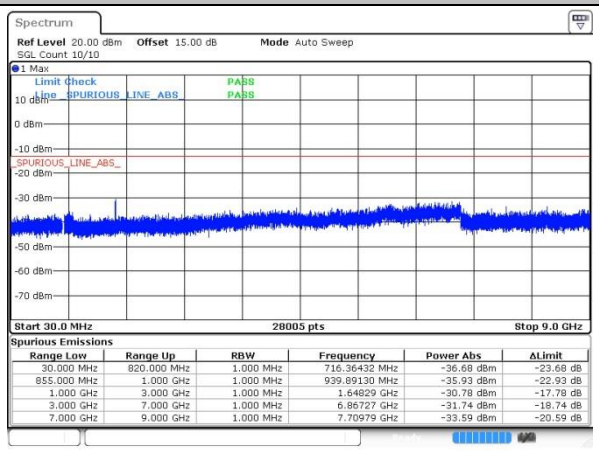
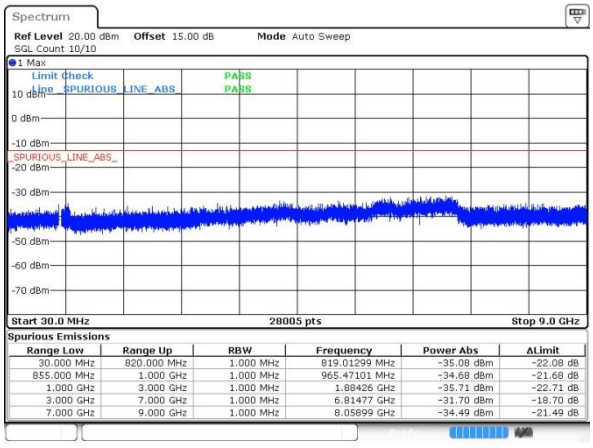
Conducted Spurious Emission

GSM850 (GSM)

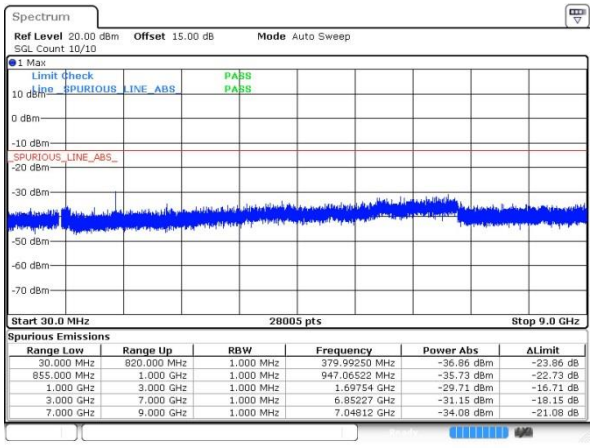
Lowest Channel



Middle Channel

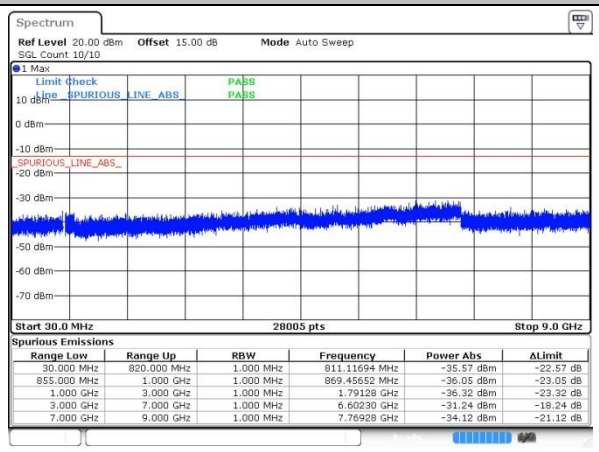


Highest Channel

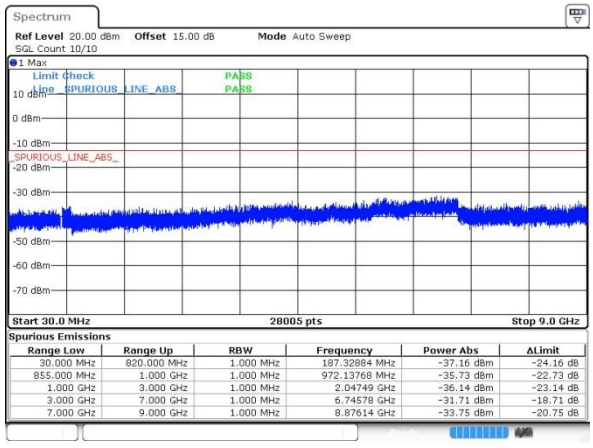


GSM850 (EDGE class 8)

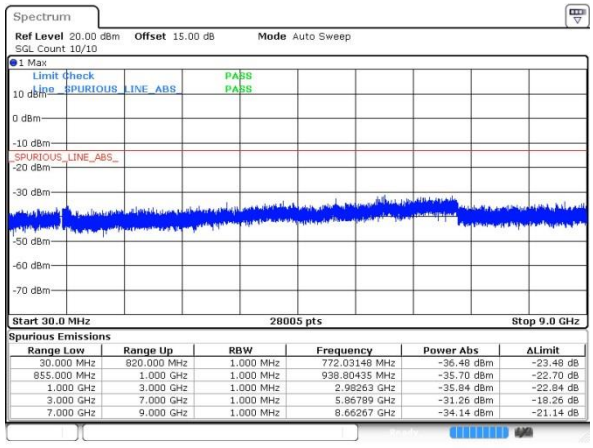
Lowest Channel

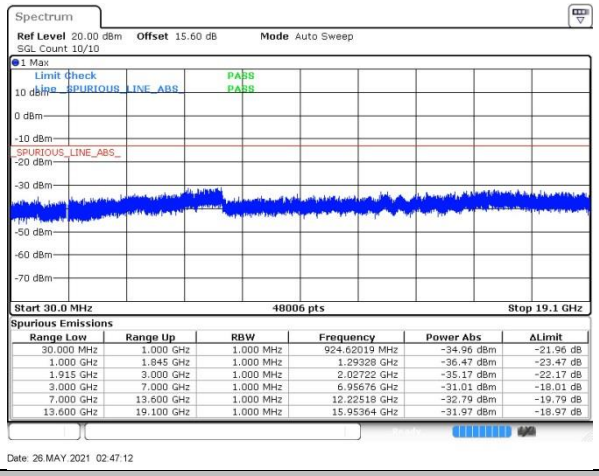
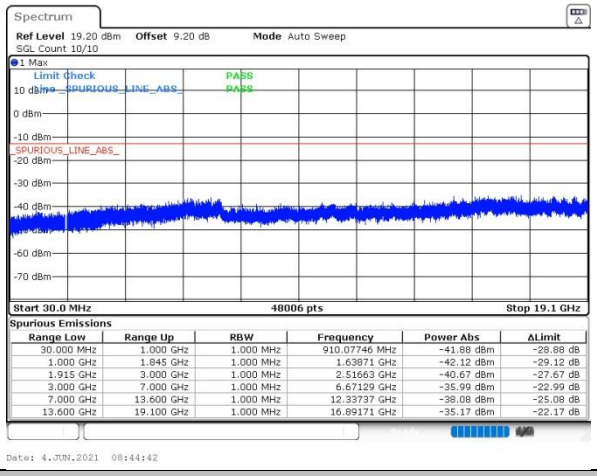
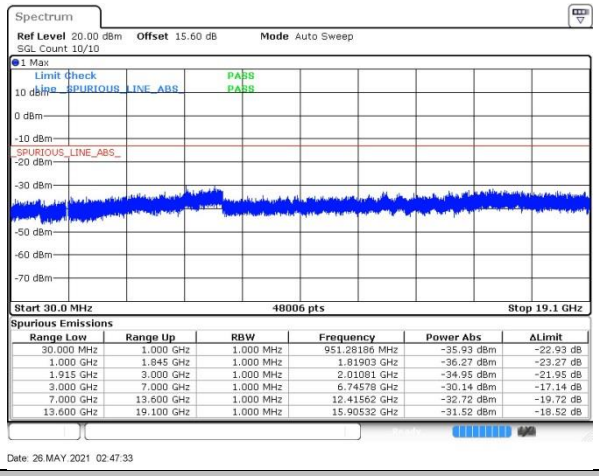
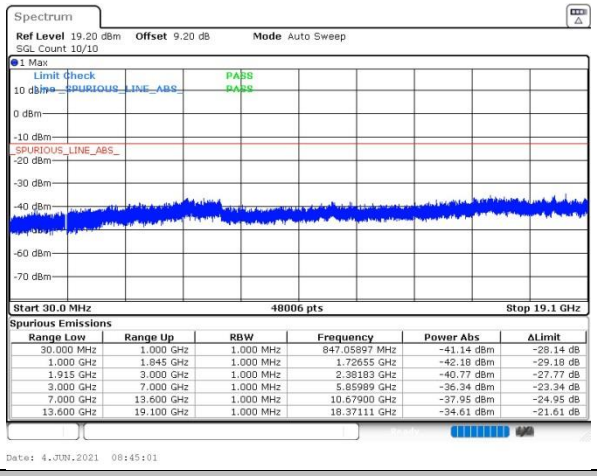
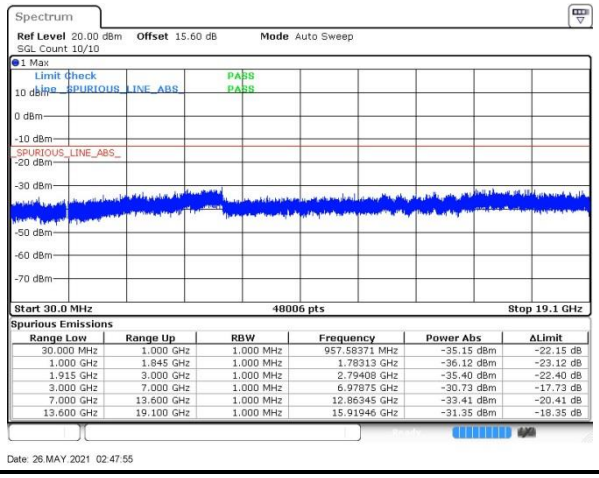
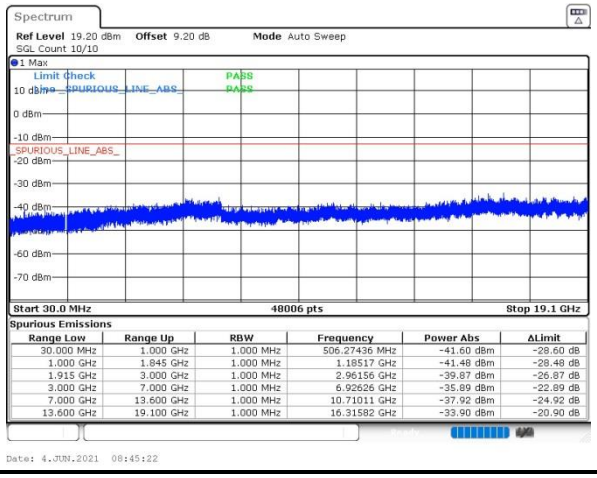


Middle Channel



Highest Channel



GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

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	0.0042	0.0058	PASS
40	Normal Voltage	0.0517	0.0147	
30	Normal Voltage	0.0099	0.0562	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0563	0.0428	
0	Normal Voltage	0.0182	0.0536	
-10	Normal Voltage	0.0059	0.0447	
-20	Normal Voltage	0.0139	0.0144	
-30	Normal Voltage	0.0174	0.0458	
20	Maximum Voltage	0.0455	0.0556	
20	Normal Voltage	0.0169	0.0139	
20	Battery End Point	0.0328	0.0238	

Note: Normal Voltage = 7.74V. ；Battery End Point (BEP) =6.9V.；Maximum Voltage =8.9 V

Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0044	0.0006	PASS
40	Normal Voltage	0.0058	0.0045	
30	Normal Voltage	0.0069	0.0078	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0164	0.0266	
0	Normal Voltage	0.0047	0.0161	
-10	Normal Voltage	0.0128	0.0033	
-20	Normal Voltage	0.0218	0.0039	
-30	Normal Voltage	0.0003	0.0274	
20	Maximum Voltage	0.0047	0.0182	
20	Normal Voltage	0.0044	0.0091	
20	Battery End Point	0.0169	0.0014	

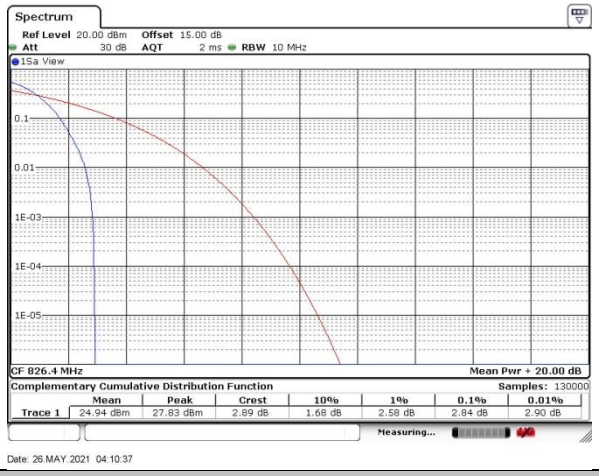
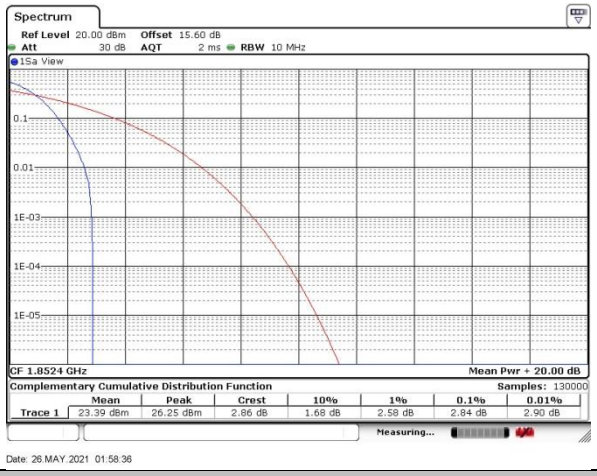
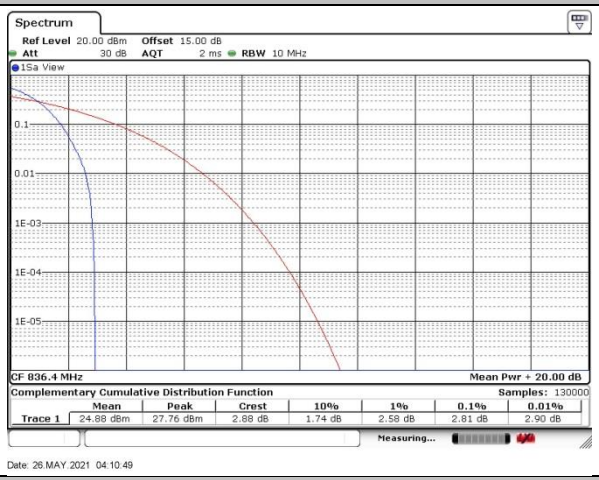
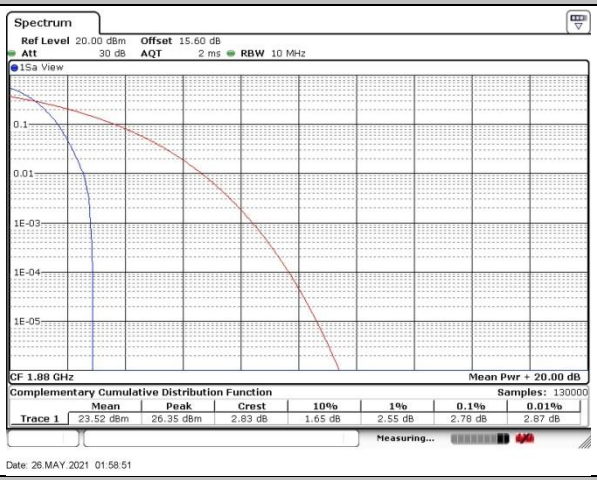
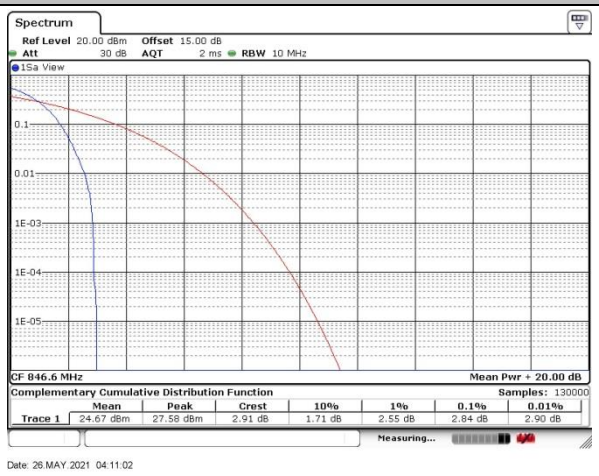
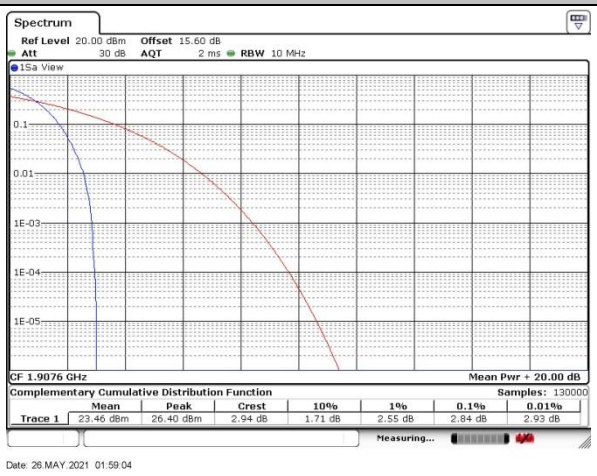
Note:

1. Normal Voltage = 7.74V. ；Battery End Point (BEP) =6.9V.；Maximum Voltage =8.9 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

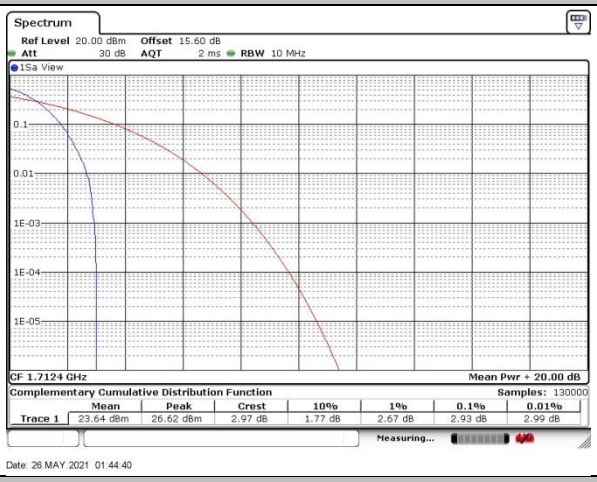
WCDMA

Peak-to-Average Ratio

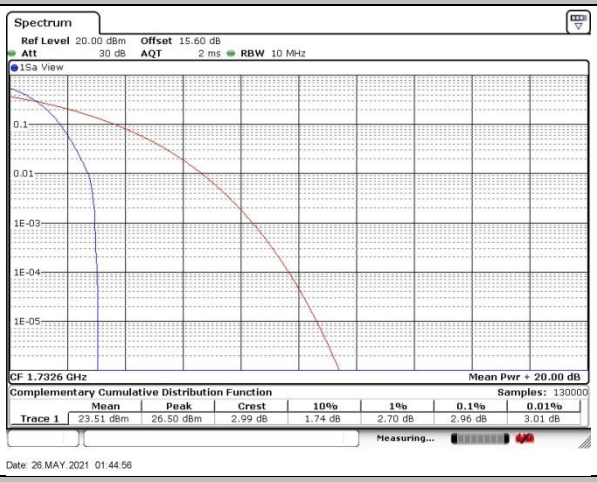
Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	2.84	2.84	2.93	PASS
Middle CH	2.81	2.78	2.96	
Highest CH	2.84	2.84	2.90	

WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

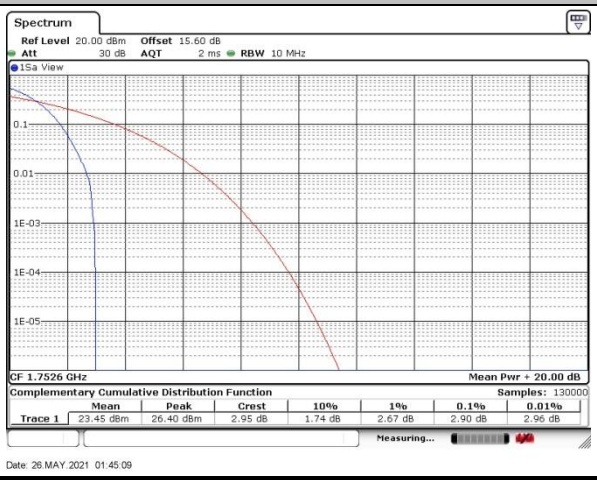
WCDMA Band IV (RMC 12.2Kbps)
Lowest Channel



Middle Channel

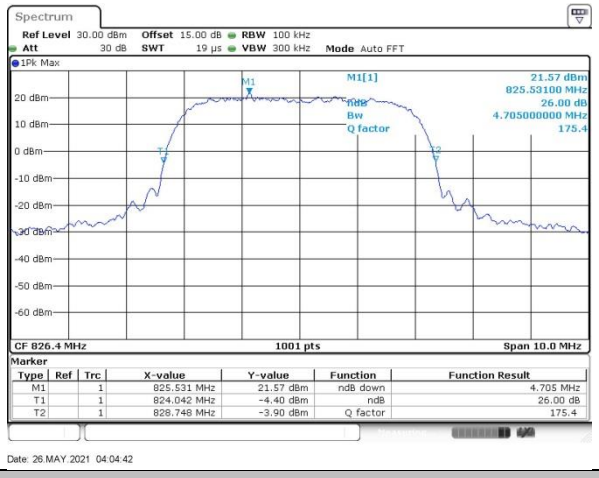
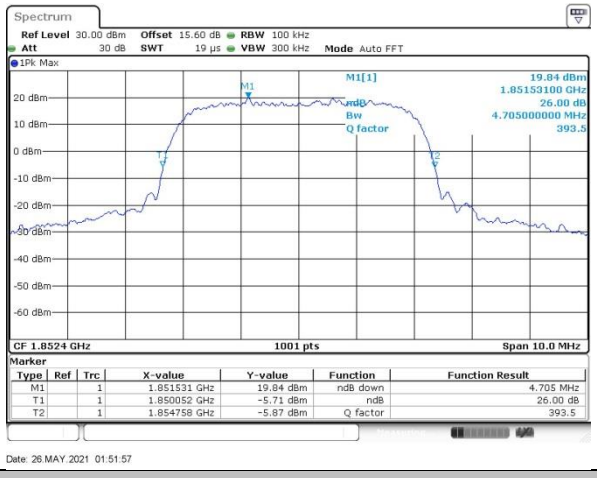
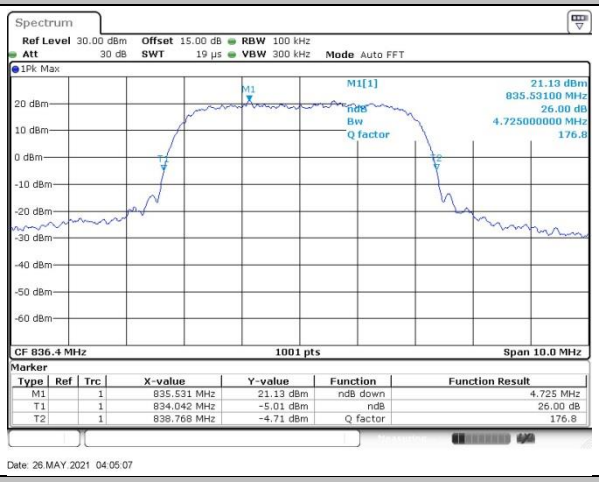
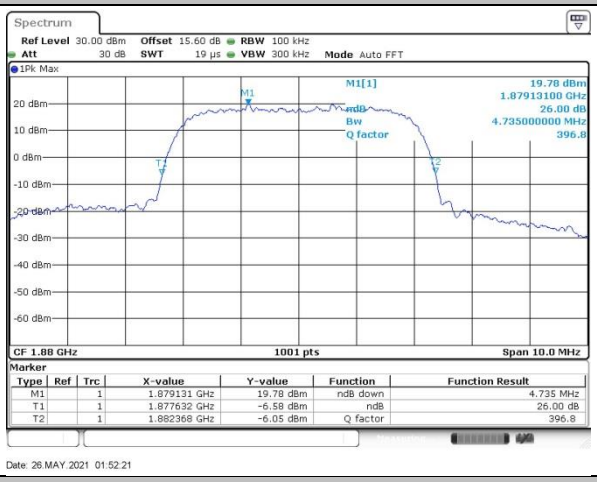
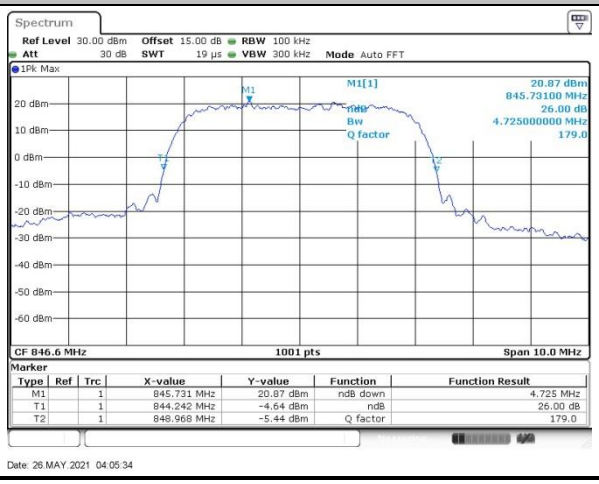
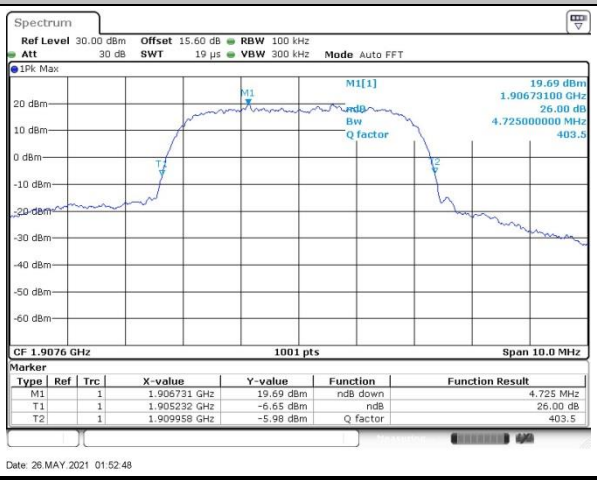


Highest Channel



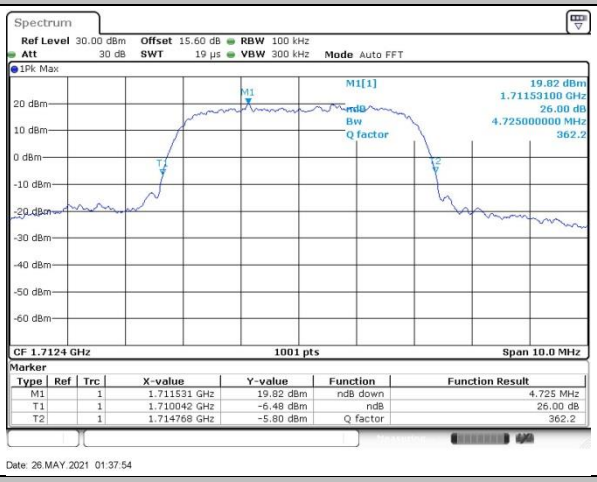
26dB Bandwidth

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)	WCDMA Band IV(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.705	4.705	4.725
Middle CH	4.725	4.735	4.715
Highest CH	4.725	4.725	4.715

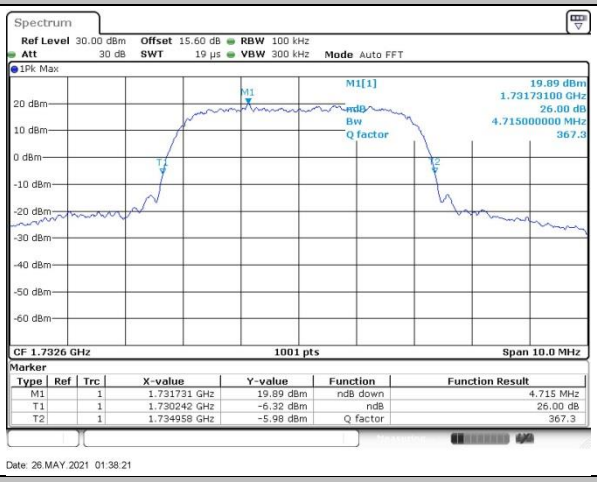
WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

WCDMA Band IV (RMC 12.2Kbps)

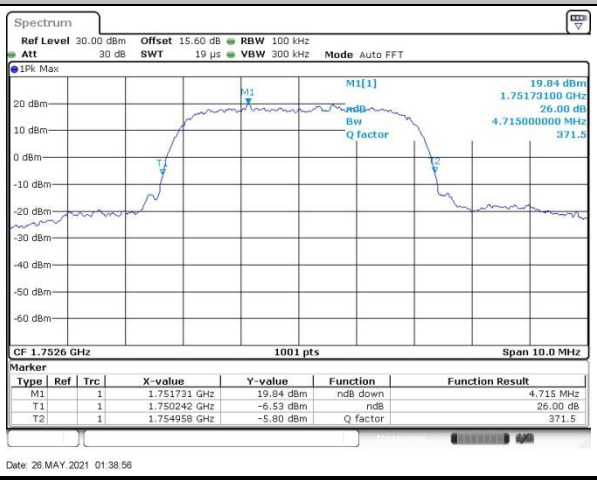
Lowest Channel



Middle Channel

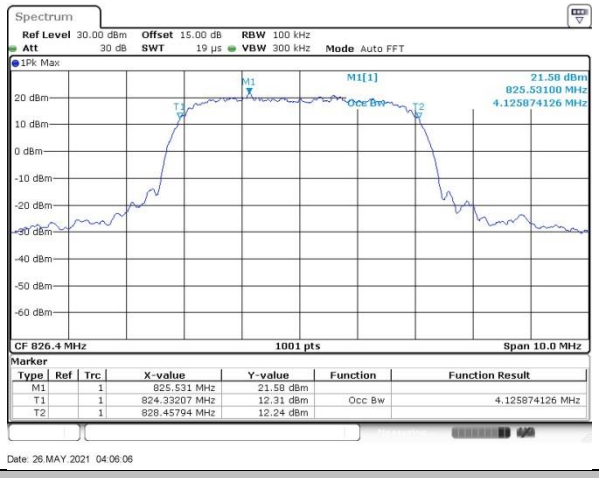
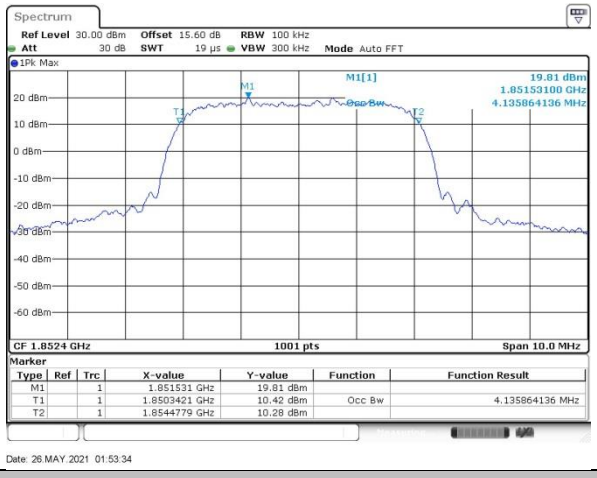
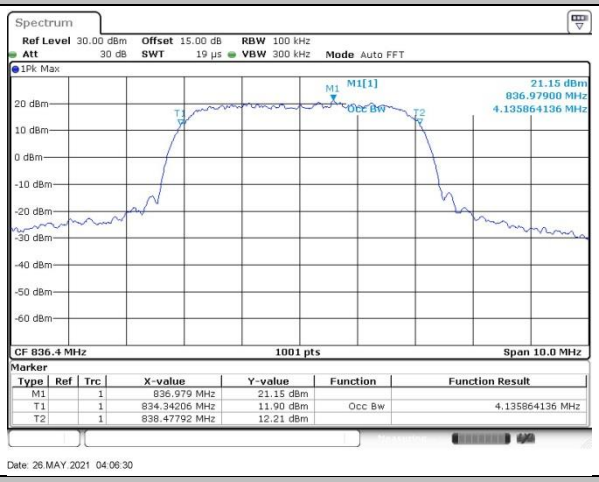
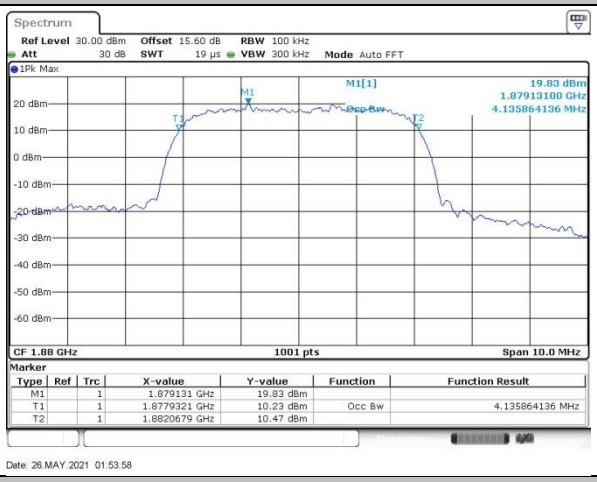
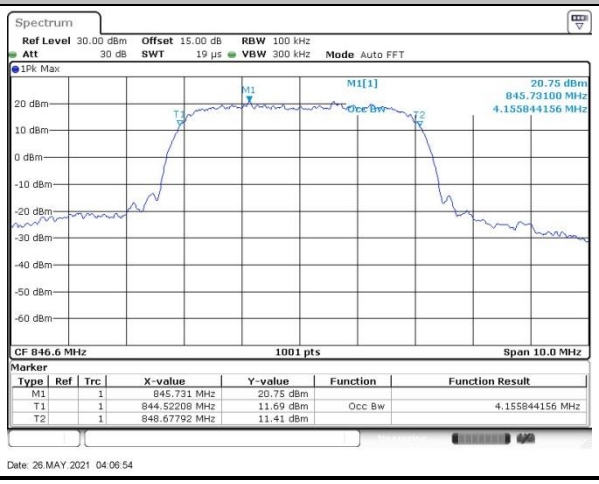
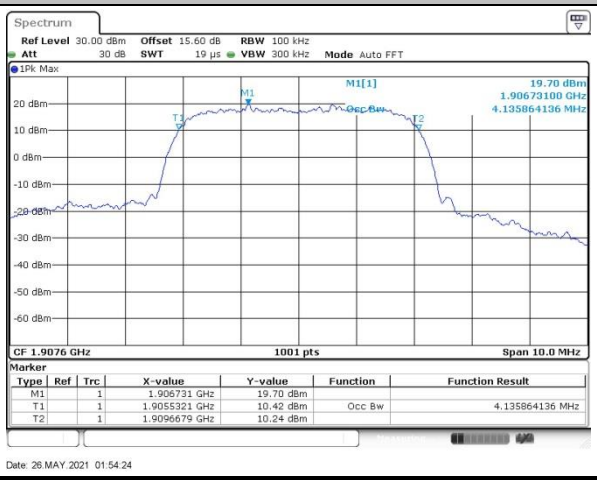


Highest Channel



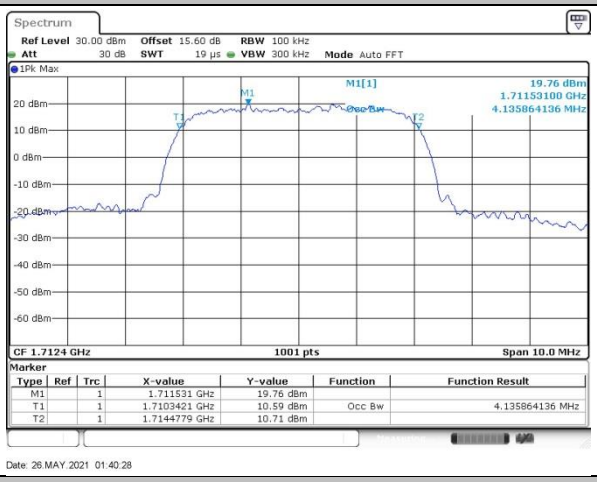
Occupied Bandwidth

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)	WCDMA Band IV(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.13	4.14	4.14
Middle CH	4.14	4.14	4.14
Highest CH	4.16	4.14	4.15

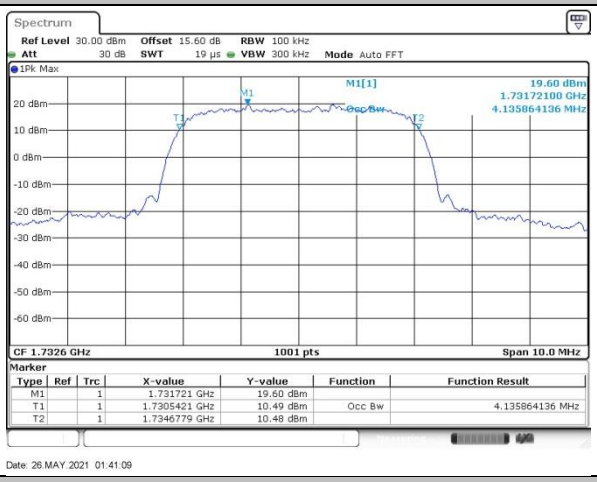
WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

WCDMA Band IV (RMC 12.2Kbps)

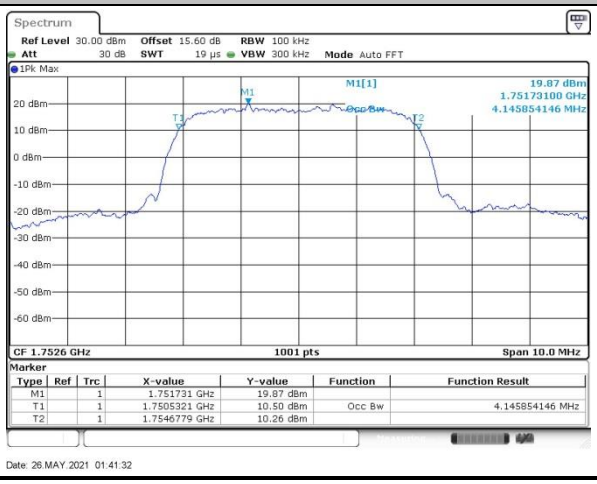
Lowest Channel



Middle Channel



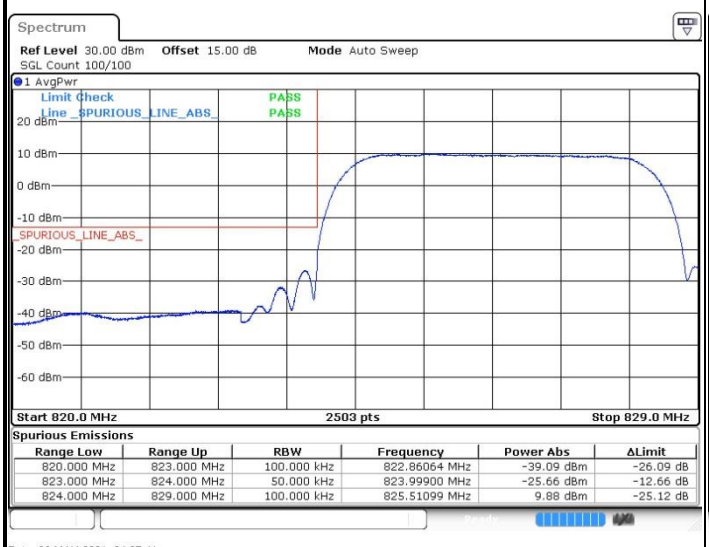
Highest Channel



Conducted Band Edge

WCDMA Band V (RMC 12.2Kbps)

Lowest Band Edge

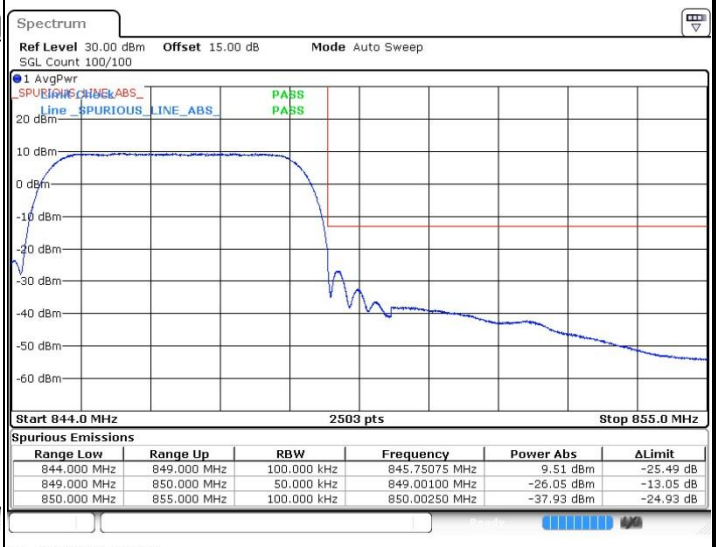


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.86064 MHz	-39.09 dBm	-26.09 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99900 MHz	-25.66 dBm	-12.66 dB
824.000 MHz	829.000 MHz	100.000 kHz	825.51099 MHz	9.88 dBm	-25.12 dB

Date: 26.MAY.2021 04:07:41

Highest Band Edge



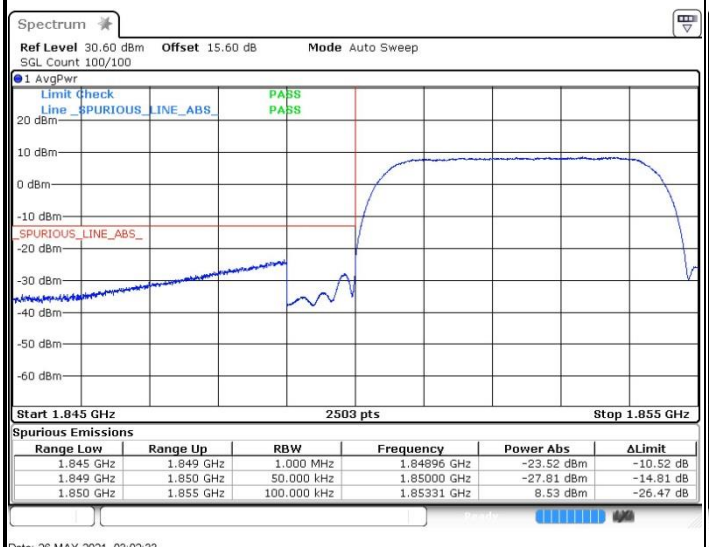
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	845.75075 MHz	9.51 dBm	-25.49 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00100 MHz	-26.05 dBm	-13.05 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.00250 MHz	-37.93 dBm	-24.93 dB

Date: 26.MAY.2021 04:08:24

WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge

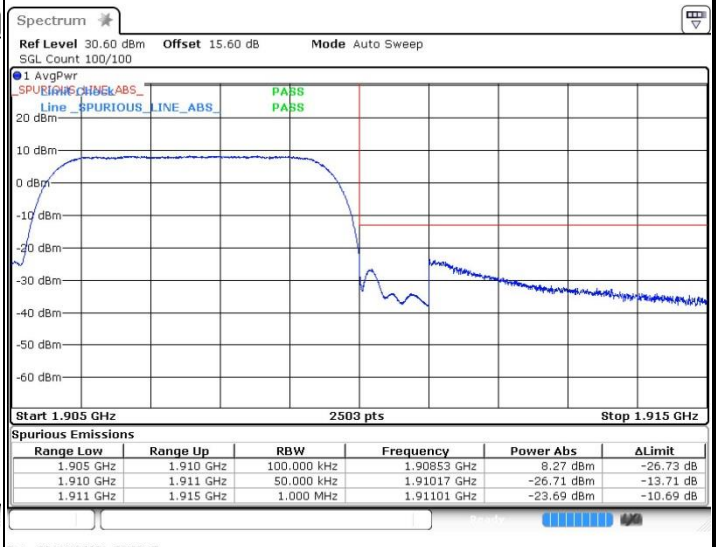


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84896 GHz	-23.52 dBm	-10.52 dB
1.849 GHz	1.850 GHz	50.000 kHz	1.85000 GHz	-27.81 dBm	-14.81 dB
1.850 GHz	1.855 GHz	100.000 kHz	1.85331 GHz	8.53 dBm	-26.47 dB

Date: 26.MAY.2021 03:02:33

Highest Band Edge

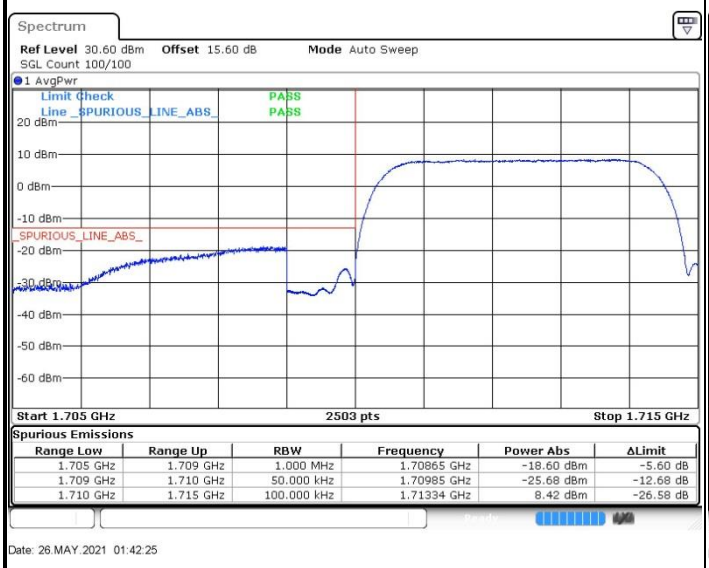


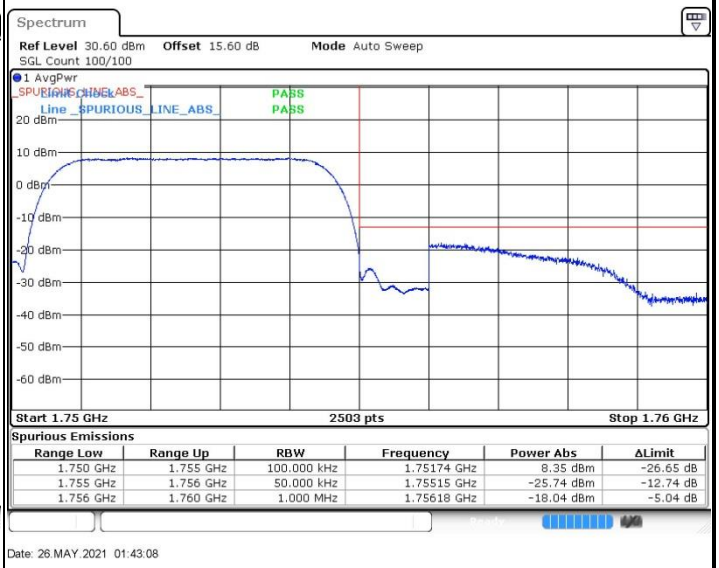
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.905 GHz	1.910 GHz	100.000 kHz	1.90853 GHz	8.27 dBm	-26.73 dB
1.910 GHz	1.911 GHz	50.000 kHz	1.91017 GHz	-26.71 dBm	-13.71 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91101 GHz	-23.69 dBm	-10.69 dB

Date: 26.MAY.2021 03:03:17

WCDMA Band IV (RMC 12.2Kbps)	
Lowest Band Edge	**Highest Band Edge**

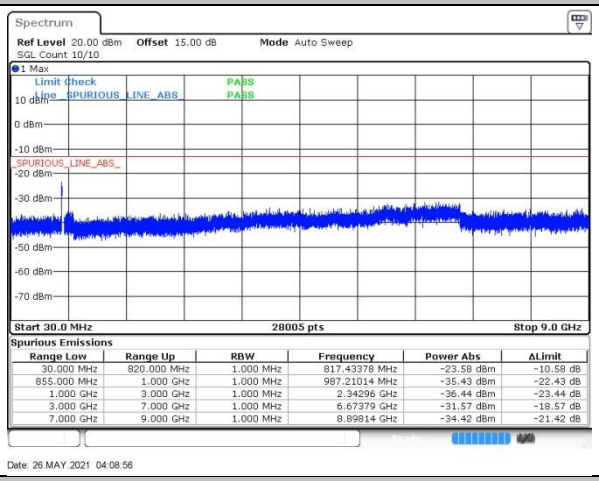




Conducted Spurious Emission

WCDMA Band V (RMC 12.2Kbps)

Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	817.43378 MHz	-23.58 dBm	-10.58 dB
855.000 MHz	1.000 GHz	1.000 MHz	987.21014 MHz	-35.43 dBm	-22.43 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.34296 GHz	-36.44 dBm	-23.44 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.67379 GHz	-31.57 dBm	-18.57 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.89814 GHz	-34.42 dBm	-21.42 dB

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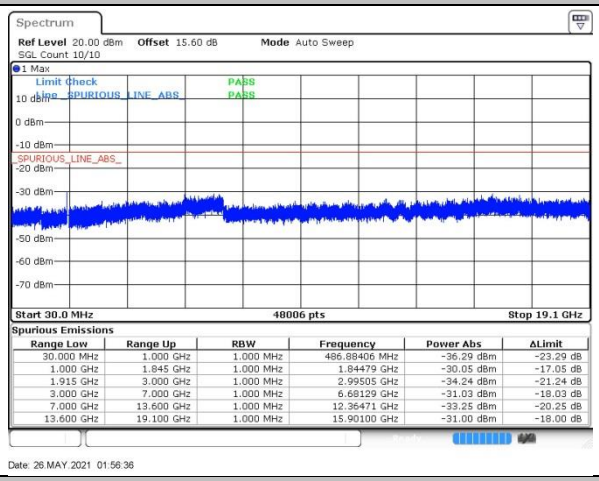
Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	486.88406 MHz	-36.29 dBm	-23.29 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.84479 GHz	-30.05 dBm	-17.05 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.99505 GHz	-34.24 dBm	-21.24 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.68129 GHz	-31.03 dBm	-18.03 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.36471 GHz	-33.25 dBm	-20.25 dB
13.600 GHz	19.100 GHz	1.000 MHz	15.90100 GHz	-31.00 dBm	-18.00 dB

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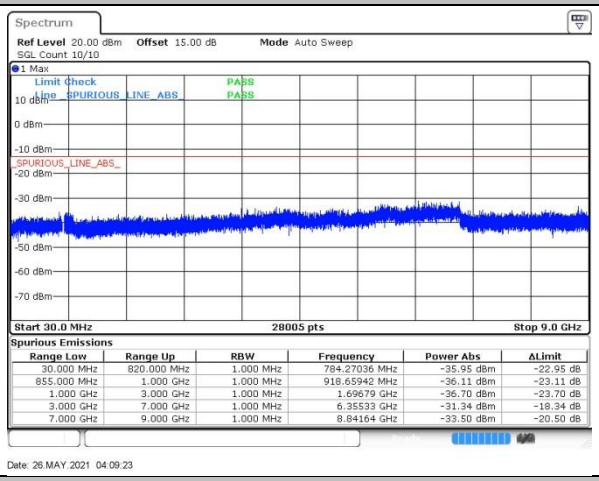
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	784.27036 MHz	-35.95 dBm	-22.95 dB
855.000 MHz	1.000 GHz	1.000 MHz	918.65942 MHz	-36.11 dBm	-23.11 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.69679 GHz	-36.70 dBm	-23.70 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.35533 GHz	-31.34 dBm	-18.34 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.84164 GHz	-33.50 dBm	-20.50 dB

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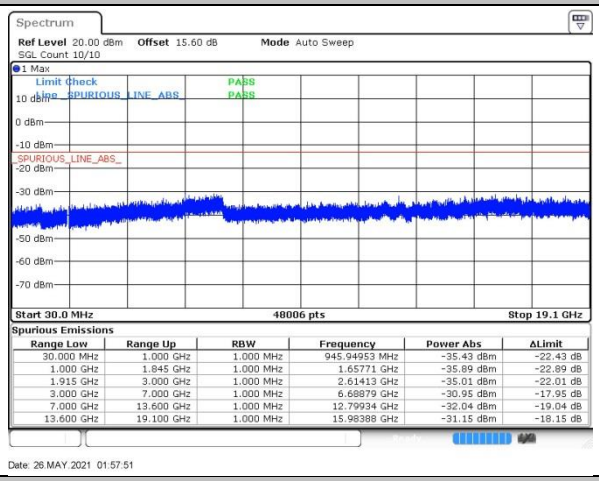
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	945.94953 MHz	-35.43 dBm	-22.43 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.65771 GHz	-35.89 dBm	-22.89 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.61413 GHz	-35.01 dBm	-22.01 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.68879 GHz	-30.95 dBm	-17.95 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.79934 GHz	-32.04 dBm	-19.04 dB
13.600 GHz	19.100 GHz	1.000 MHz	15.98388 GHz	-31.15 dBm	-18.15 dB

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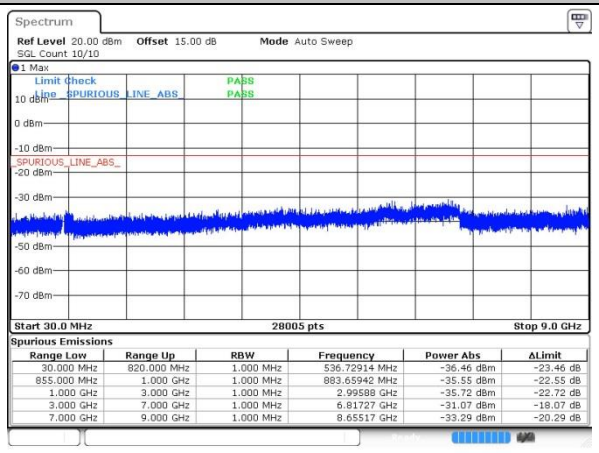
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	536.72914 MHz	-36.46 dBm	-23.46 dB
855.000 MHz	1.000 GHz	1.000 MHz	883.65942 MHz	-35.55 dBm	-22.55 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99588 GHz	-35.72 dBm	-22.72 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.81727 GHz	-31.07 dBm	-18.07 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.65517 GHz	-33.29 dBm	-20.29 dB

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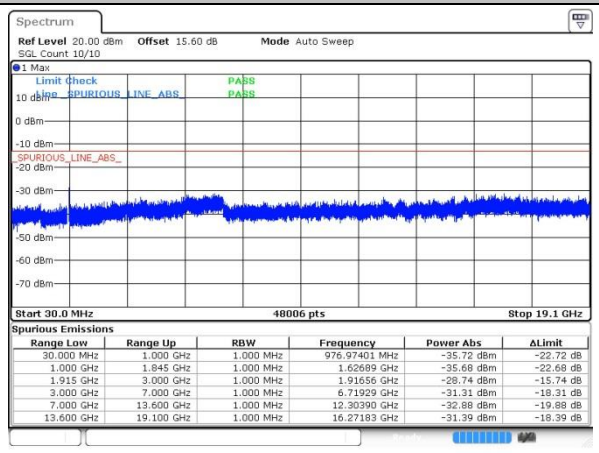
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	976.97401 MHz	-35.72 dBm	-22.72 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.62689 GHz	-35.68 dBm	-22.68 dB
1.915 GHz	3.000 GHz	1.000 MHz	1.91656 GHz	-28.74 dBm	-15.74 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.71929 GHz	-31.31 dBm	-18.31 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.30390 GHz	-32.88 dBm	-19.88 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.27183 GHz	-31.39 dBm	-18.39 dB

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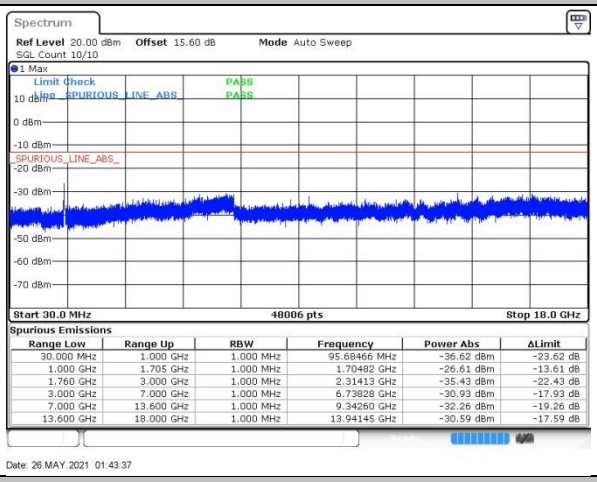
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	95.68466 MHz	-36.62 dBm	-23.62 dB
1.000 GHz	1.705 GHz	1.000 MHz	1.70482 GHz	-26.61 dBm	-13.61 dB
1.760 GHz	3.000 GHz	1.000 MHz	2.31413 GHz	-35.43 dBm	-22.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.73828 GHz	-30.93 dBm	-17.93 dB
7.000 GHz	13.600 GHz	1.000 MHz	9.34260 GHz	-32.26 dBm	-19.26 dB
13.600 GHz	18.000 GHz	1.000 MHz	13.94145 GHz	-30.59 dBm	-17.59 dB

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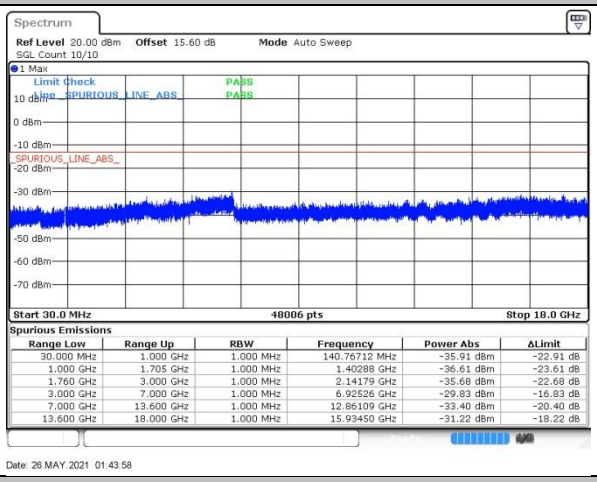
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	140.76712 MHz	-35.91 dBm	-22.91 dB
1.000 GHz	1.705 GHz	1.000 MHz	1.40288 GHz	-36.61 dBm	-23.61 dB
1.760 GHz	3.000 GHz	1.000 MHz	2.14179 GHz	-35.68 dBm	-22.68 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.92526 GHz	-29.83 dBm	-16.83 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.86109 GHz	-33.40 dBm	-20.40 dB
13.600 GHz	18.000 GHz	1.000 MHz	15.93450 GHz	-31.22 dBm	-18.22 dB

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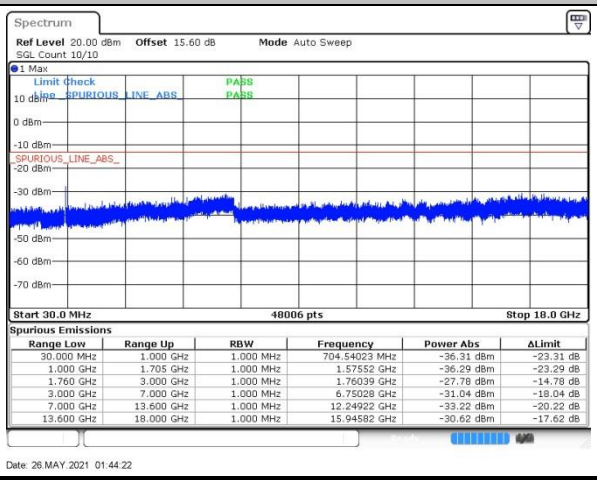
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	704.54023 MHz	-36.31 dBm	-23.31 dB
1.000 GHz	1.705 GHz	1.000 MHz	1.57552 GHz	-36.29 dBm	-23.29 dB
1.760 GHz	3.000 GHz	1.000 MHz	1.76039 GHz	-27.78 dBm	-14.78 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.75028 GHz	-31.04 dBm	-18.04 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.24922 GHz	-33.22 dBm	-20.22 dB
13.600 GHz	18.000 GHz	1.000 MHz	15.94582 GHz	-30.62 dBm	-17.62 dB

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Frequency Stability

Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2Kbps RMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0058	PASS
40	Normal Voltage	0.0377	
30	Normal Voltage	0.0485	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0069	
0	Normal Voltage	0.0344	
-10	Normal Voltage	0.0063	
-20	Normal Voltage	0.0141	
-30	Normal Voltage	0.0325	
20	Maximum Voltage	0.0418	
20	Normal Voltage	0.0176	
20	Battery End Point	0.0063	

Note: Normal Voltage = 7.74V. ；Battery End Point (BEP) =6.9 V.；Maximum Voltage =8.9V

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0169	PASS
40	Normal Voltage	0.0136	
30	Normal Voltage	0.0144	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0155	
0	Normal Voltage	0.0136	
-10	Normal Voltage	0.0247	
-20	Normal Voltage	0.0072	
-30	Normal Voltage	0.0169	
20	Maximum Voltage	0.0162	
20	Normal Voltage	0.0128	
20	Battery End Point	0.0019	

Note:

1. Normal Voltage = 7.74V. ；Battery End Point (BEP) =6.9 V.；Maximum Voltage =8.9V
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	0.0048	PASS
40	Normal Voltage	0.0146	
30	Normal Voltage	0.0003	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0017	
0	Normal Voltage	0.0044	
-10	Normal Voltage	0.0172	
-20	Normal Voltage	0.0163	
-30	Normal Voltage	0.0061	
20	Maximum Voltage	0.0028	
20	Normal Voltage	0.0029	
20	Battery End Point	0.0118	

Note:

1. Normal Voltage = 7.74V. ；Battery End Point (BEP) =6.9 V.；Maximum Voltage =8.9V

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

ANT 1:

Pre-scanned harmonic for RSE testing, we choice worse case of antenna combination to full test.

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)
Middle	1672	-59.43	-13	-46.43	-66.40	1.58	10.70	H
	2510	-50.01	-13	-37.01	-58.26	2.10	12.50	H
	3348	-56.44	-13	-43.44	-65.33	2.86	13.90	H
	1672	-58.93	-13	-45.93	-65.90	1.58	10.70	V
	2510	-53.98	-13	-40.98	-62.23	2.10	12.50	V
	3348	-56.58	-13	-43.58	-65.47	2.86	13.90	V

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

GSM850 (EDGE 1 Tx slots)								
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	1672	-57.45	-13	-44.45	-64.42	1.58	10.70	H
	2510	-52.51	-13	-39.51	-60.76	2.10	12.50	H
	3348	-54.21	-13	-41.21	-63.10	2.86	13.90	H
	1672	-59.11	-13	-46.11	-66.08	1.58	10.70	V
	2510	-55.18	-13	-42.18	-63.43	2.10	12.50	V
	3348	-56.03	-13	-43.03	-64.92	2.86	13.90	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)
Middle	1674	-60.74	-13	-47.74	-67.71	1.58	10.70	H
	2510	-57.51	-13	-44.51	-65.76	2.10	12.50	H
	3348	-57.15	-13	-44.15	-66.04	2.86	13.90	H
	1674	-60.70	-13	-47.70	-67.67	1.58	10.70	V
	2510	-55.68	-13	-42.68	-63.93	2.10	12.50	V
	3348	-57.12	-13	-44.12	-66.01	2.86	13.90	V

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

ANT 2:

GSM1900 (GSM)								
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	3759	-57.19	-13	-44.19	-69.45	2.64	14.90	H
	5640	-54.34	-13	-41.34	-66.20	2.94	14.80	H
	7524	-53.39	-13	-40.39	-63.16	3.39	13.16	H
	3759	-56.97	-13	-43.97	-69.23	2.64	14.90	V
	5640	-55.02	-13	-42.02	-66.88	2.94	14.80	V
	7524	-53.29	-13	-40.29	-63.06	3.39	13.16	V

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

GSM1900 (EDGE 1 Tx slots)								
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	3759	-57.15	-13	-44.15	-69.41	2.64	14.90	H
	5640	-54.89	-13	-41.89	-66.75	2.94	14.80	H
	7524	-53.27	-13	-40.27	-63.04	3.39	13.16	H
	3759	-56.52	-13	-43.52	-68.78	2.64	14.90	V
	5640	-54.93	-13	-41.93	-66.79	2.94	14.80	V
	7524	-53.10	-13	-40.10	-62.87	3.39	13.16	V

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

WCDMA Band II(RMC 12.2Kbps)								
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	3759	-56.71	-13	-43.71	-68.97	2.64	14.90	H
	5640	-55.32	-13	-42.32	-67.18	2.94	14.80	H
	7524	-53.50	-13	-40.50	-63.27	3.39	13.16	H
	3759	-56.55	-13	-43.55	-68.81	2.64	14.90	V
	5640	-56.03	-13	-43.03	-67.89	2.94	14.80	V
	7524	-53.19	-13	-40.19	-62.96	3.39	13.16	V

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

WCDMA Band IV(RMC 12.2Kbps)								
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	3468	-56.61	-13	-43.61	-67.35	2.604	13.34	H
	5199	-54.40	-13	-41.40	-64.91	3.011	13.52	H
	6936	-55.19	-13	-42.19	-65.39	3.271	13.47	H
	3465	-57.68	-13	-44.68	-68.42	2.604	13.34	V
	5196	-54.72	-13	-41.72	-65.23	3.011	13.52	V
	6936	-55.29	-13	-42.29	-65.49	3.271	13.47	V

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