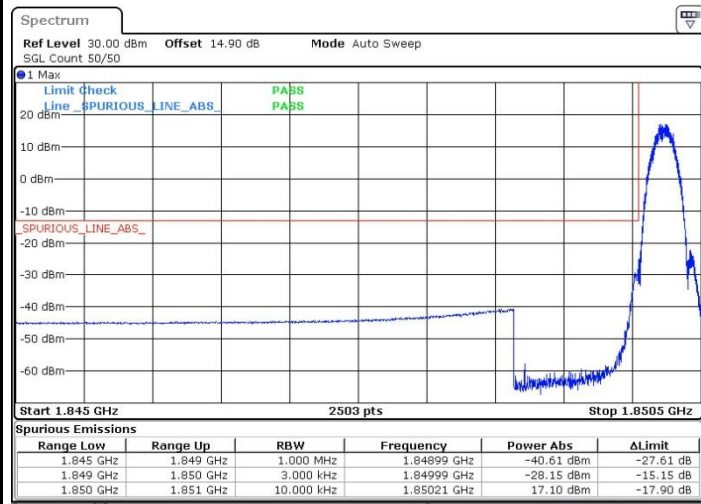


Highest Band Edge

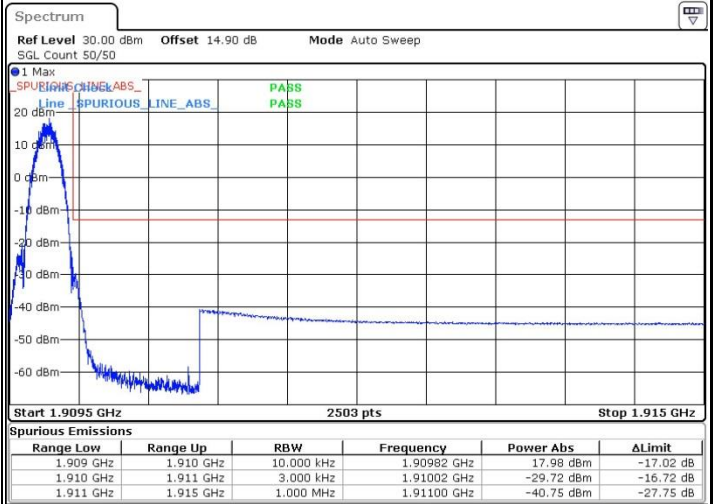


GSM1900 (EDGE class 8)

Lowest Band Edge



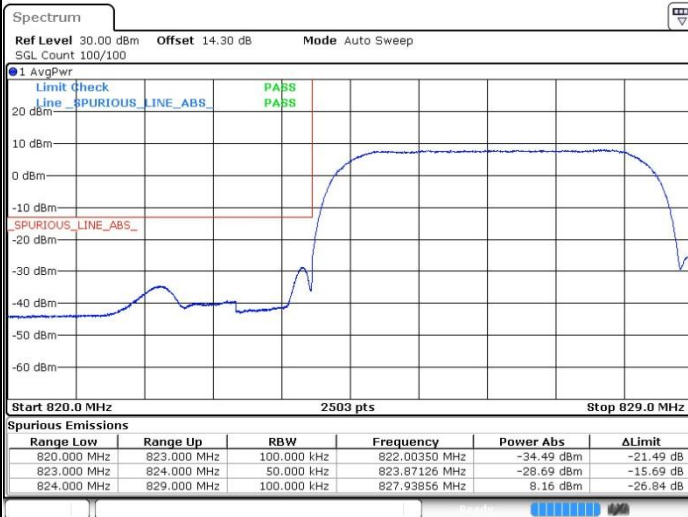
Highest Band Edge



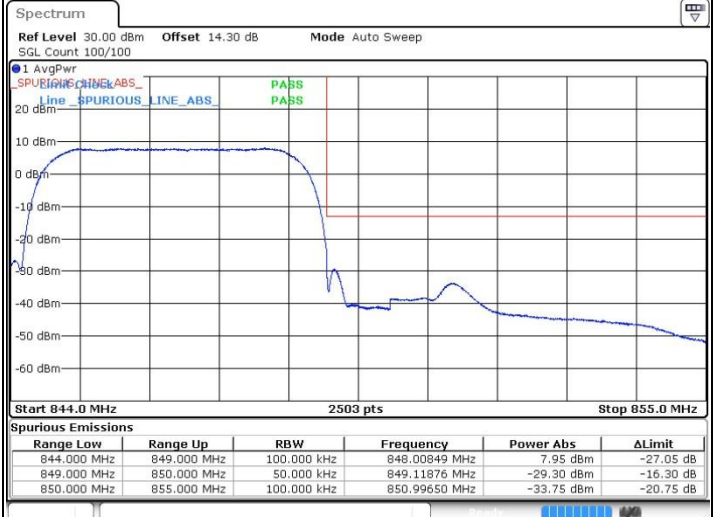


WCDMA Band V (RMC 12.2Kbps)

Lowest Band Edge

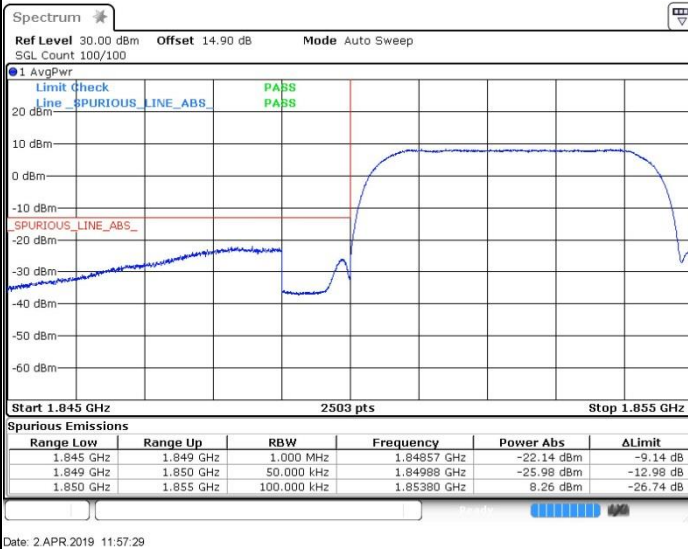


Highest Band Edge

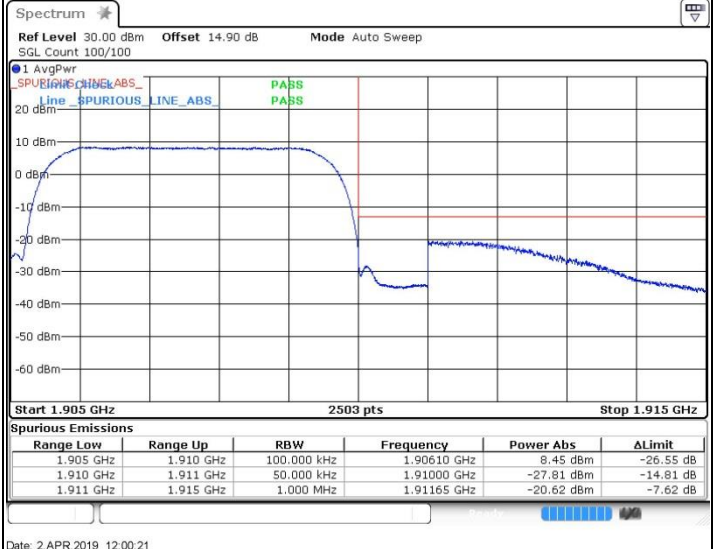


WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge



Highest Band Edge

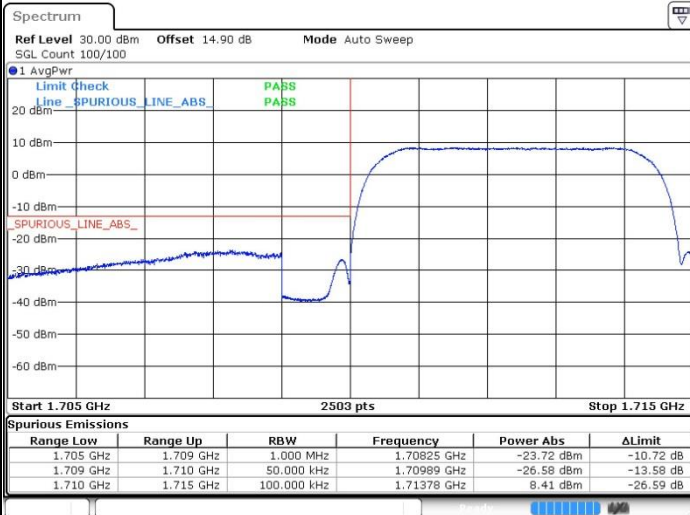




WCDMA Band IV (RMC 12.2Kbps)

Lowest Band Edge

Highest Band Edge



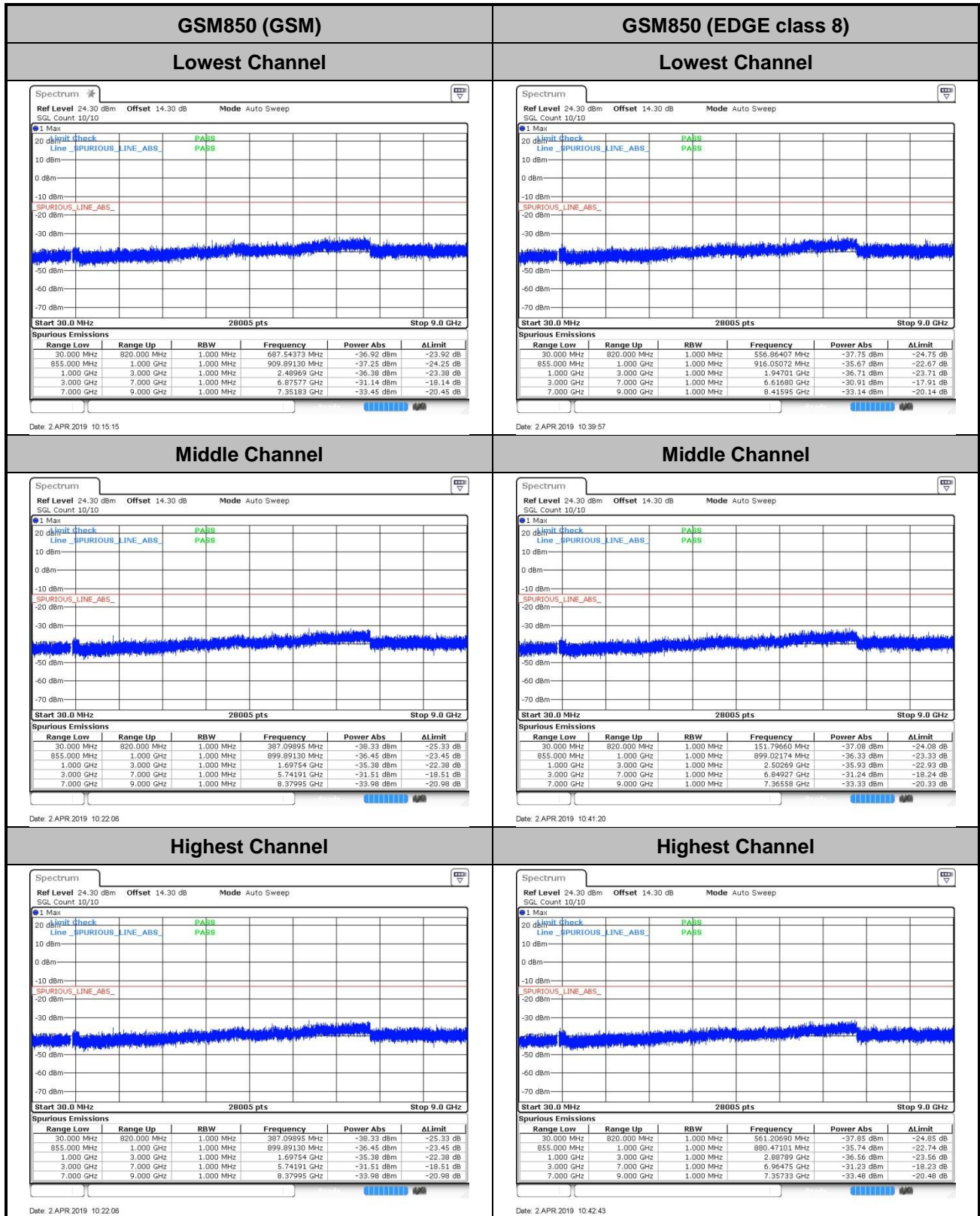
Date: 2 APR 2019 14:08:21



Date: 2 APR 2019 14:11:11



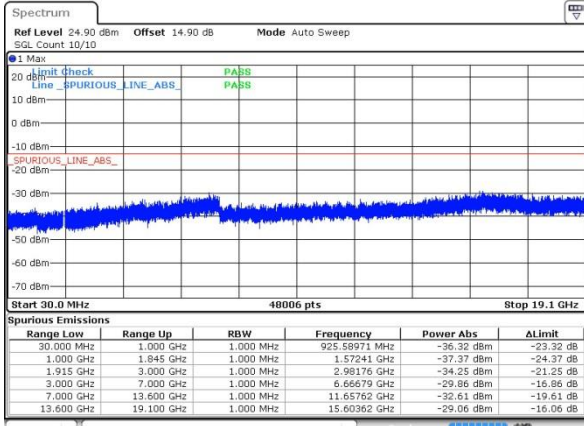
Conducted Spurious Emission





GSM1900 (GSM)

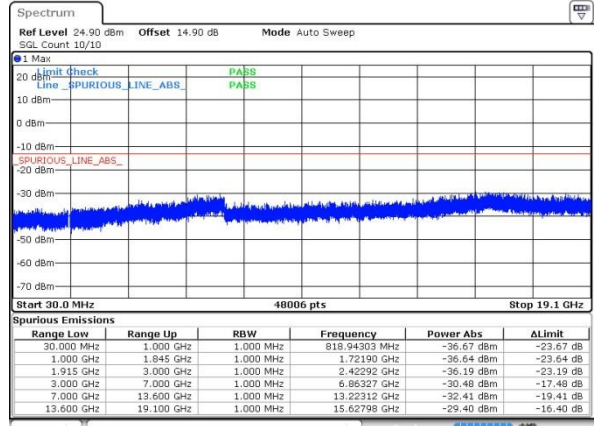
Lowest Channel



Date: 2 APR 2019 11:13:01

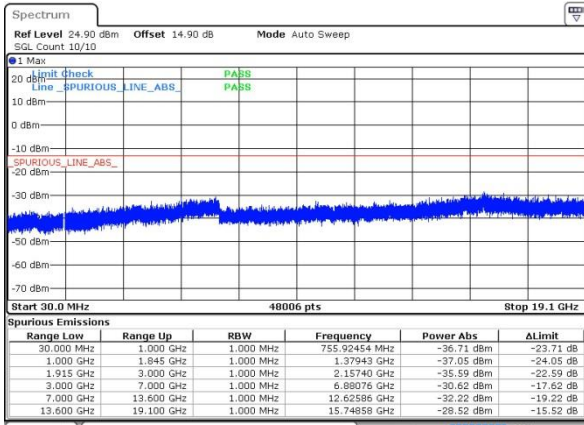
GSM1900 (EDGE class 8)

Lowest Channel



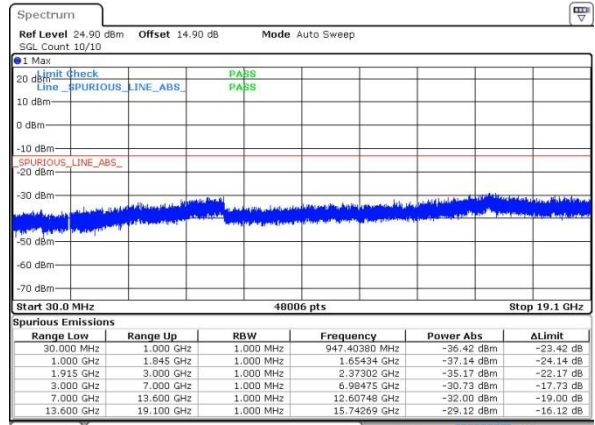
Date: 2 APR 2019 11:35:07

Middle Channel



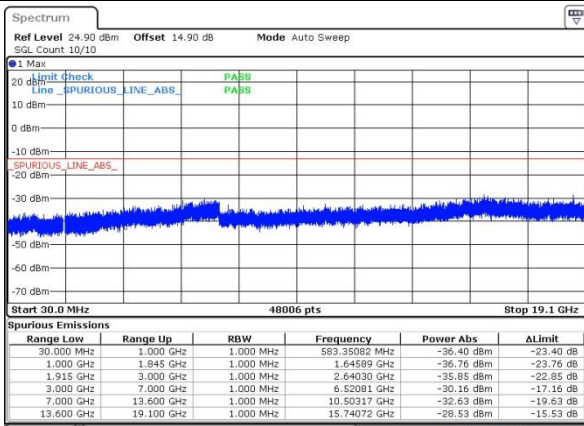
Date: 2 APR 2019 11:14:25

Middle Channel



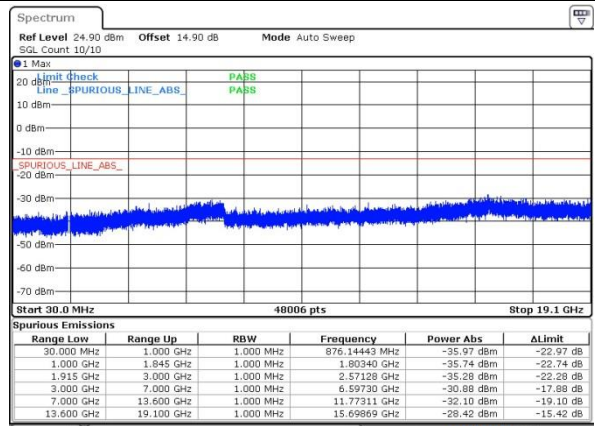
Date: 2 APR 2019 11:36:31

Highest Channel



Date: 2 APR 2019 11:15:52

Highest Channel

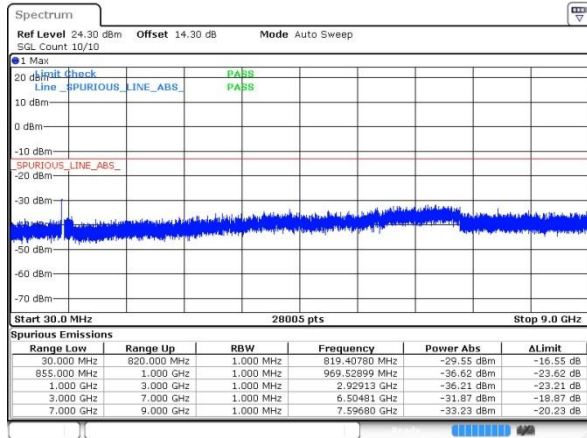


Date: 2 APR 2019 11:38:09



WCDMA Band V (RMC 12.2Kbps)

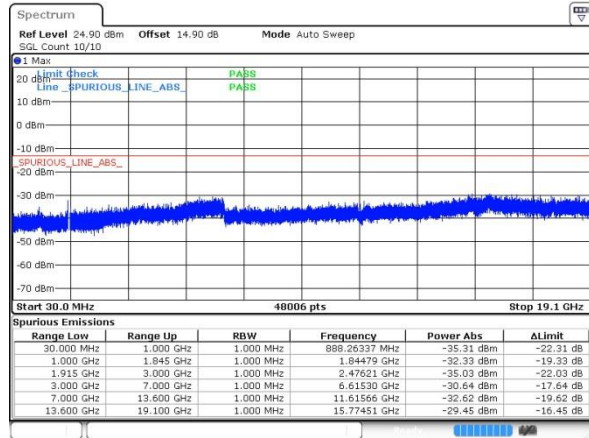
Lowest Channel



Date: 2 APR 2019 14:40:26

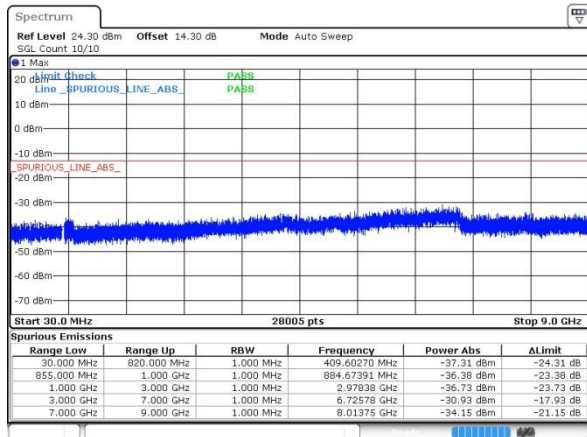
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



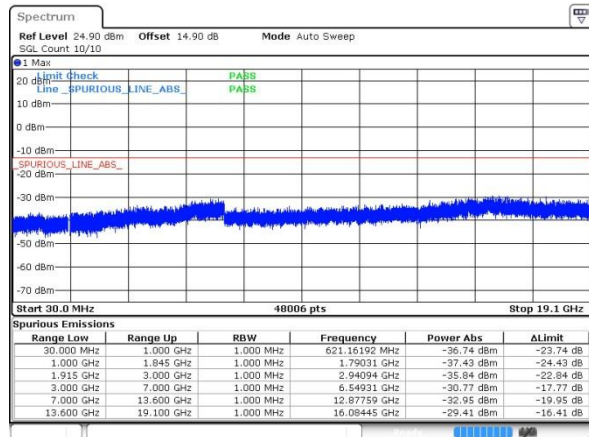
Date: 2 APR 2019 13:48:28

Middle Channel



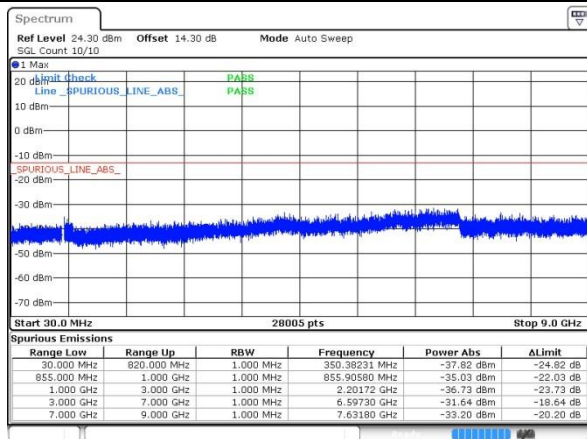
Date: 2 APR 2019 14:41:47

Middle Channel



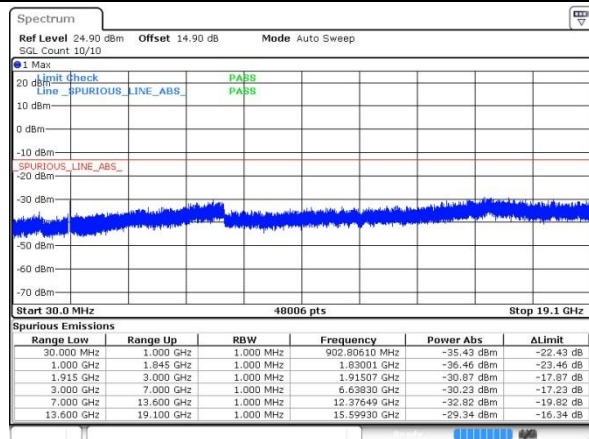
Date: 2 APR 2019 13:49:55

Highest Channel



Date: 2 APR 2019 14:43:12

Highest Channel



Date: 2 APR 2019 13:51:20



Spectrum

Ref Level 30.00 dBm Offset 14.90 dB Mode Auto Sweep

SQL Count 10/10

1 Max

Limit check

20 dBm

10 dBm

0 dBm

-10 dBm

-20 dBm

-30 dBm

-40 dBm

-50 dBm

-60 dBm

SPURIOUS_EMISSIONS

Start 30.0 MHz 48006 pts Stop 18.0 GHz

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	674.00050 GHz	-36.79 dBm	-23.79 dBm
1.000 GHz	1.705 GHz	1.000 MHz	1.70482 GHz	-30.21 dBm	-17.21 dBm
1.700 GHz	3.000 GHz	1.000 MHz	2.94056 GHz	-35.49 dBm	-22.49 dBm
3.000 GHz	7.000 GHz	1.000 MHz	6.82077 GHz	-30.51 dBm	-17.51 dBm
7.000 GHz	13.600 GHz	1.000 MHz	13.06850 GHz	-32.47 dBm	-19.47 dBm
13.600 GHz	18.000 GHz	1.000 MHz	15.67272 GHz	-28.34 dBm	-15.34 dBm

Date: 2 APR 2019 14:12:39

Spectrum

Ref Level 30.00 dBm Offset 14.90 dB Mode Auto Sweep
SGL Count 10/10

1 Max

Limit check
Line SPURIOUS LINE_ABS PASS
PASS
-20 dBm
10 dBm
0 dBm
-10 dBm
SPURIOUS_LINE_ABS
-20 dBm
-30 dBm
-50 dBm
-60 dBm

Start 30.0 MHz 48006 pts Stop 18.0 GHz

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	746.22939 GHz	-36.71 dBm	-23.71 dB
1.000 GHz	1.705 GHz	1.000 MHz	1.49801 GHz	-37.13 dBm	-24.13 dB
1.760 GHz	3.000 GHz	1.000 MHz	2.99969 GHz	-34.97 dBm	-21.97 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.69176 GHz	-30.70 dBm	-17.70 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.73287 GHz	-32.76 dBm	-19.76 dB
13.600 GHz	18.000 GHz	1.000 MHz	15.75192 GHz	-27.94 dBm	-14.94 dB

Date: 2 APR 2019 14:14:04

Spectrum

Ref Level 30.00 dBm Offset 14.90 dB Mode Auto Sweep

SGL Count 10/10

Limit check

20 dBm

10 dBm

0 dBm

-10 dBm

-20 dBm

-30 dBm

-40 dBm

-50 dBm

-60 dBm

Start 30.0 MHz 40006 pts Stop 18.0 GHz

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	510.15242 MHz	-35.72 dBm	-22.72 dB
1.000 GHz	1.705 GHz	1.000 MHz	1.69531 GHz	-36.25 dBm	-23.25 dB
1.700 GHz	3.000 GHz	1.000 MHz	1.76054 GHz	-28.45 dBm	-15.45 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.77828 GHz	-30.42 dBm	-17.42 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.67442 GHz	-32.92 dBm	-19.92 dB
13.600 GHz	18.000 GHz	1.000 MHz	15.72395 GHz	-27.73 dBm	-14.73 dB

CRUSTRONICS

Date: 2 APR 2019 14:15:26

**Frequency Stability**

Test Conditions	Middle Channel	GSM850 (GSM)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0048	0.0060	PASS
40	Normal Voltage	0.0526	0.0167	
30	Normal Voltage	0.0120	0.0538	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0574	0.0335	
0	Normal Voltage	0.0191	0.0538	
-10	Normal Voltage	0.0084	0.0466	
-20	Normal Voltage	0.0143	0.0167	
-30	Normal Voltage	0.0108	0.0478	
20	Maximum Voltage	0.0466	0.0514	
20	Normal Voltage	0.0155	0.0132	
20	Battery End Point	0.0395	0.0395	

Note:

1. Normal Voltage = 4V ; Battery End Point (BEP) =3.6V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0053	0.0005	PASS
40	Normal Voltage	0.0016	0.0016	
30	Normal Voltage	0.0027	0.0021	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0170	0.0255	
0	Normal Voltage	0.0074	0.0186	
-10	Normal Voltage	0.0160	0.0011	
-20	Normal Voltage	0.0218	0.0037	
-30	Normal Voltage	0.0005	0.0213	
20	Maximum Voltage	0.0053	0.0160	
20	Normal Voltage	0.0021	0.0016	
20	Battery End Point	0.0133	0.0011	

Note:

1. Normal Voltage = 4V ; Battery End Point (BEP) =3.6V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2KbpsRMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0060	PASS
40	Normal Voltage	0.0395	
30	Normal Voltage	0.0442	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0072	
0	Normal Voltage	0.0323	
-10	Normal Voltage	0.0048	
-20	Normal Voltage	0.0167	
-30	Normal Voltage	0.0311	
20	Maximum Voltage	0.0442	
20	Normal Voltage	0.0155	
20	Battery End Point	0.0012	

Note:

1. Normal Voltage = 4V ; Battery End Point (BEP) =3.6V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0186	PASS
40	Normal Voltage	0.0128	
30	Normal Voltage	0.0165	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0117	
0	Normal Voltage	0.0154	
-10	Normal Voltage	0.0239	
-20	Normal Voltage	0.0005	
-30	Normal Voltage	0.0117	
20	Maximum Voltage	0.0165	
20	Normal Voltage	0.0005	
20	Battery End Point	0.0032	

Note:

1. Normal Voltage = 4V ; Battery End Point (BEP) =3.6V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions	Middle Channel	WCDMA Band IV (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0069	PASS
40	Normal Voltage	0.0156	
30	Normal Voltage	0.0017	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0058	
-10	Normal Voltage	0.0150	
-20	Normal Voltage	0.0167	
-30	Normal Voltage	0.0092	
20	Maximum Voltage	0.0092	
20	Normal Voltage	0.0006	
20	Battery End Point	0.0167	

Note:

1. Normal Voltage = 4V ; Battery End Point (BEP) =3.6V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

GSM850 (GSM)								
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)
Lowest	1648	-56.09	-13	-43.09	-58.42	1.21	5.68	H
	2472	-54.87	-13	-41.87	-56.98	1.54	5.80	H
	3294	-57.77	-13	-44.77	-61.77	1.73	7.88	H
	1648	-49.44	-13	-36.44	-51.77	1.21	5.68	V
	2472	-49.92	-13	-36.92	-52.03	1.54	5.80	V
	3294	-56.24	-13	-43.24	-60.24	1.73	7.88	V
Middle	1672	-58.53	-13	-45.53	-60.86	1.21	5.68	H
	2508	-54.93	-13	-41.93	-57.04	1.54	5.80	H
	3348	-55.17	-13	-42.17	-59.17	1.73	7.88	H
	1672	-51.42	-13	-38.42	-53.75	1.21	5.68	V
	2510	-47.78	-13	-34.78	-49.89	1.54	5.80	V
	3348	-52.85	-13	-39.85	-56.85	1.73	7.88	V
Highest	1698	-56.14	-13	-43.14	-58.47	1.21	5.68	H
	2546	-51.76	-13	-38.76	-53.87	1.54	5.80	H
	3396	-55.94	-13	-42.94	-59.94	1.73	7.88	H
	1698	-51.42	-13	-38.42	-53.75	1.21	5.68	V
	2546	-38.28	-13	-25.28	-40.39	1.54	5.80	V
	3396	-55.23	-13	-42.23	-59.23	1.73	7.88	V

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



GSM850 (EDGE class 8)								
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)
Lowest	1648	-57.87	-13	-44.87	-60.20	1.21	5.68	H
	2472	-57.20	-13	-44.20	-59.31	1.54	5.80	H
	3294	-59.25	-13	-46.25	-63.25	1.73	7.88	H
	1648	-50.87	-13	-37.87	-53.20	1.21	5.68	V
	2472	-51.28	-13	-38.28	-53.39	1.54	5.80	V
	3294	-56.14	-13	-43.14	-60.14	1.73	7.88	V
Middle	1672	-56.90	-13	-43.90	-59.23	1.21	5.68	H
	2510	-58.69	-13	-45.69	-60.80	1.54	5.80	H
	3348	-58.25	-13	-45.25	-62.25	1.73	7.88	H
	1672	-51.45	-13	-38.45	-53.78	1.21	5.68	V
	2510	-54.20	-13	-41.20	-56.31	1.54	5.80	V
	3348	-57.03	-13	-44.03	-61.03	1.73	7.88	V
Highest	1698	-59.06	-13	-46.06	-61.39	1.21	5.68	H
	2546	-54.95	-13	-41.95	-57.06	1.54	5.80	H
	3396	-57.18	-13	-44.18	-61.18	1.73	7.88	H
	1698	-50.88	-13	-37.88	-53.21	1.21	5.68	V
	2546	-51.66	-13	-38.66	-53.77	1.54	5.80	V
	3396	-57.60	-13	-44.60	-61.60	1.73	7.88	V

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



GSM1900 (GSM)								
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)
Lowest	3699	-57.39	-13	-44.39	-63.96	1.848	8.42	H
	5550	-47.58	-13	-34.58	-55.94	2.32	10.68	H
	7404	-52.15	-13	-39.15	-61.48	2.61	11.94	H
	3699	-56.95	-13	-43.95	-63.52	1.85	8.42	V
	5550	-43.43	-13	-30.43	-51.79	2.32	10.68	V
	7404	-52.34	-13	-39.34	-61.67	2.61	11.94	V
Middle	3759	-55.18	-13	-42.18	-61.75	1.848	8.42	H
	5640	-42.22	-13	-29.22	-50.58	2.32	10.68	H
	7524	-51.49	-13	-38.49	-60.82	2.61	11.94	H
	3759	-54.61	-13	-41.61	-61.18	1.85	8.42	V
	5640	-47.17	-13	-34.17	-55.53	2.32	10.68	V
	7524	-52.06	-13	-39.06	-61.39	2.61	11.94	V
Highest	3819	-53.66	-13	-40.66	-60.23	1.848	8.42	H
	5730	-53.89	-13	-40.89	-62.25	2.32	10.68	H
	7644	-51.92	-13	-38.92	-61.25	2.61	11.94	H
	3819	-53.63	-13	-40.63	-60.20	1.85	8.42	V
	5729.4	-54.70	-13	-41.70	-63.06	2.32	10.68	V
	7644	-52.06	-13	-39.06	-61.39	2.61	11.94	V

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



GSM1900 (EDGE class 8)								
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)
Lowest	3700.4	-58.09	-13	-45.09	-64.66	1.848	8.42	H
	5550	-54.01	-13	-41.01	-62.37	2.32	10.68	H
	7404	-52.11	-13	-39.11	-61.44	2.61	11.94	H
	3699	-57.72	-13	-44.72	-64.29	1.85	8.42	V
	5550	-51.32	-13	-38.32	-59.68	2.32	10.68	V
	7404	-52.44	-13	-39.44	-61.77	2.61	11.94	V
Middle	3759	-56.56	-13	-43.56	-63.13	1.848	8.42	H
	5640	-53.80	-13	-40.80	-62.16	2.32	10.68	H
	7524	-52.17	-13	-39.17	-61.50	2.61	11.94	H
	3759	-54.87	-13	-41.87	-61.44	1.85	8.42	V
	5640	-48.21	-13	-35.21	-56.57	2.32	10.68	V
	7524	-52.54	-13	-39.54	-61.87	2.61	11.94	V
Highest	3819	-52.74	-13	-39.74	-59.31	1.848	8.42	H
	5730	-53.31	-13	-40.31	-61.67	2.32	10.68	H
	7644	-52.13	-13	-39.13	-61.46	2.61	11.94	H
	3819.6	-56.93	-13	-43.93	-63.50	1.85	8.42	V
	5730	-49.84	-13	-36.84	-58.20	2.32	10.68	V
	7644	-52.43	-13	-39.43	-61.76	2.61	11.94	V

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



WCDMA Band V(RMC 12.2Kbps)								
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)
Lowest	1652.8	-65.05	-13	-52.05	-67.38	1.21	5.68	H
	2480	-62.85	-13	-49.85	-64.96	1.54	5.80	H
	3306	-60.23	-13	-47.23	-64.23	1.73	7.88	H
	1652	-61.40	-13	-48.40	-63.73	1.21	5.68	V
	2480	-62.07	-13	-49.07	-64.18	1.54	5.80	V
	3306	-60.58	-13	-47.58	-64.58	1.73	7.88	V
Middle	1672	-64.69	-13	-51.69	-67.02	1.21	5.68	H
	2509.2	-63.14	-13	-50.14	-65.25	1.54	5.80	H
	3348	-60.29	-13	-47.29	-64.29	1.73	7.88	H
	1672	-61.30	-13	-48.30	-63.63	1.21	5.68	V
	2510	-61.59	-13	-48.59	-63.70	1.54	5.80	V
	3348	-60.46	-13	-47.46	-64.46	1.73	7.88	V
Highest	1693.2	-62.80	-13	-49.80	-65.13	1.21	5.68	H
	2540	-62.83	-13	-49.83	-64.94	1.54	5.80	H
	3384	-60.26	-13	-47.26	-64.26	1.73	7.88	H
	1694	-60.70	-13	-47.70	-63.03	1.21	5.68	V
	2540	-61.12	-13	-48.12	-63.23	1.54	5.80	V
	3384	-60.61	-13	-47.61	-64.61	1.73	7.88	V

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



WCDMA Band II(RMC 12.2Kbps)								
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)
Lowest	3705	-57.79	-13	-44.79	-64.36	1.848	8.42	H
	5557.2	-54.59	-13	-41.59	-62.95	2.32	10.68	H
	7404	-52.30	-13	-39.30	-61.63	2.61	11.94	H
	3704.8	-57.75	-13	-44.75	-64.32	1.85	8.42	V
	5556	-55.33	-13	-42.33	-63.69	2.32	10.68	V
	7404	-52.52	-13	-39.52	-61.85	2.61	11.94	V
Middle	3759	-57.63	-13	-44.63	-64.20	1.848	8.42	H
	5640	-53.90	-13	-40.90	-62.26	2.32	10.68	H
	7524	-51.95	-13	-38.95	-61.28	2.61	11.94	H
	3760	-57.24	-13	-44.24	-63.81	1.85	8.42	V
	5640	-55.30	-13	-42.30	-63.66	2.32	10.68	V
	7524	-52.48	-13	-39.48	-61.81	2.61	11.94	V
Highest	3816	-57.30	-13	-44.30	-63.87	1.848	8.42	H
	5722.8	-54.68	-13	-41.68	-63.04	2.32	10.68	H
	7632	-52.51	-13	-39.51	-61.84	2.61	11.94	H
	3815.2	-57.17	-13	-44.17	-63.74	1.85	8.42	V
	5724	-55.56	-13	-42.56	-63.92	2.32	10.68	V
	7632	-52.53	-13	-39.53	-61.86	2.61	11.94	V

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



WCDMA Band IV(RMC 12.2Kbps)								
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)
Lowest	3426	-57.92	-13	-44.92	-64.24	1.81	8.13	H
	5136	-54.81	-13	-41.81	-62.79	2.222	10.20	H
	6852	-52.82	-13	-39.82	-61.64	2.54	11.36	H
	3426	-58.44	-13	-45.44	-64.76	1.81	8.13	V
	5137.2	-56.07	-13	-43.07	-64.05	2.222	10.20	V
	6852	-53.63	-13	-40.63	-62.45	2.54	11.36	V
Middle	3465	-58.27	-13	-45.27	-64.59	1.81	8.13	H
	5199	-55.43	-13	-42.43	-63.41	2.222	10.20	H
	6936	-52.77	-13	-39.77	-61.59	2.54	11.36	H
	3465	-58.31	-13	-45.31	-64.63	1.81	8.13	V
	5199	-56.15	-13	-43.15	-64.13	2.222	10.20	V
	6936	-53.44	-13	-40.44	-62.26	2.54	11.36	V
Highest	3504	-58.37	-13	-45.37	-64.69	1.81	8.13	H
	5257.8	-55.53	-13	-42.53	-63.51	2.222	10.20	H
	7008	-52.29	-13	-39.29	-61.11	2.54	11.36	H
	3505.2	-58.19	-13	-45.19	-64.51	1.81	8.13	V
	5259	-55.91	-13	-42.91	-63.89	2.222	10.20	V
	7008	-53.33	-13	-40.33	-62.15	2.54	11.36	V

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