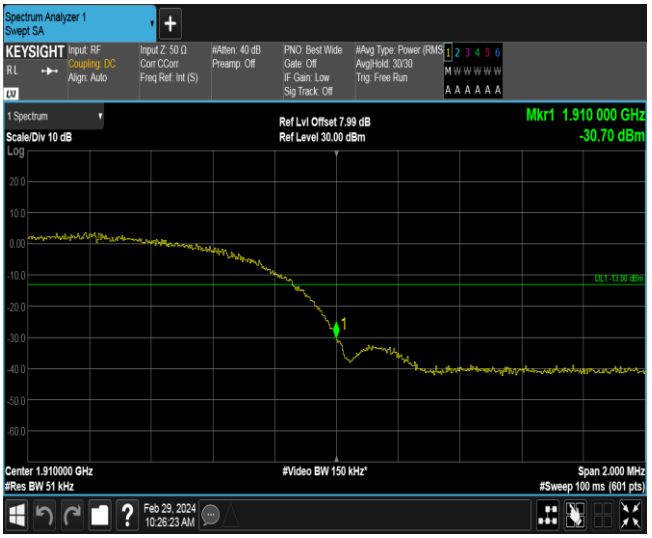
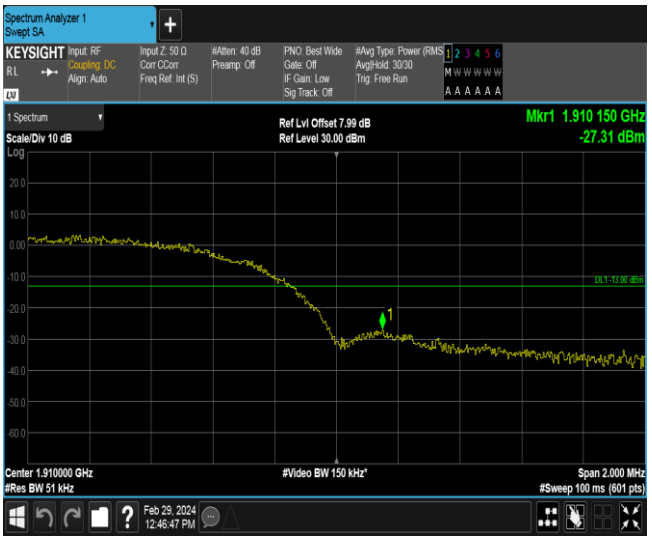
WCDMA1900_HSDPA_ Lowes Channel	WCDMA1900_ HSDPA _ Highest Channel
	
WCDMA1900_HSUPA_ Lowes Channel	**WCDMA1900_ HSUPA _ Highest Channel**
	

12. Spurious Emissions at Antenna Terminal

12.1 Provisions Applicable

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

12.2 Measurement Procedure

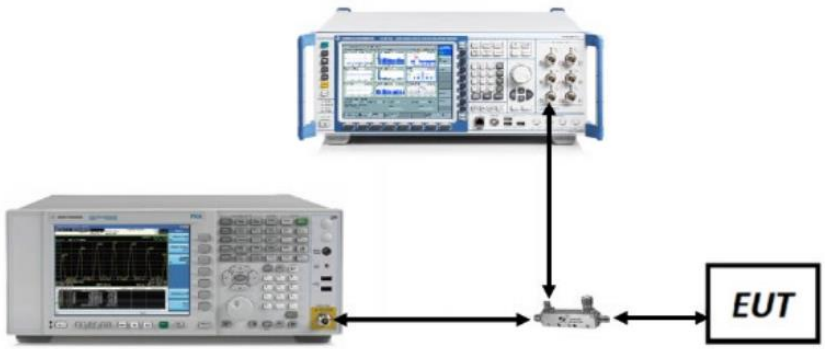
■ **Test Settings (GSM)**

1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = Peak
4. Trace Mode = max hold
5. Sweep time = auto
6. Number of points in sweep ≥ 2 x Span / RBW

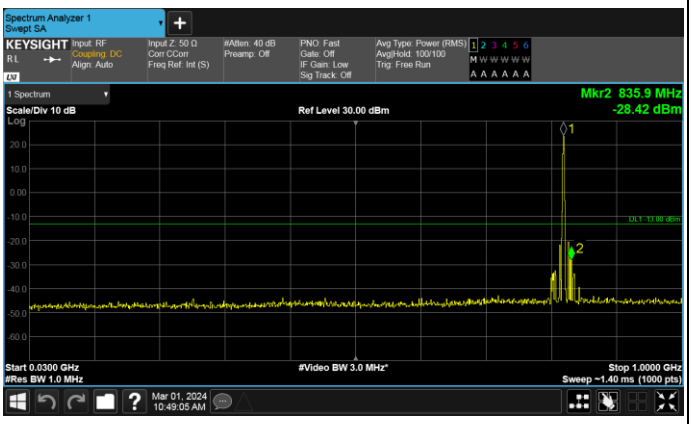
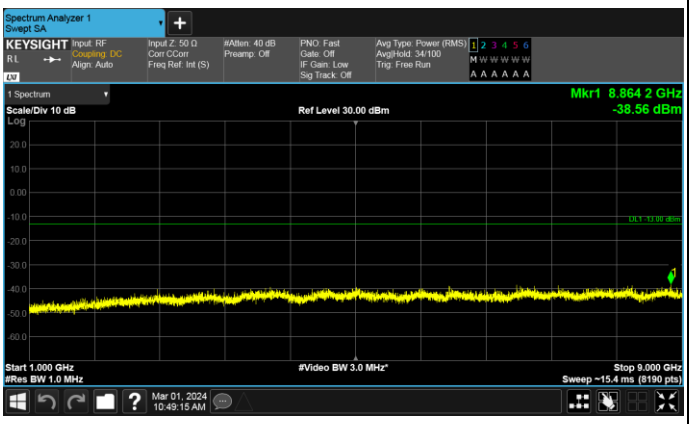
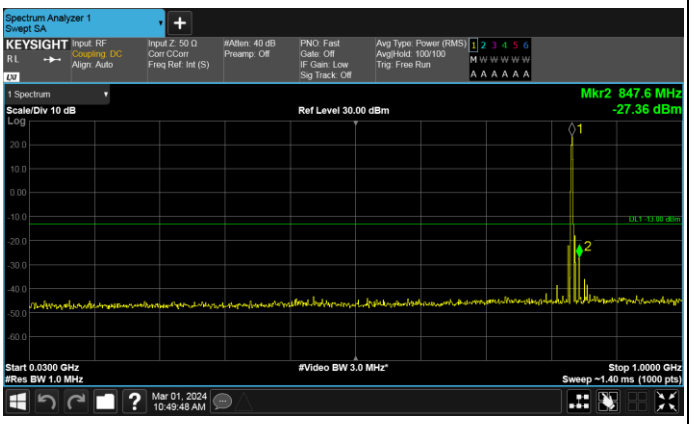
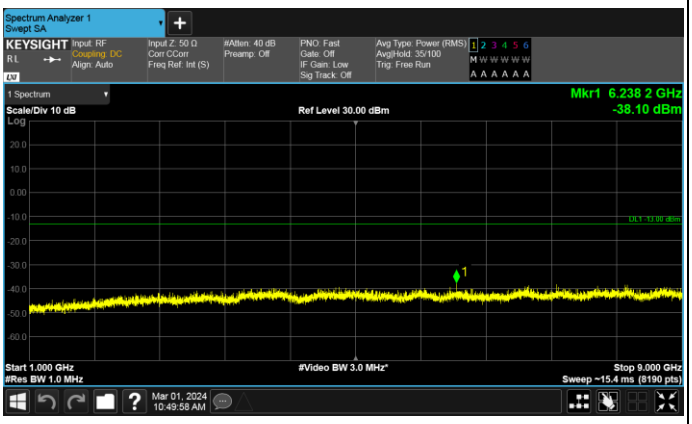
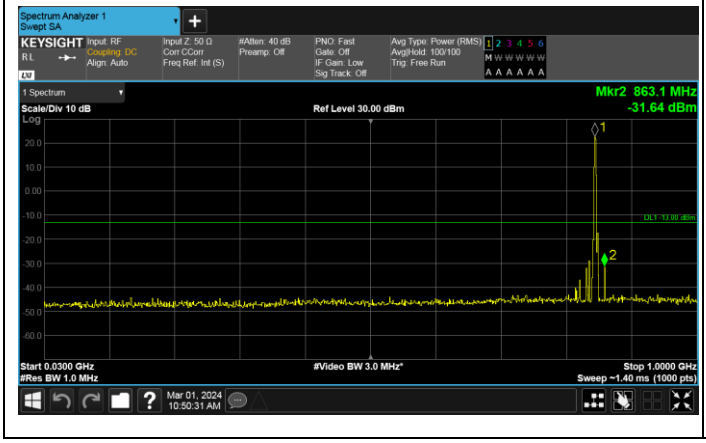
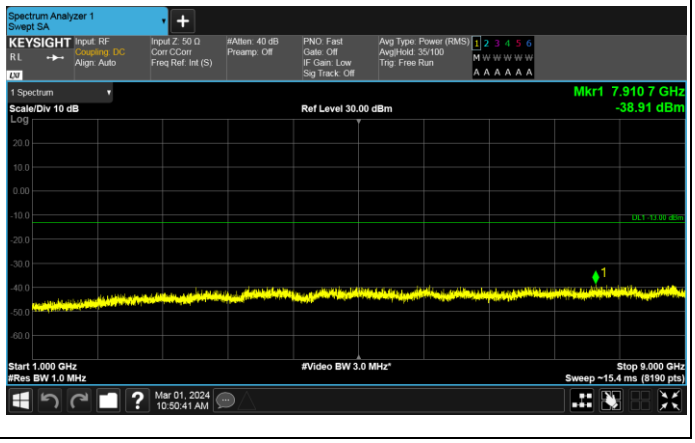
■ **Test Settings (WCDMA)**

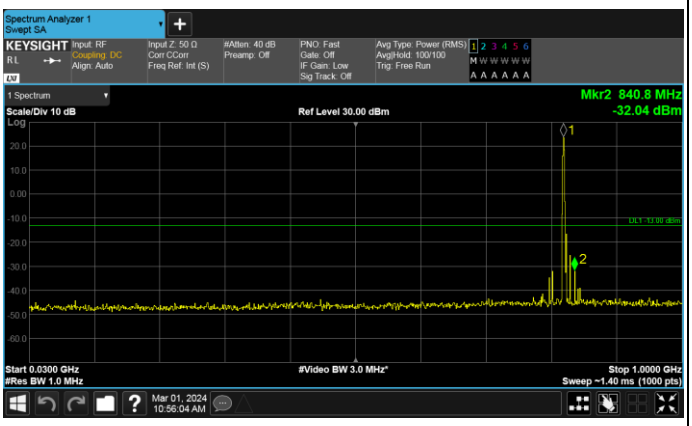
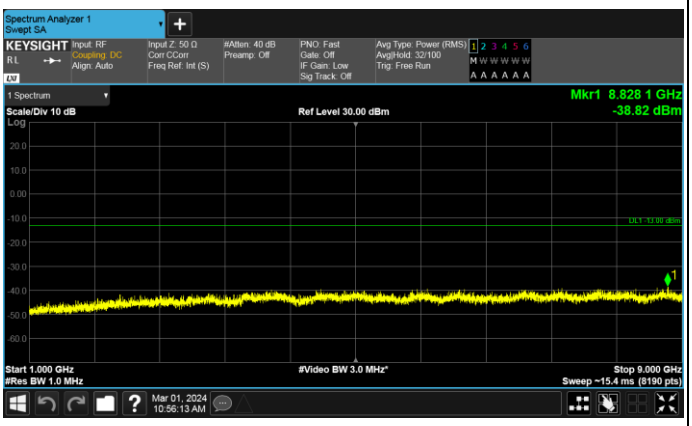
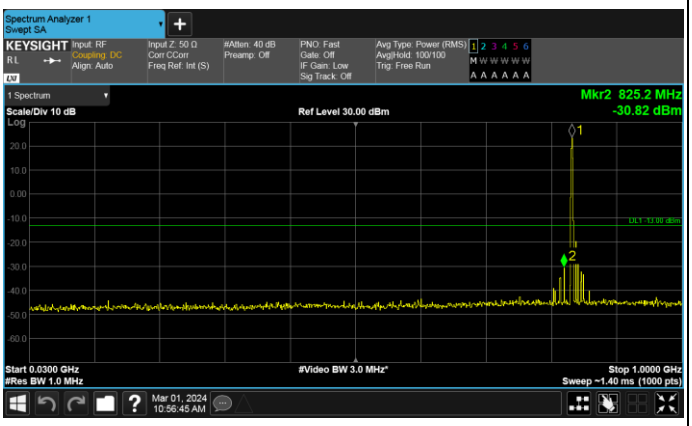
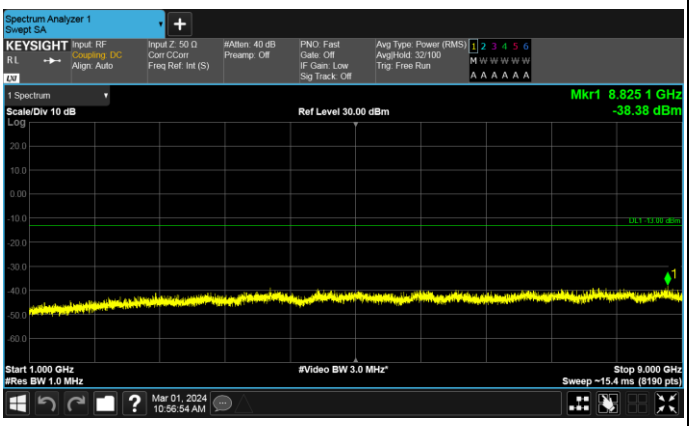
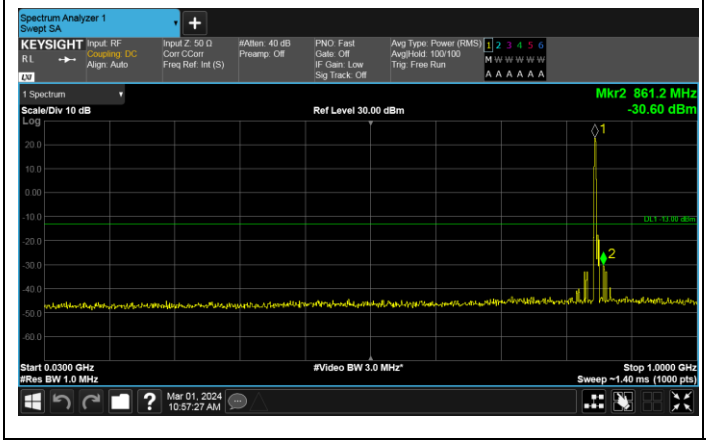
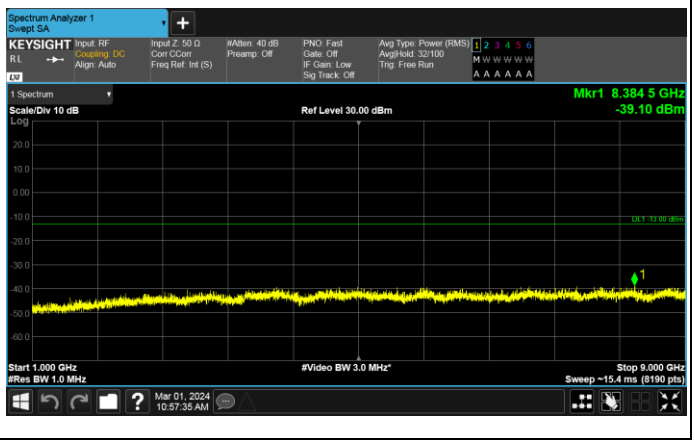
1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = RMS
4. Trace Mode = trace average
5. Sweep time = auto
6. Number of points in sweep ≥ 2 x Span / RBW

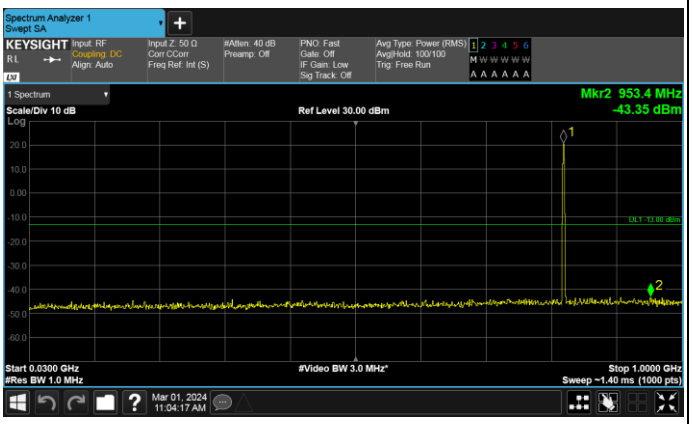
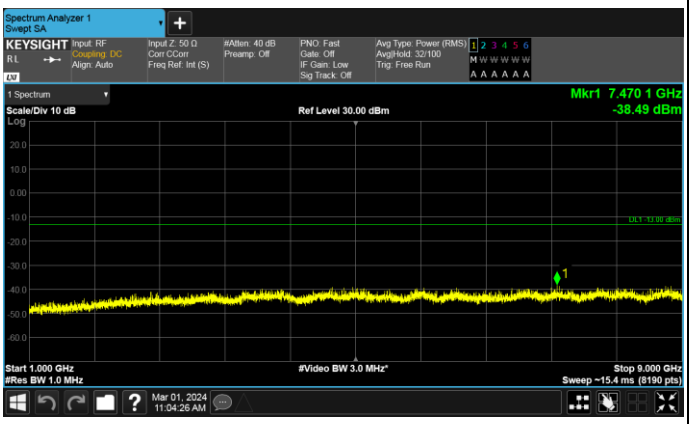
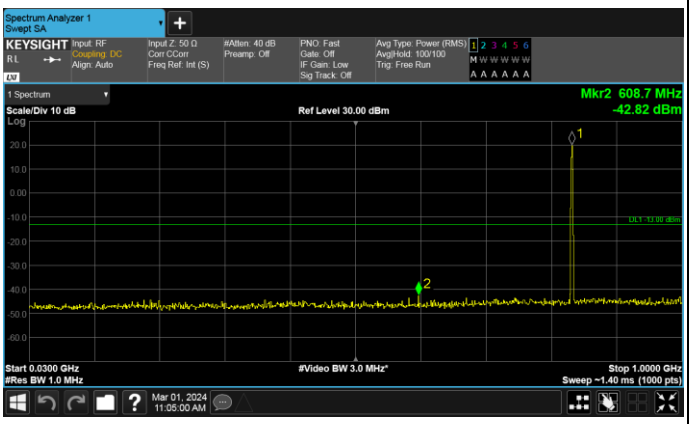
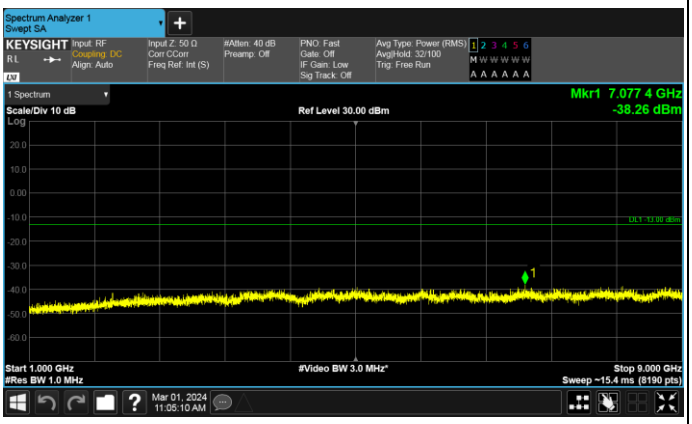
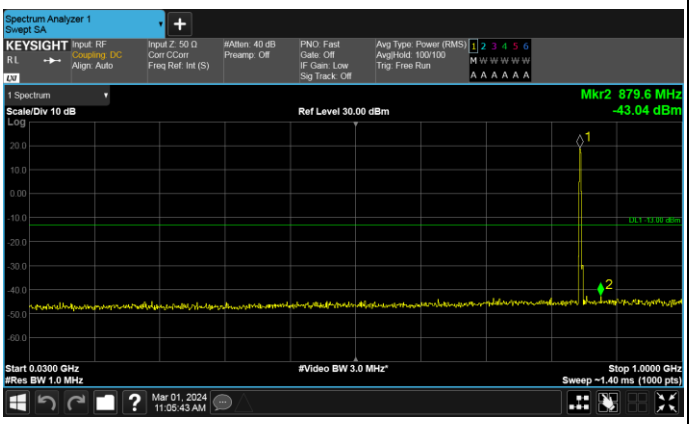
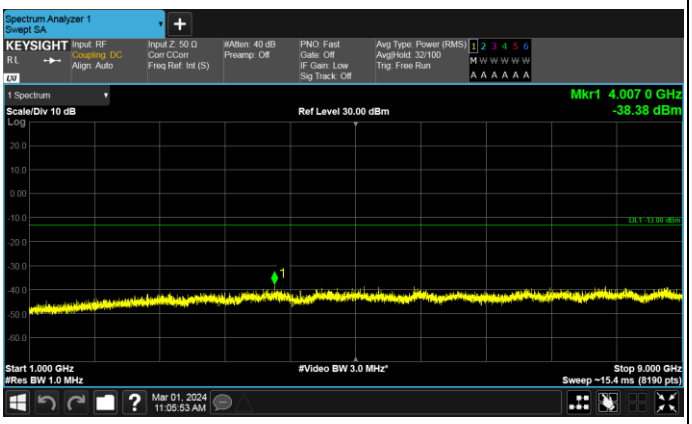
12.3 Measurement Setup

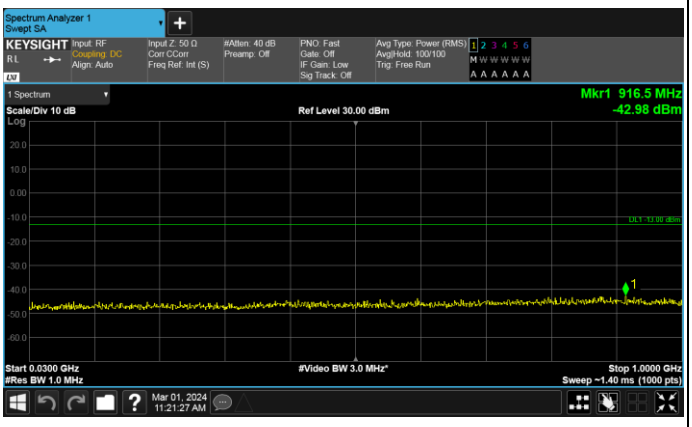
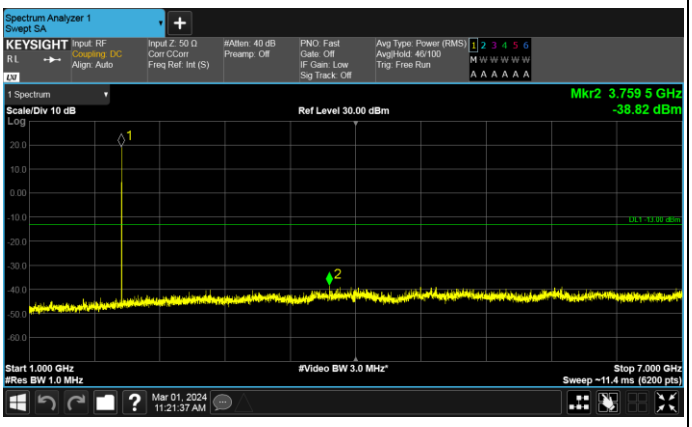
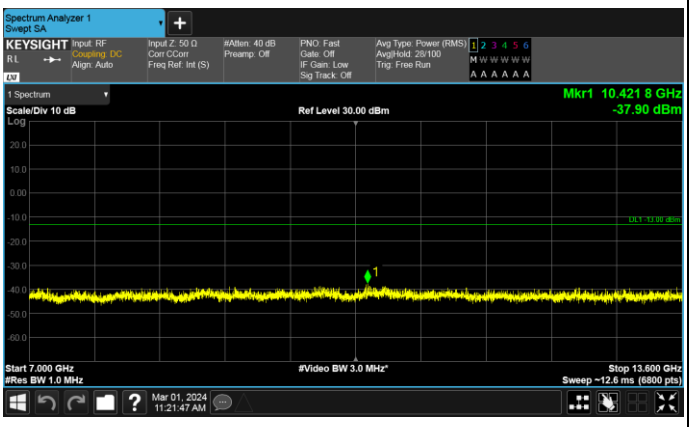
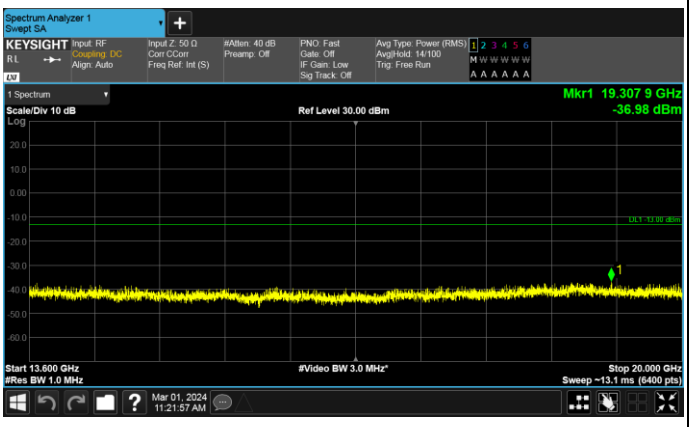
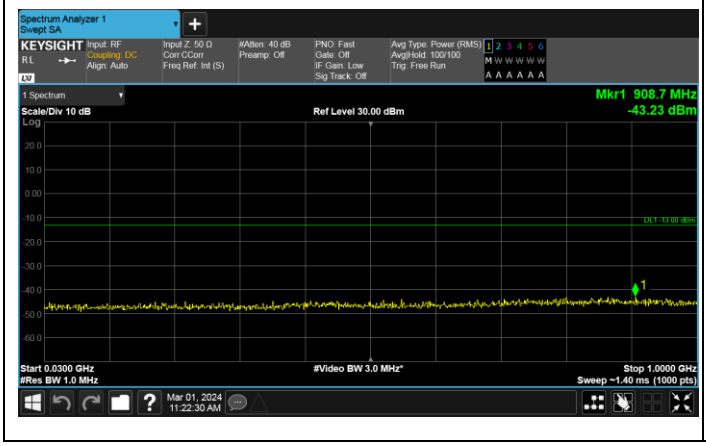
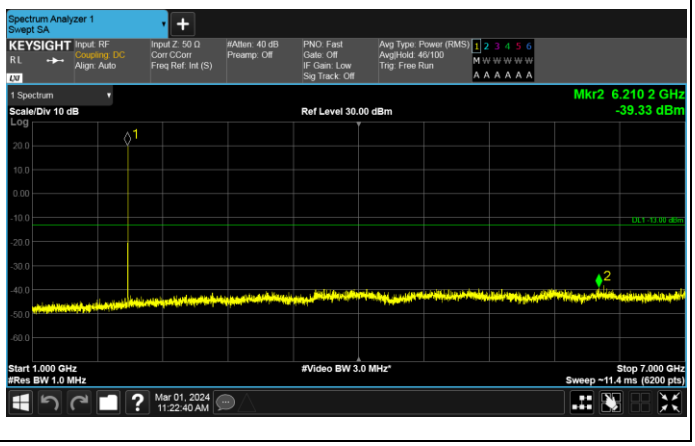


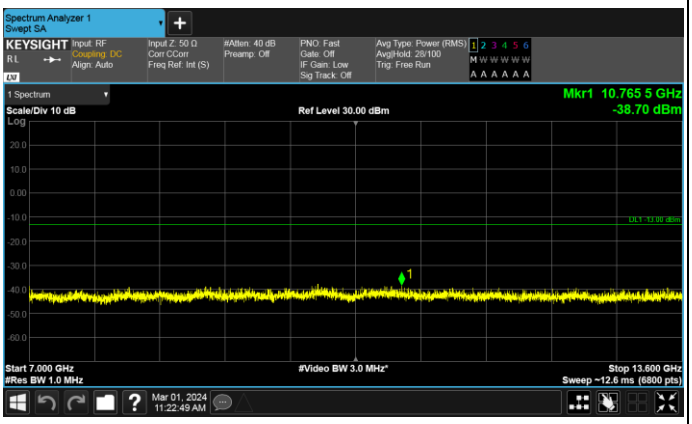
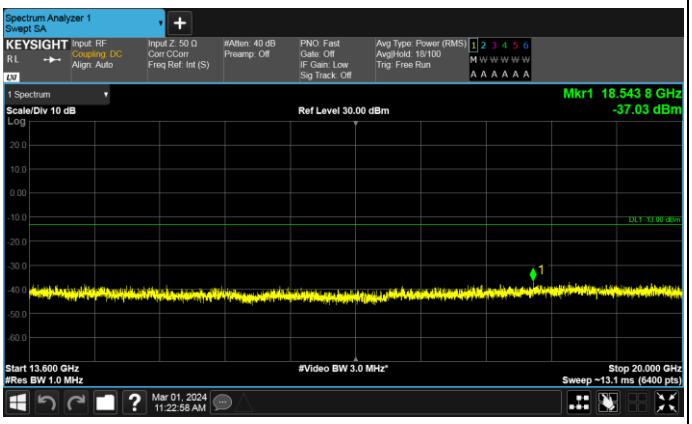
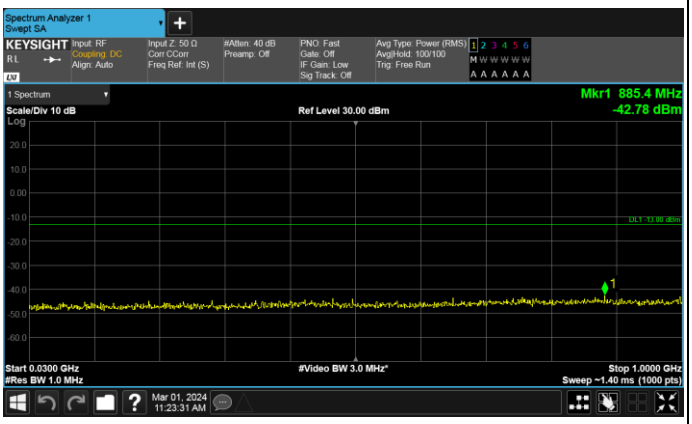
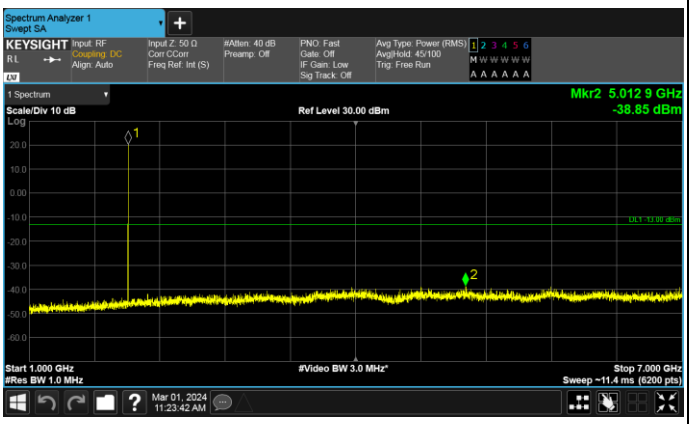
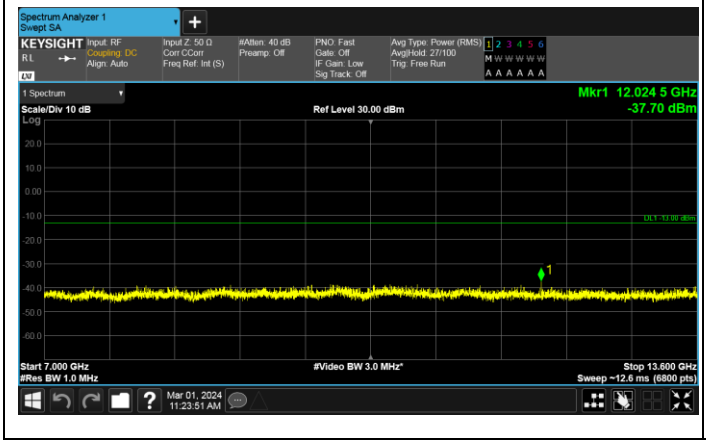
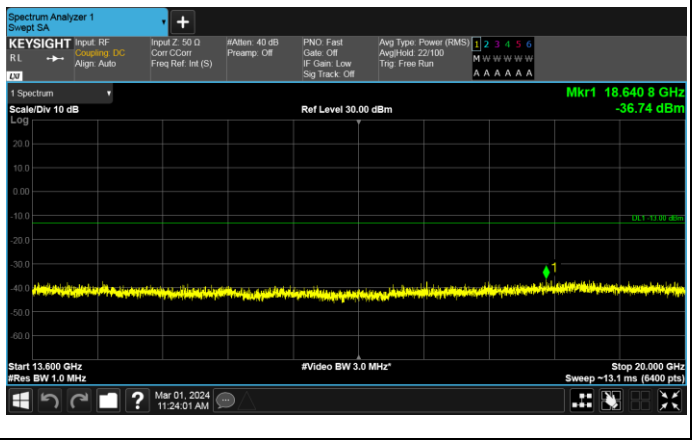
12.4 Measurement Result

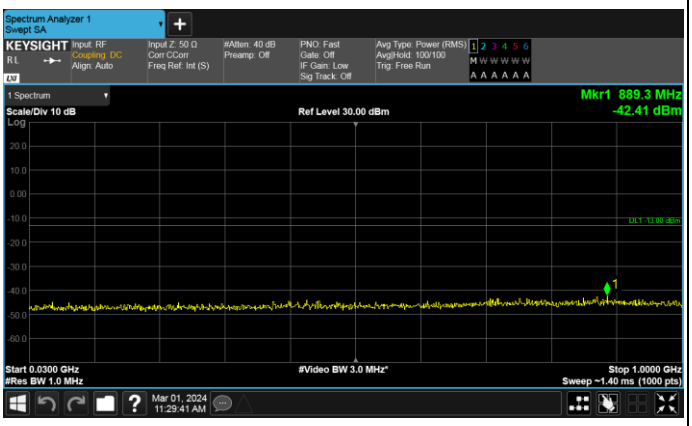
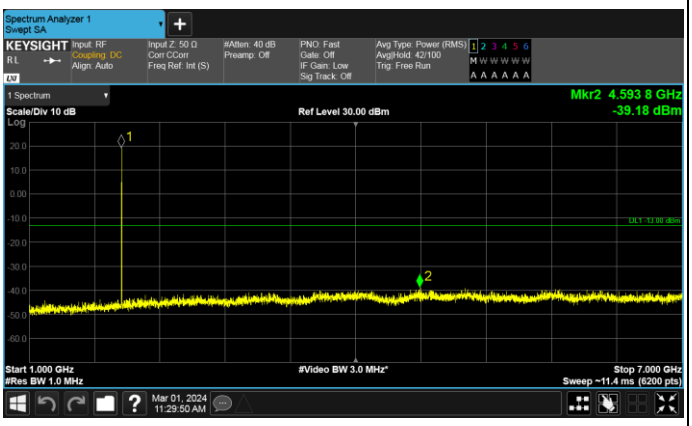
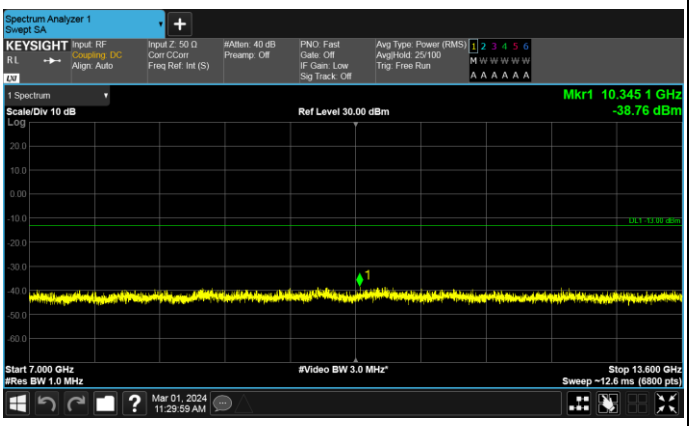
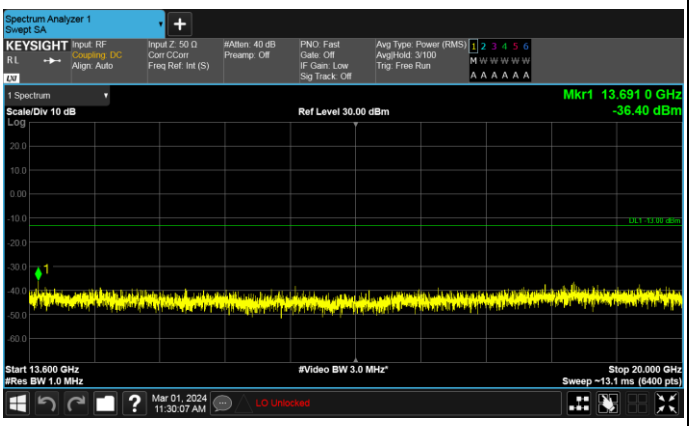
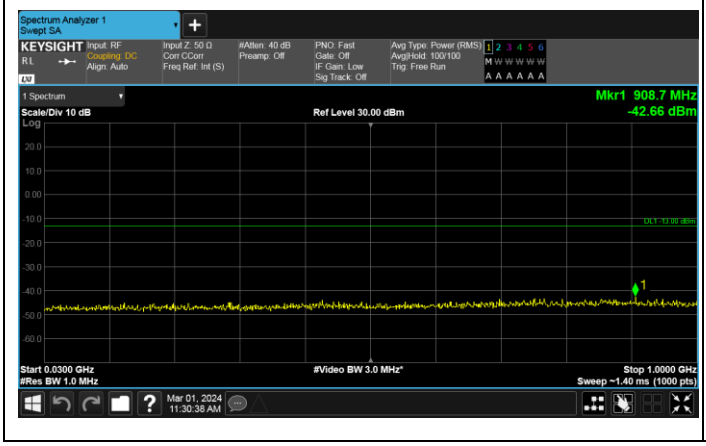
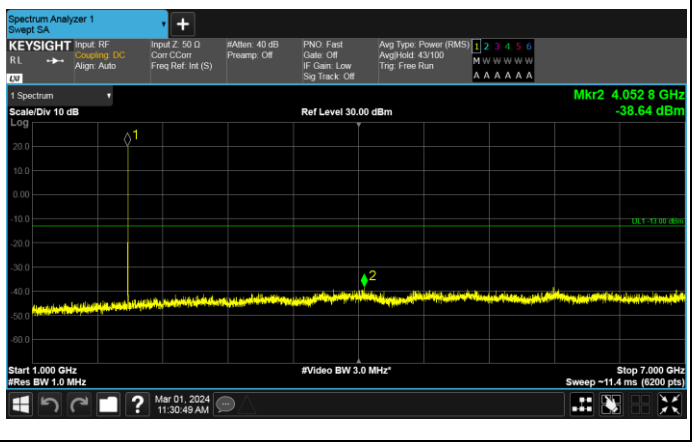
GSM 850_LCH_GSM	GSM 850_LCH_GSM
	
GSM 850_MCH_GSM	GSM 850_MCH_GSM
	
GSM 850_HCH_GSM	GSM 850_HCH_GSM
	

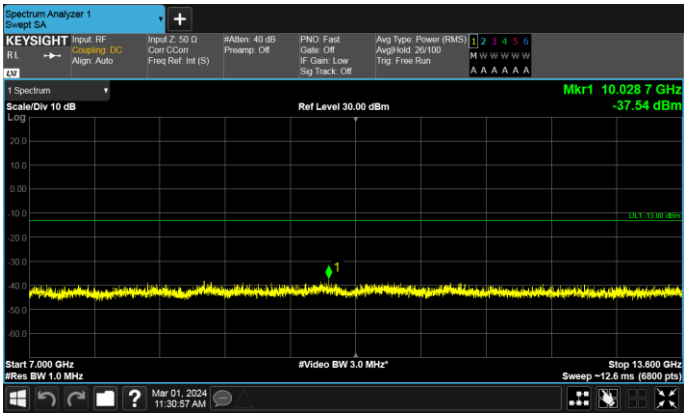
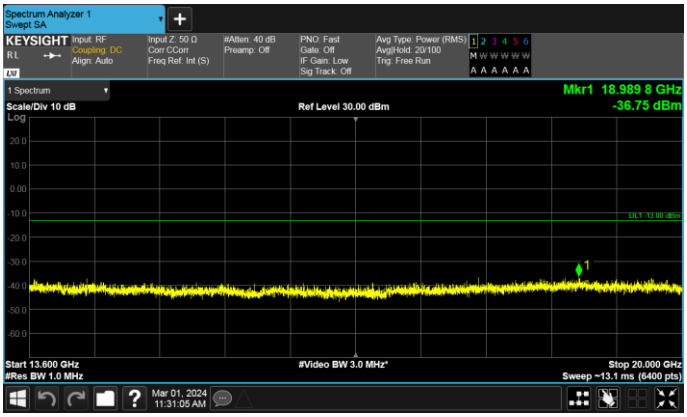
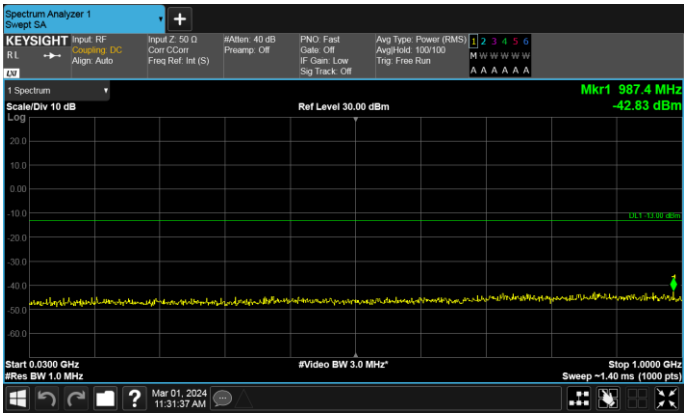
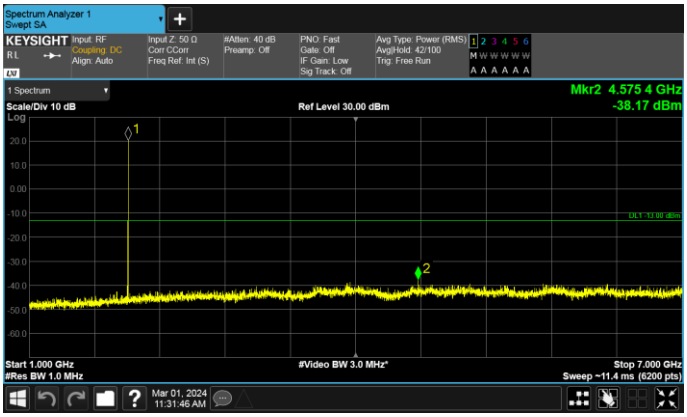
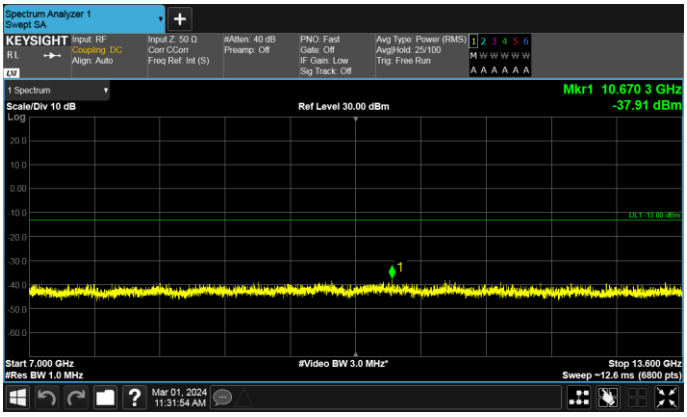
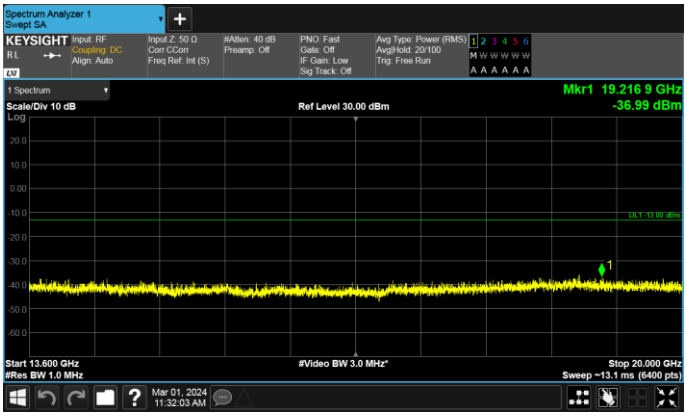
GSM 850_LCH_GPRS	GSM 850_LCH_GPRS
	
GSM 850_MCH_GPRS	GSM 850_MCH_GPRS
	
GSM 850_HCH_GPRS	GSM 850_HCH_GPRS
	

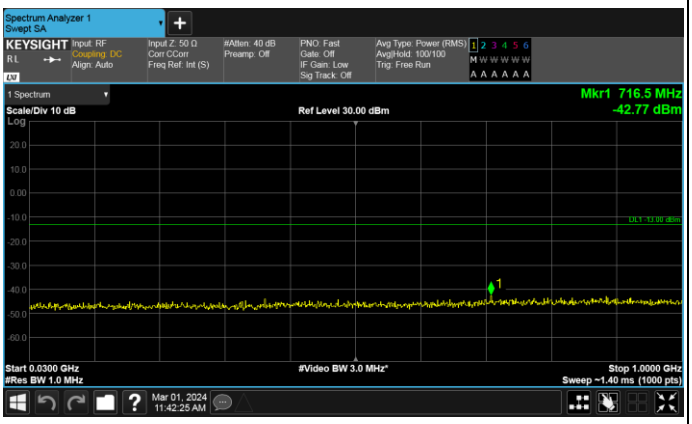
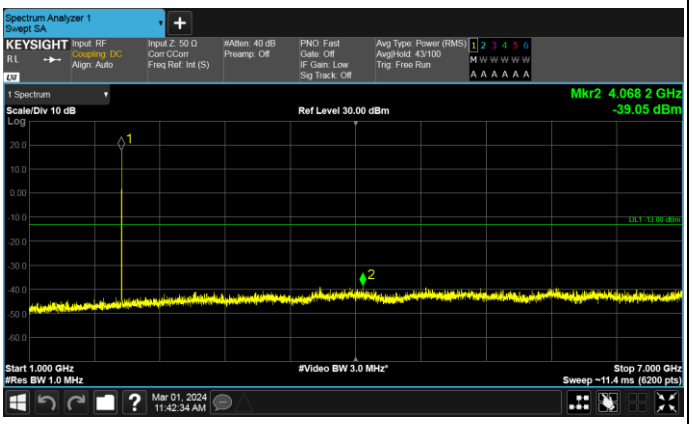
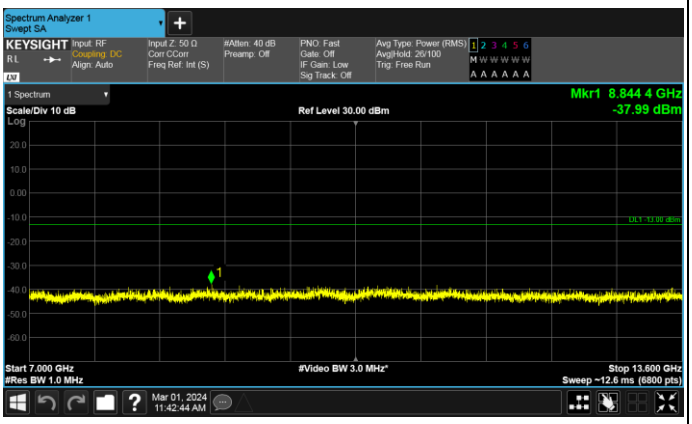
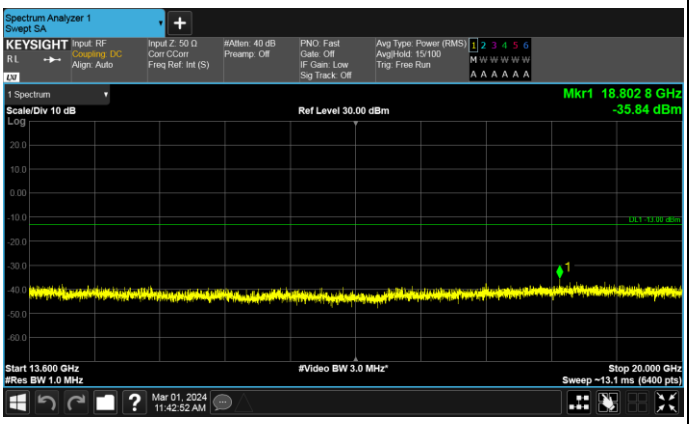
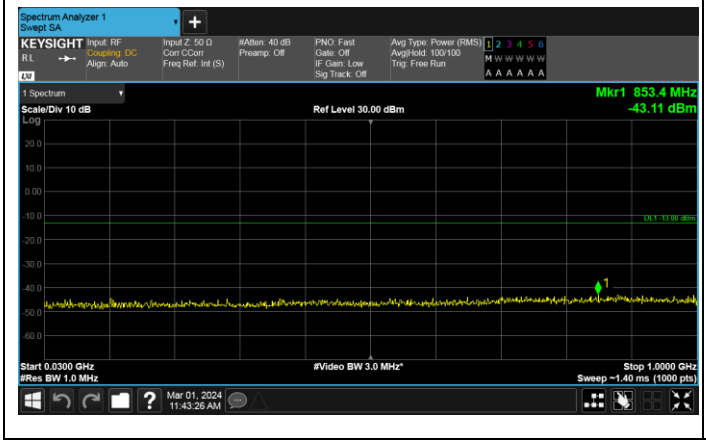
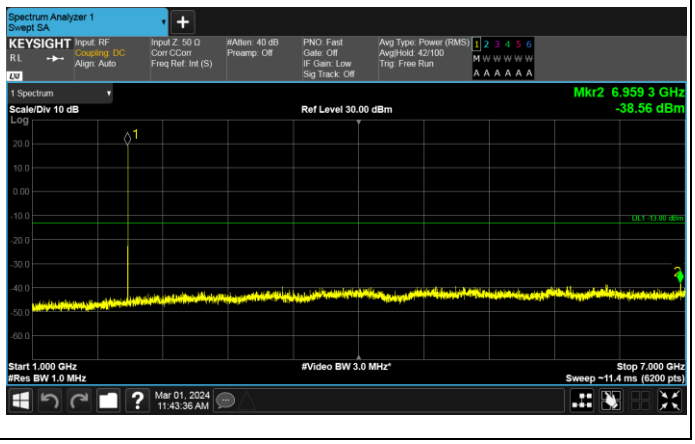
GSM 850_LCH_EDGE	GSM 850_LCH_EDGE
	
GSM 850_MCH_EDGE	GSM 850_MCH_EDGE
	
GSM 850_HCH_EDGE	GSM 850_HCH_EDGE
	

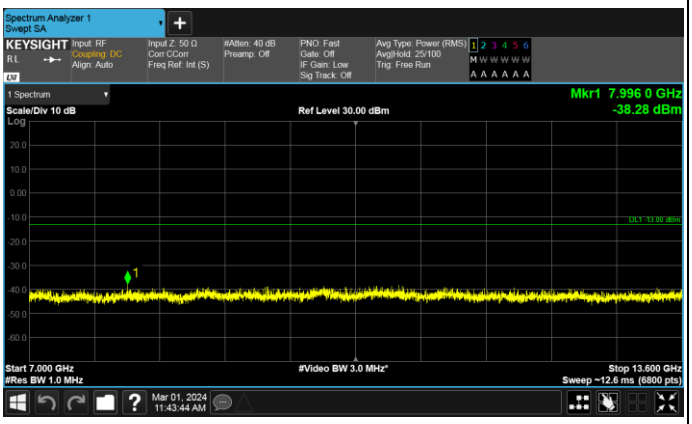
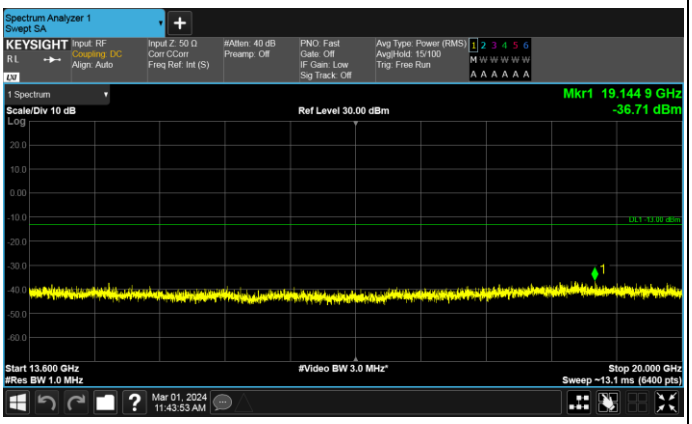
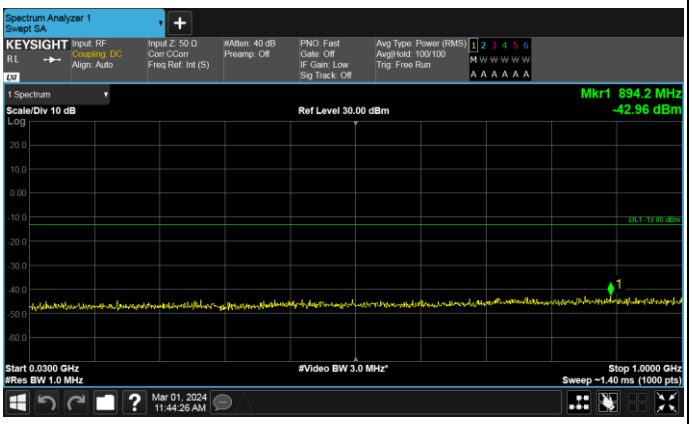
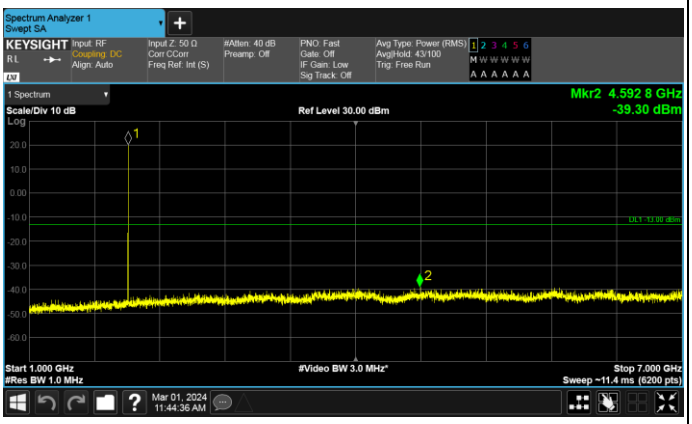
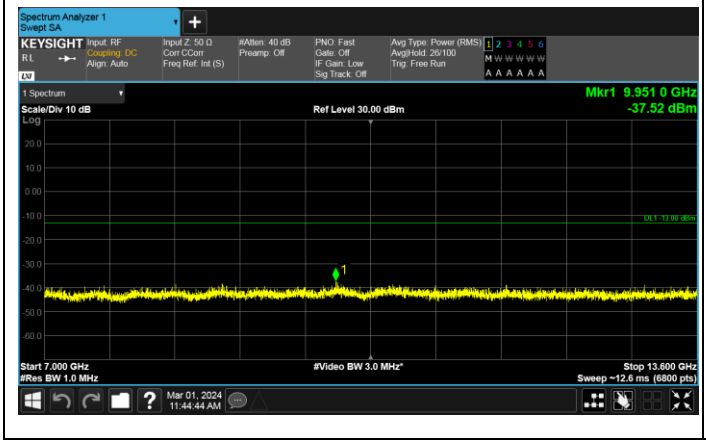
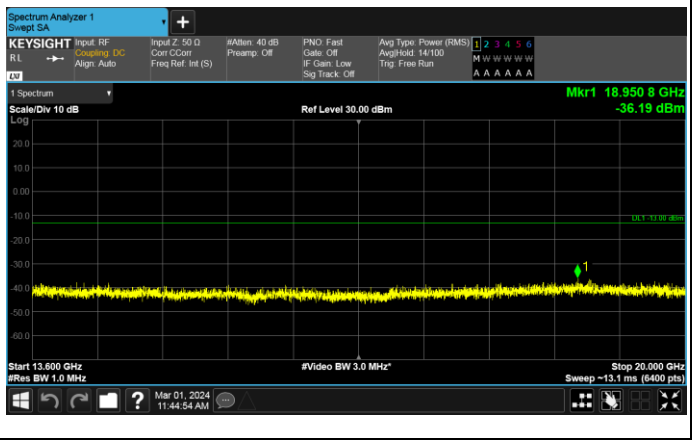
PCS 1900_LCH_GSM	PCS 1900_LCH_GSM
	
PCS 1900_LCH_GSM	PCS 1900_LCH_GSM
	
PCS 1900_MCH_GSM	PCS 1900_MCH_GSM
	

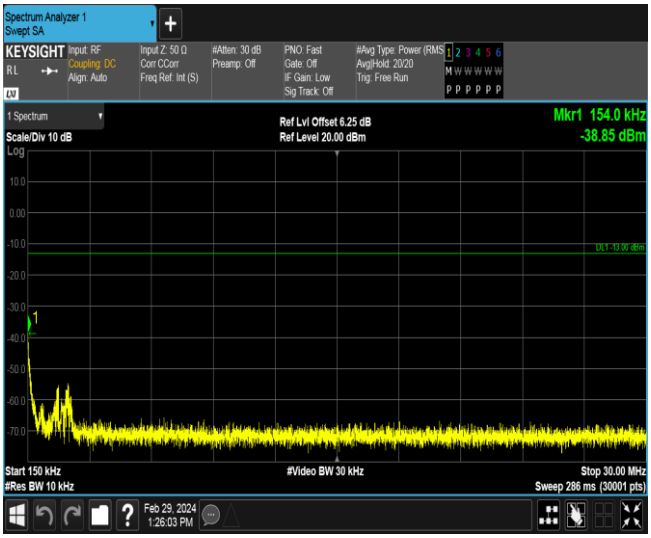
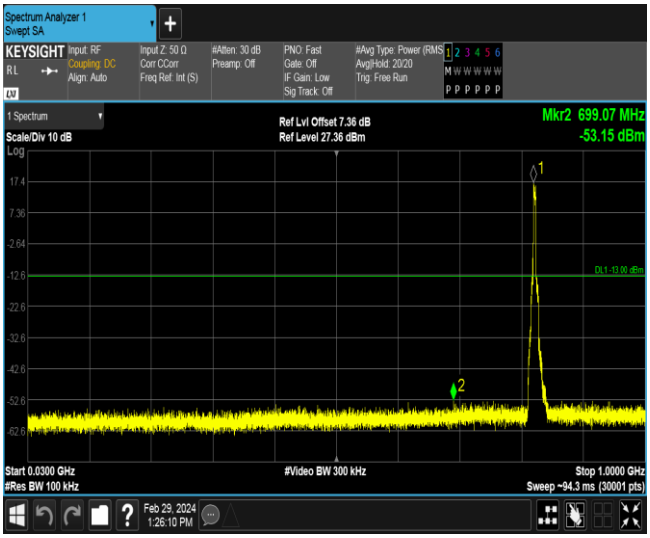
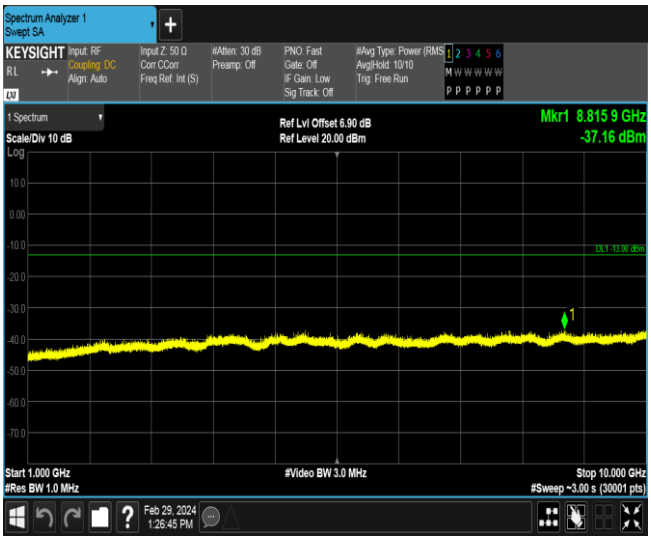
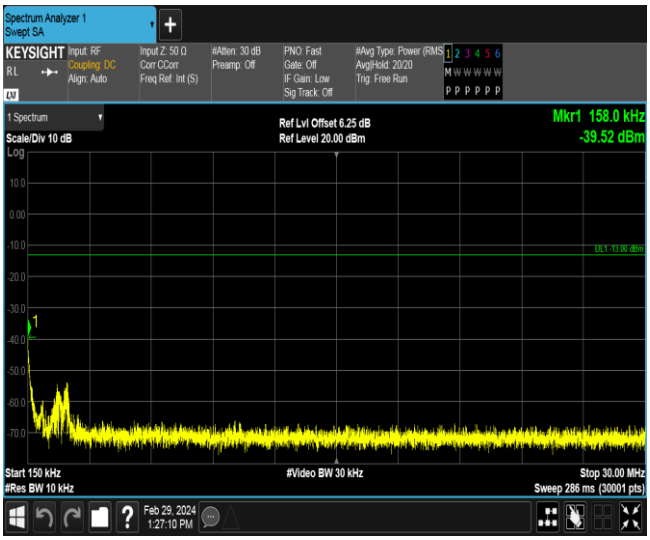
PCS 1900_MCH_GSM	PCS 1900_MCH_GSM
	
PCS 1900_HCH_GSM	PCS 1900_HCH_GSM
	
PCS 1900_HCH_GSM	PCS 1900_HCH_GSM
	

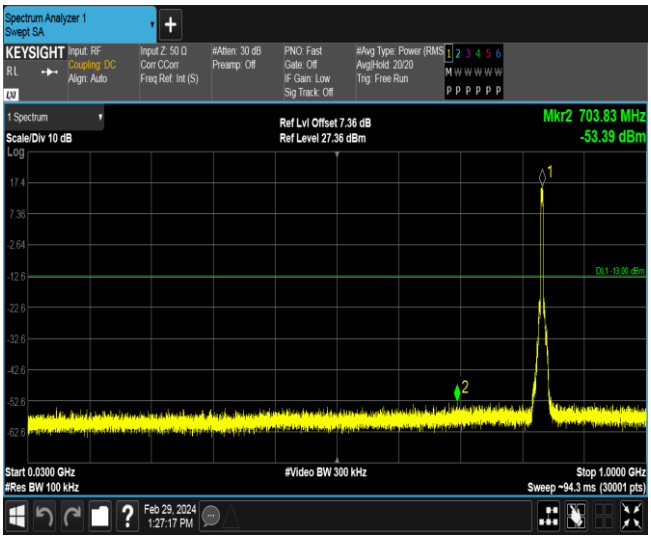
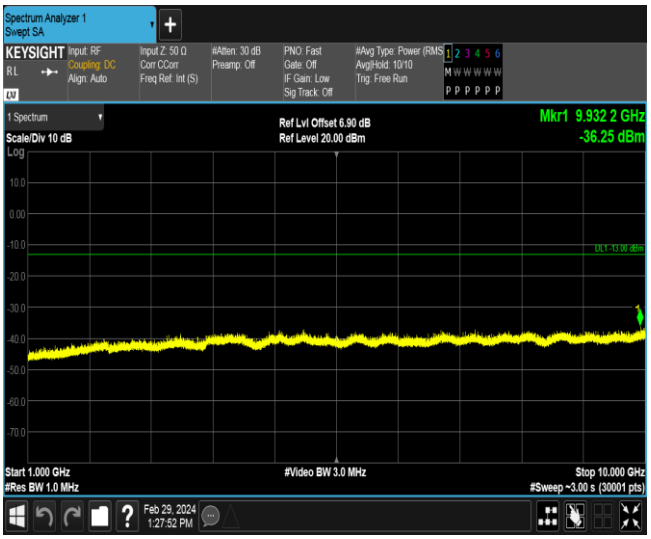
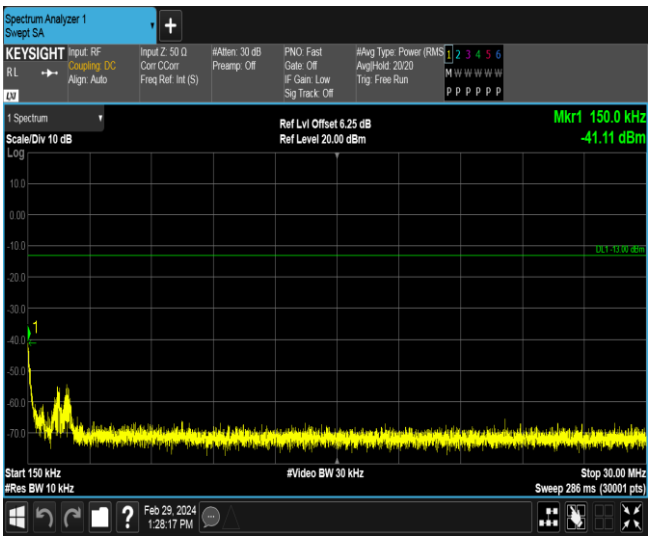
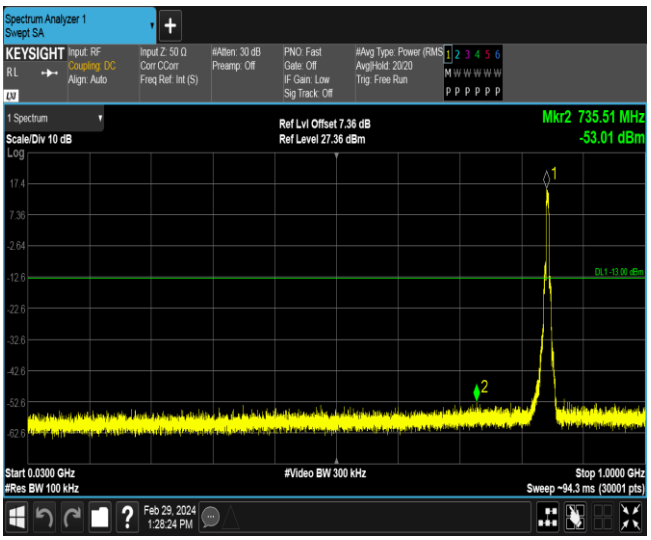
PCS 1900_LCH_GPRS	PCS 1900_LCH_GPRS
	
PCS 1900_LCH_GPRS	PCS 1900_LCH_GPRS
	
PCS 1900_MCH_GPRS	PCS 1900_MCH_GPRS
	

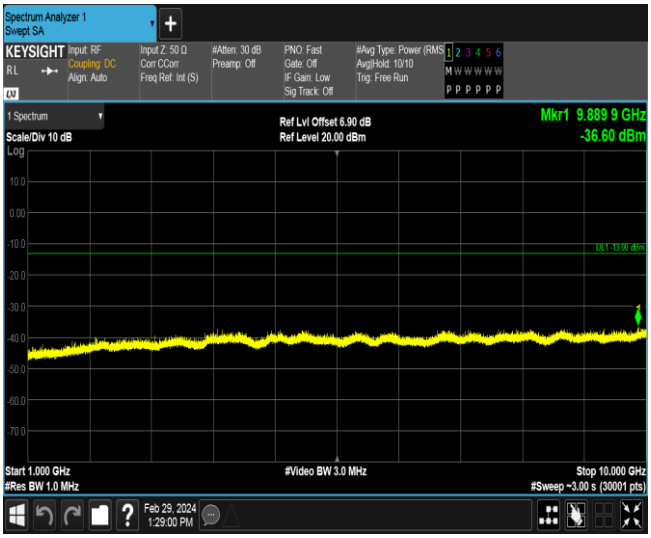
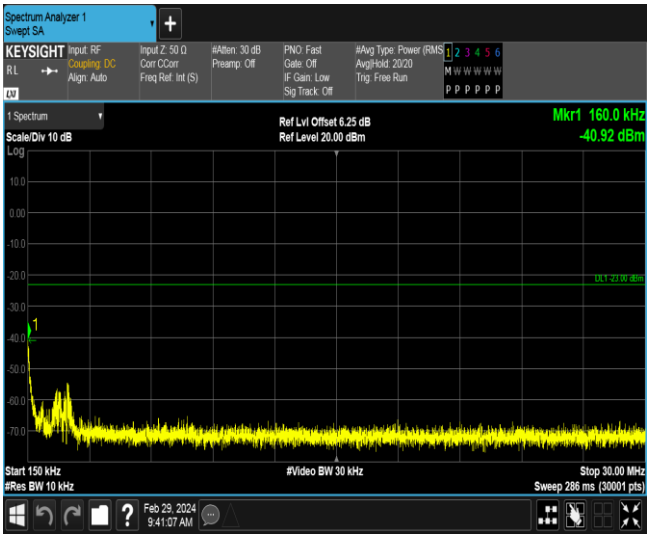
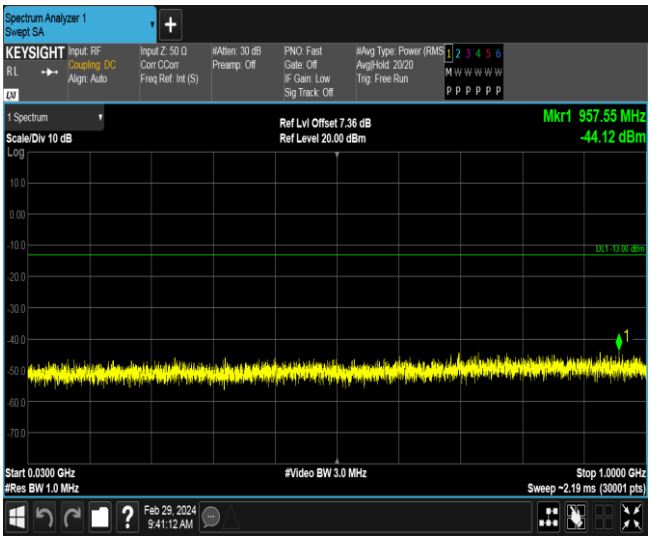
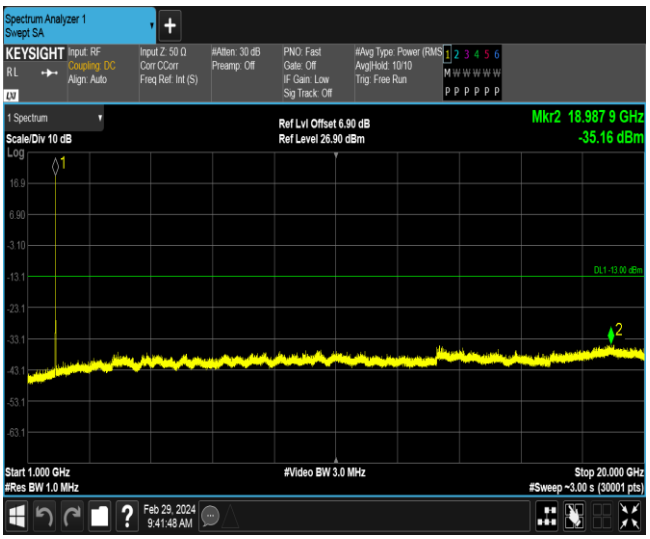
PCS 1900_MCH_GPRS	PCS 1900_MCH_GPRS
	
PCS 1900_HCH_GPRS	**PCS 1900_HCH_GPRS**
	
PCS 1900_HCH_GPRS	**PCS 1900_HCH_GPRS**
	

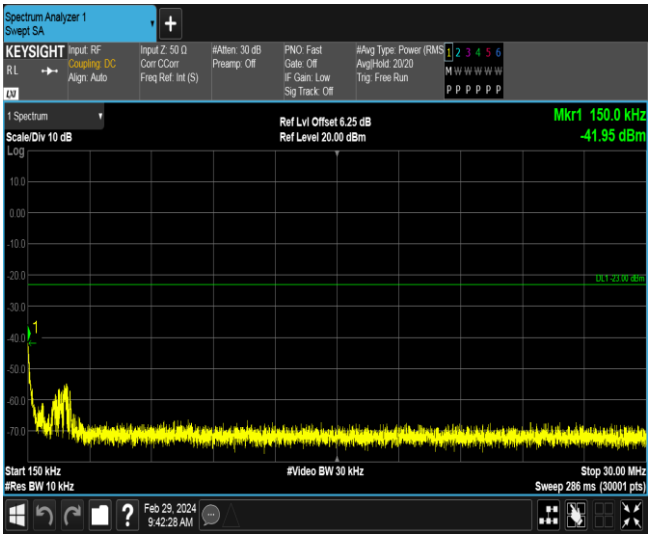
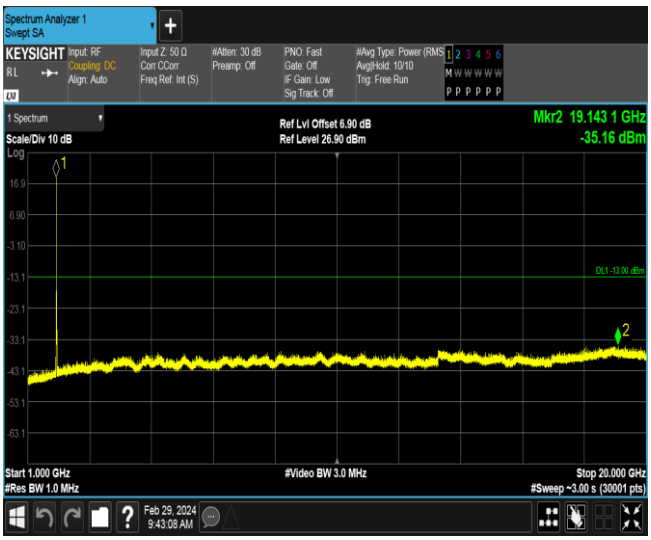
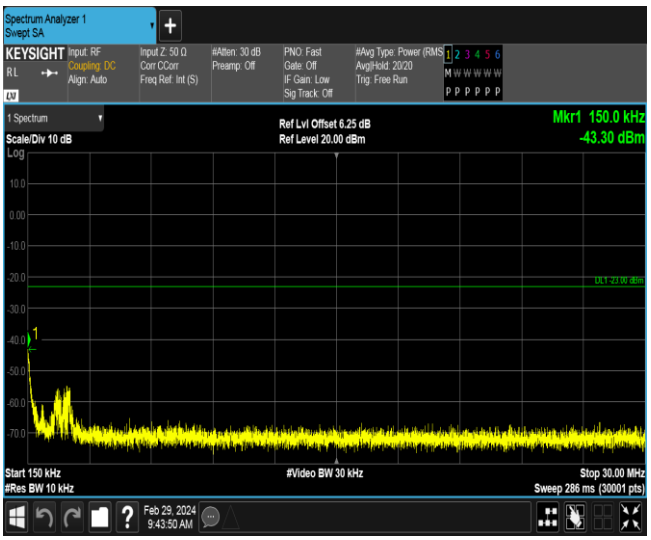
PCS 1900_LCH_EDGE	PCS 1900_LCH_EDGE
	
PCS 1900_LCH_EDGE	**PCS 1900_LCH_EDGE**
	
PCS 1900_MCH_EDGE	**PCS 1900_MCH_EDGE**
	

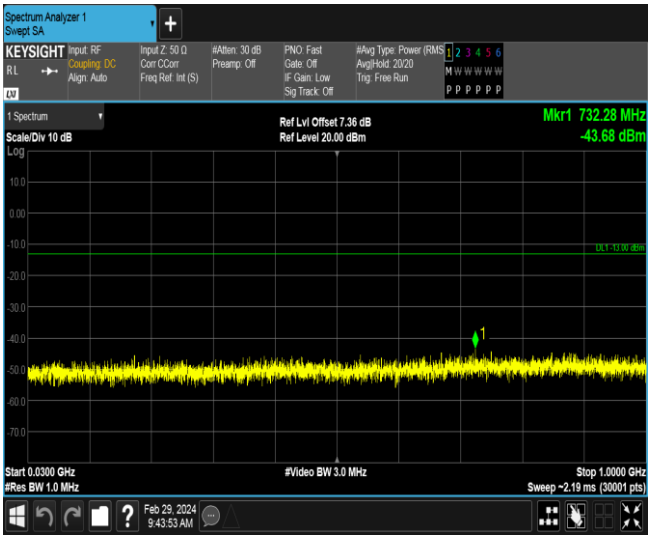
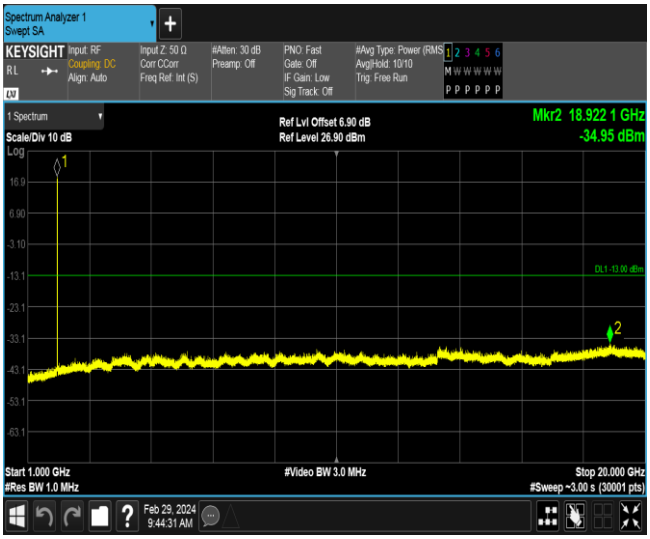
WCDMA 850_RMC 12.2kps_LCH	WCDMA 850_RMC 12.2kps_LCH
	
WCDMA 850_RMC 12.2kps_MCH	WCDMA 850_RMC 12.2kps_MCH
	
WCDMA 850_RMC 12.2kps_HCH	WCDMA 850_RMC 12.2kps_HCH
	

WCDMA 850_RMC 12.2kps_LCH	WCDMA 850_RMC 12.2kps_LCH
	
WCDMA 850_RMC 12.2kps_MCH	**WCDMA 850_RMC 12.2kps_MCH**
	

WCDMA 850_RMC 12.2kps_HCH	WCDMA 850_RMC 12.2kps_HCH
	
WCDMA 850_RMC 12.2kps_HCH	WCDMA 850_RMC 12.2kps_HCH
	

WCDMA 850_RMC 12.2kps_HCH	WCDMA 1900_RMC 12.2kps_LCH
	
WCDMA 1900_RMC 12.2kps_LCH	**WCDMA 1900_RMC 12.2kps_LCH**
	

WCDMA 1900_RMC 12.2kps_MCH	WCDMA 1900_RMC 12.2kps_MCH
	
WCDMA 1900_RMC 12.2kps_MCH	**WCDMA 1900_RMC 12.2kps_HCH**
	

WCDMA 1900_RMC 12.2kps_HCH	WCDMA 1900_RMC 12.2kps_HCH
	

Note:

1. Below 30MHz no Spurious found and above is the worst mode data.
2. As no emission found in standby or receive mode, no recording in this report.

13. Radiated Spurious Emission

13.1. Provisions Applicable

(A) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm.

At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

(B) For specific criteria, please refer to the description in section 9.2 of the report for corresponding evaluation.

13.2. Measurement Procedure

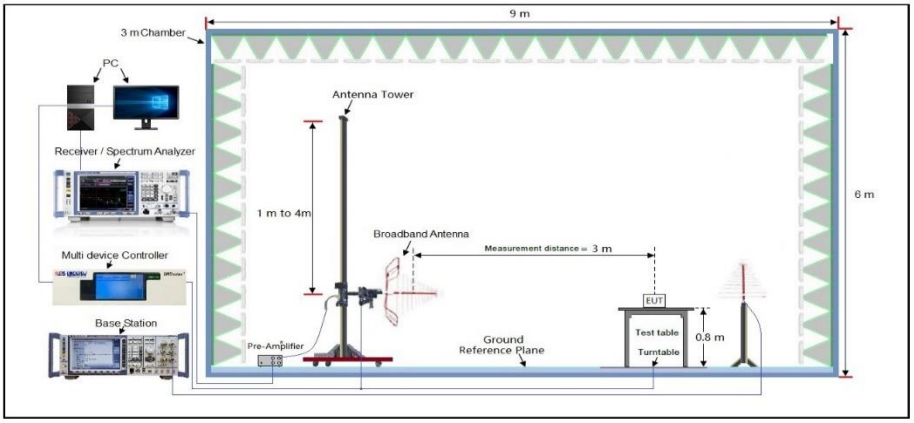
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the

pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.

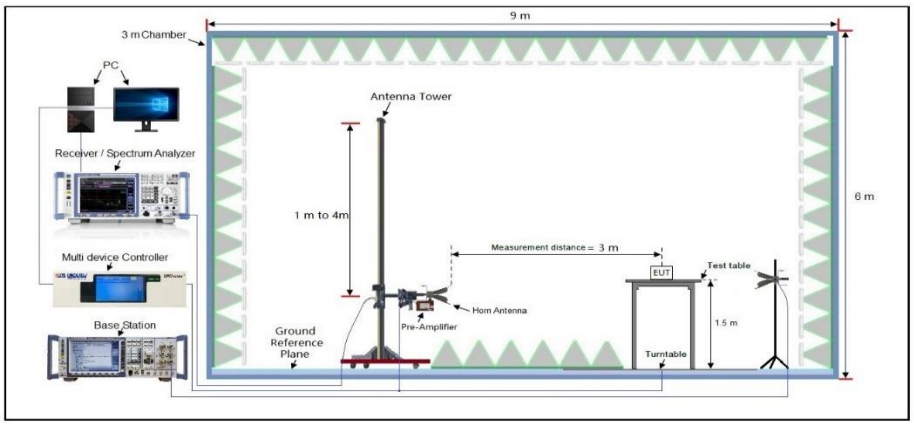
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.
11. For spurious emissions above 1GHz, a horn antenna is substituted in place of the EUT.
12. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.
13. The spurious emissions is calculated by the following formula;
    - ✧ Result(dBm) = Pg(dBm) +Factor(dB)
    - ✧ Factor(dB) = Ant Gain(dB)-Cable Loss(dB) + Power Splitter(dB) (Above 1GHz)
    - ✧ Factor(dB) = Ant Gain(dB)-Cable Loss(dB) (Below 1GHz)
14. Where: P_{gis} the generator output power into the substitution antenna.
15. If the Fundamental frequency is below 1GHz, RF output power has been converted to EIRP.
    - ✧ EIRP (dBm) = ERP (dBm) + 2.15

13.3. Measurement Setup

Radiated Emissions 30MHz to 1GHz Test setup



Radiated Emissions Above 1GHz Test setup



13.4 Measurement Result

The measurement Below 1GHz data as follows:

GSM 850							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
GSM_ Lowest Channel							
1	159.759	-65.44	15.52	-49.92	-13.00	-36.92	Horizontal
2	240.144	-60.80	16.75	-44.05	-13.00	-31.05	Horizontal
3	754.963	-57.86	19.35	-38.51	-13.00	-25.51	Horizontal
4	46.708	-63.82	10.44	-53.38	-13.00	-40.38	Vertical
5	433.340	-59.18	17.75	-41.43	-13.00	-28.43	Vertical
6	502.247	-57.70	18.66	-39.04	-13.00	-26.04	Vertical
GSM_ Middle Channel							
1	31.735	-63.07	9.78	-53.29	-13.00	-40.29	Horizontal
2	159.759	-64.27	13.75	-50.52	-13.00	-37.52	Horizontal
3	240.144	-61.32	16.75	-44.57	-13.00	-31.57	Horizontal
4	43.233	-63.54	10.23	-53.31	-13.00	-40.31	Vertical
5	433.340	-62.72	17.75	-44.97	-13.00	-31.97	Vertical
6	498.730	-69.25	18.02	-51.23	-13.00	-38.23	Vertical
GSM_ Highest Channel							
1	159.759	-63.59	13.75	-49.84	-13.00	-36.84	Horizontal
2	240.144	-62.51	16.75	-45.76	-13.00	-32.76	Horizontal
3	679.435	-57.92	19.01	-38.91	-13.00	-25.91	Horizontal
4	43.233	-61.56	10.23	-51.33	-13.00	-38.33	Vertical
5	433.340	-60.35	17.75	-42.60	-13.00	-29.60	Vertical
6	498.730	-63.88	18.02	-45.86	-13.00	-32.86	Vertical

PCS 1900							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
GSM_ Lowest Channel							
1	159.759	-65.53	15.52	-50.01	-13.00	-37.01	Horizontal
2	240.144	-60.76	16.75	-44.01	-13.00	-31.01	Horizontal
3	754.963	-57.89	19.35	-38.54	-13.00	-25.54	Horizontal
4	46.708	-63.48	10.44	-53.04	-13.00	-40.04	Vertical
5	433.340	-58.92	17.75	-41.17	-13.00	-28.17	Vertical
6	502.247	-57.88	18.66	-39.22	-13.00	-26.22	Vertical
GSM_ Middle Channel							
1	31.735	-62.47	9.78	-52.69	-13.00	-39.69	Horizontal
2	159.759	-63.87	13.75	-50.12	-13.00	-37.12	Horizontal
3	240.144	-61.72	16.75	-44.97	-13.00	-31.97	Horizontal
4	43.233	-63.93	10.23	-53.70	-13.00	-40.70	Vertical
5	433.340	-61.97	17.75	-44.22	-13.00	-31.22	Vertical
6	498.730	-59.82	18.02	-41.80	-13.00	-28.80	Vertical
GSM_ Highest Channel							
1	159.759	-63.75	13.75	-50.00	-13.00	-37.00	Horizontal
2	240.144	-61.81	16.75	-45.06	-13.00	-32.06	Horizontal
3	679.435	-57.38	19.01	-38.37	-13.00	-25.37	Horizontal
4	43.233	-63.53	10.23	-53.30	-13.00	-40.30	Vertical
5	433.340	-60.56	17.75	-42.81	-13.00	-29.81	Vertical
6	498.730	-57.72	18.02	-39.70	-13.00	-26.70	Vertical

WCDMA Band II							
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	159.759	-66.09	15.52	-50.57	-13.00	-37.57	Horizontal
2	240.144	-63.28	16.75	-46.53	-13.00	-33.53	Horizontal
3	754.963	-58.58	19.35	-39.23	-13.00	-26.23	Horizontal
4	46.708	-64.97	10.44	-54.53	-13.00	-41.53	Vertical
5	433.340	-60.88	17.75	-43.13	-13.00	-30.13	Vertical
6	502.247	-59.77	18.66	-41.11	-13.00	-28.11	Vertical
RMC 12.2kbps_ Middle Channel							
1	31.735	-63.27	9.78	-53.49	-13.00	-40.49	Horizontal
2	159.759	-64.25	13.75	-50.50	-13.00	-37.50	Horizontal
3	240.144	-61.22	16.75	-44.47	-13.00	-31.47	Horizontal
4	43.233	-63.90	10.23	-53.67	-13.00	-40.67	Vertical
5	433.340	-63.19	17.75	-45.44	-13.00	-32.44	Vertical
6	498.730	-59.52	18.02	-41.50	-13.00	-28.50	Vertical
RMC 12.2kbps_ Highest Channel							
1	159.759	-63.39	13.75	-49.64	-13.00	-36.64	Horizontal
2	240.144	-62.73	16.75	-45.98	-13.00	-32.98	Horizontal
3	679.435	-59.14	19.01	-40.13	-13.00	-27.13	Horizontal
4	43.233	-63.77	10.23	-53.54	-13.00	-40.54	Vertical
5	433.340	-62.33	17.75	-44.58	-13.00	-31.58	Vertical
6	498.730	-58.83	18.02	-40.81	-13.00	-27.81	Vertical

WCDMA Band V							
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	159.759	-66.23	15.52	-50.71	-13.00	-37.71	Horizontal
2	240.144	-62.92	16.75	-46.17	-13.00	-33.17	Horizontal
3	754.963	-59.72	19.35	-40.37	-13.00	-27.37	Horizontal
4	46.708	-64.99	10.44	-54.55	-13.00	-41.55	Vertical
5	433.340	-61.57	17.75	-43.82	-13.00	-30.82	Vertical
6	502.247	-60.14	18.66	-41.48	-13.00	-28.48	Vertical
RMC 12.2kbps_ Middle Channel							
1	31.735	-62.79	9.78	-53.01	-13.00	-40.01	Horizontal
2	159.759	-63.57	13.75	-49.82	-13.00	-36.82	Horizontal
3	240.144	-61.47	16.75	-44.72	-13.00	-31.72	Horizontal
4	43.233	-64.08	10.23	-53.85	-13.00	-40.85	Vertical
5	433.340	-62.86	17.75	-45.11	-13.00	-32.11	Vertical
6	498.730	-59.89	18.02	-41.87	-13.00	-28.87	Vertical
RMC 12.2kbps_ Highest Channel							
1	159.759	-64.24	13.75	-50.49	-13.00	-37.49	Horizontal
2	240.144	-61.59	16.75	-44.84	-13.00	-31.84	Horizontal
3	679.435	-60.16	19.01	-41.15	-13.00	-28.15	Horizontal
4	43.233	-64.14	10.23	-53.91	-13.00	-40.91	Vertical
5	433.340	-61.36	17.75	-43.61	-13.00	-30.61	Vertical
6	498.730	-61.34	18.02	-43.32	-13.00	-30.32	Vertical

The measurement Above 1GHz data as follows:

GSM 850							
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	-88.29	23.50	-64.79	-13.00	-51.79	Horizontal
2	2472.600	-88.04	29.47	-58.57	-13.00	-45.57	Horizontal
3	1648.400	-88.71	23.72	-64.99	-13.00	-51.99	Vertical
4	2472.600	-89.11	29.47	-59.64	-13.00	-46.64	Vertical
GSM_ Middle Channel							
1	1673.200	-88.12	23.50	-64.62	-13.00	-51.62	Horizontal
2	2509.800	-90.35	29.47	-60.88	-13.00	-47.88	Horizontal
3	1673.200	-88.25	23.72	-64.53	-13.00	-51.53	Vertical
4	2509.800	-92.51	29.47	-63.04	-13.00	-50.04	Vertical
GSM_ Highest Channel							
1	1697.600	-91.41	23.50	-67.91	-13.00	-54.91	Horizontal
2	2546.400	-92.77	29.47	-63.30	-13.00	-50.30	Horizontal
3	1697.600	-91.68	23.72	-67.96	-13.00	-54.96	Vertical
4	2546.400	-92.84	29.47	-63.37	-13.00	-50.37	Vertical

PCS 1900							
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	-85.94	32.11	-53.83	-13.00	-40.83	Horizontal
2	5550.600	-86.19	33.21	-52.98	-13.00	-39.98	Horizontal
3	3700.400	-87.63	32.09	-55.54	-13.00	-42.54	Vertical
4	5550.600	-86.01	34.03	-51.98	-13.00	-38.98	Vertical
GSM_ Middle Channel							
1	3760.000	-82.04	32.11	-49.93	-13.00	-36.93	Horizontal
2	5640.000	-84.74	33.21	-51.53	-13.00	-38.53	Horizontal
3	3760.000	-88.96	32.09	-56.87	-13.00	-43.87	Vertical
4	5640.000	-86.10	34.03	-52.07	-13.00	-39.07	Vertical
GSM_ Highest Channel							
1	3819.600	-88.48	32.11	-56.37	-13.00	-43.37	Horizontal
2	5729.400	-87.40	33.21	-54.19	-13.00	-41.19	Horizontal
3	3819.600	-90.54	32.09	-58.45	-13.00	-45.45	Vertical
4	5729.400	-88.93	34.03	-54.90	-13.00	-41.90	Vertical

WCDMA Band II							
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	-82.21	31.09	-51.12	-13.00	-38.12	Horizontal
2	5557.200	-89.99	34.14	-55.85	-13.00	-42.85	Horizontal
3	3704.800	-80.87	33.13	-47.74	-13.00	-34.74	Vertical
4	5557.200	-85.85	32.66	-53.19	-13.00	-40.19	Vertical
RMC 12.2kbps_ Middle Channel							
1	3760.000	-80.00	31.09	-48.91	-13.00	-35.91	Horizontal
2	5640.000	-88.09	34.14	-53.95	-13.00	-40.95	Horizontal
3	3760.000	-79.86	33.13	-46.73	-13.00	-33.73	Vertical
4	5640.000	-84.83	32.66	-52.17	-13.00	-39.17	Vertical
RMC 12.2kbps_ Highest Channel							
1	3815.200	-83.10	31.09	-52.01	-13.00	-39.01	Horizontal
2	5722.800	-86.02	34.14	-51.88	-13.00	-38.88	Horizontal
3	3815.200	-82.45	33.13	-49.32	-13.00	-36.32	Vertical
4	5722.800	-83.24	32.66	-50.58	-13.00	-37.58	Vertical

WCDMA Band V							
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	-83.53	23.12	-60.41	-13.00	-47.41	Horizontal
2	2479.200	-85.86	28.47	-57.39	-13.00	-44.39	Horizontal
3	1652.800	-83.29	23.12	-60.17	-13.00	-47.17	Vertical
4	2479.200	-82.55	28.47	-54.08	-13.00	-41.08	Vertical
RMC 12.2kbps_ Middle Channel							
1	1672.800	-81.74	23.12	-58.62	-13.00	-45.62	Horizontal
2	2509.200	-83.89	28.47	-55.42	-13.00	-42.42	Horizontal
3	1672.800	-83.27	23.12	-60.15	-13.00	-47.15	Vertical
4	2509.200	-82.18	28.47	-53.71	-13.00	-40.71	Vertical
RMC 12.2kbps_ Highest Channel							
1	1693.200	-80.61	23.12	-57.49	-13.00	-44.49	Horizontal
2	2539.800	-82.44	28.47	-53.97	-13.00	-40.97	Horizontal
3	1693.200	-81.09	23.12	-57.97	-13.00	-44.97	Vertical
4	2539.800	-81.11	28.47	-52.64	-13.00	-39.64	Vertical

Note:

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
4. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test. Subsequently, only the worst case emissions are reported.

14. Frequency Stability / Variation of Ambient Temperature

14.1 Provisions Applicable

14.1.1 For Hand carried battery powered equipment

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

a) Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Part 24 and Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

14.1.2 For equipment powered by primary supply voltage

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a
2. reference).
3. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to
4. the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
5. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at
6. least one half-hour is provided to allow stabilization of the equipment at each temperature level.

14.2 Measurement Procedure

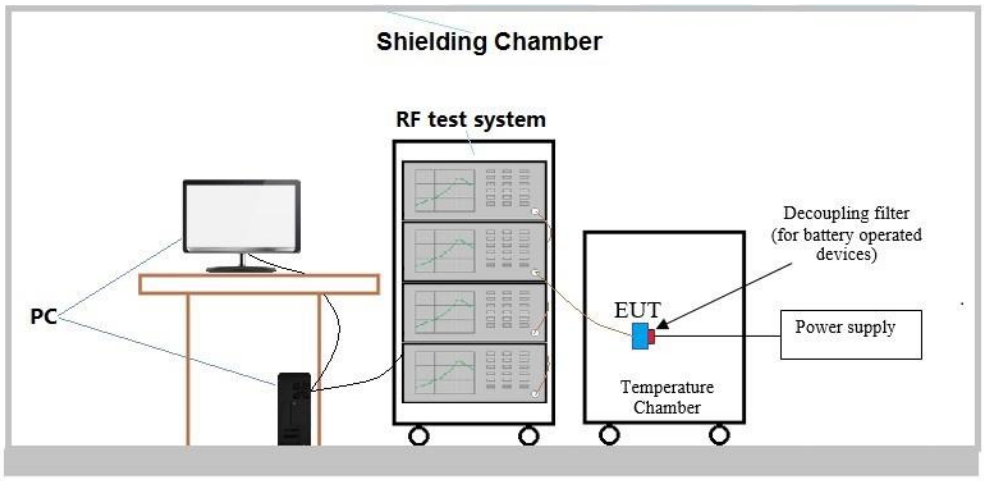
In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on channel 20175 for LTE band 4 measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
3. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.
4. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each

voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

5. Subject the EUT to overnight soak at +50℃.
6. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
7. Repeat the above measurements at 10℃ increments from +50℃ to -30℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.
8. At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

14.3 Measurement Setup



14.4 Measurement Result

- **Frequency Error vs. Voltage:**

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.(V)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM850	GSM	LCH	TN	VL	-3.23	-0.003919	±2.5	PASS
			TN	VN	-5.10	-0.006188	±2.5	PASS
			TN	VH	-4.84	-0.005872	±2.5	PASS
		MCH	TN	VL	-5.42	-0.006479	±2.5	PASS
			TN	VN	-5.17	-0.006180	±2.5	PASS
			TN	VH	-6.26	-0.007483	±2.5	PASS
		HCH	TN	VL	-7.36	-0.008671	±2.5	PASS
			TN	VN	-5.36	-0.006315	±2.5	PASS
			TN	VH	-3.75	-0.004418	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.(V)	Freq. Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM850	GPRS	LCH	TN	VL	-4.46	-0.005411	±2.5	PASS
			TN	VN	-3.55	-0.004307	±2.5	PASS
			TN	VH	-3.42	-0.004149	±2.5	PASS
		MCH	TN	VL	-5.94	-0.007100	±2.5	PASS
			TN	VN	-3.75	-0.004482	±2.5	PASS
			TN	VH	-4.39	-0.005247	±2.5	PASS
		HCH	TN	VL	-5.42	-0.006385	±2.5	PASS
			TN	VN	-4.46	-0.005254	±2.5	PASS
			TN	VH	-4.07	-0.004795	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.(V)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM850	EDGE	LCH	TN	VL	3.42	0.004149	±2.5	PASS
			TN	VN	4.81	0.005836	±2.5	PASS
			TN	VH	3.62	0.004392	±2.5	PASS
		MCH	TN	VL	4.04	0.004829	±2.5	PASS
			TN	VN	3.00	0.003586	±2.5	PASS
			TN	VH	2.32	0.002773	±2.5	PASS
		HCH	TN	VL	2.13	0.002509	±2.5	PASS
			TN	VN	3.36	0.003959	±2.5	PASS
			TN	VH	4.23	0.004984	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt. (V)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Verdict
PCS1900	GSM	LCH	TN	VL	-0.26	-0.000141	Pass
			TN	VN	-3.42	-0.001848	Pass
			TN	VH	-3.16	-0.001708	Pass
		MCH	TN	VL	-1.74	-0.000926	Pass
			TN	VN	-3.36	-0.001787	Pass
			TN	VH	-4.33	-0.002303	Pass
		HCH	TN	VL	-7.10	-0.003718	Pass
			TN	VN	-1.81	-0.000948	Pass
			TN	VH	-3.36	-0.001759	Pass

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is detemined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt. (V)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict
PCS1900	GPRS	LCH	TN	VL	-0.26	-0.000141	Pass
			TN	VN	-3.42	-0.001848	Pass
			TN	VH	-3.16	-0.001708	Pass
		MCH	TN	VL	-1.74	-0.000926	Pass
			TN	VN	-3.36	-0.001787	Pass
			TN	VH	-4.33	-0.002303	Pass
		HCH	TN	VL	-7.10	-0.003718	Pass
			TN	VN	-1.81	-0.000948	Pass
			TN	VH	-3.36	-0.001759	Pass

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is detemined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt. (V)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict
PCS1900	EDGE	LCH	TN	VL	18.02	0.009739	Pass
			TN	VN	16.92	0.009145	Pass
			TN	VH	16.59	0.008967	Pass
		MCH	TN	VL	10.40	0.005532	Pass
			TN	VN	10.94	0.005819	Pass
			TN	VH	13.82	0.007351	Pass
		HCH	TN	VL	12.04	0.006304	Pass
			TN	VN	9.40	0.004922	Pass
			TN	VH	10.75	0.005629	Pass

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.(V)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Limit (ppm)	Verdict
WCDMA850	RMC 12.2kbps	LCH	TN	VL	-11.79	-0.014267	±2.5	Pass
			TN	VN	-12.99	-0.015719	±2.5	Pass
			TN	VH	-11.89	-0.014388	±2.5	Pass
		MCH	TN	VL	-10.84	-0.012960	±2.5	Pass
			TN	VN	-11.09	-0.013259	±2.5	Pass
			TN	VH	-10.48	-0.012530	±2.5	Pass
		HCH	TN	VL	-9.83	-0.011611	±2.5	Pass
			TN	VN	-7.93	-0.009367	±2.5	Pass
			TN	VH	-8.50	-0.010040	±2.5	Pass

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.(V)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Limit (ppm)	Verdict
WCDMA850	HSDPA	LCH	TN	VL	-10.46	-0.012657	±2.5	Pass
			TN	VN	-13.72	-0.016602	±2.5	Pass
			TN	VH	-8.53	-0.010322	±2.5	Pass
		MCH	TN	VL	-13.75	-0.016638	±2.5	Pass
			TN	VN	-9.81	-0.011871	±2.5	Pass
			TN	VH	-10.66	-0.012745	±2.5	Pass
		HCH	TN	VL	-10.86	-0.012984	±2.5	Pass
			TN	VN	-10.87	-0.012996	±2.5	Pass
			TN	VH	-9.72	-0.011621	±2.5	Pass

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.(V)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Limit (ppm)	Verdict
WCDMA850	HSUPA	LCH	TN	VL	-11.56	-0.013988	±2.5	Pass
			TN	VN	-10.61	-0.012839	±2.5	Pass
			TN	VH	-9.14	-0.011060	±2.5	Pass
		MCH	TN	VL	-7.17	-0.008676	±2.5	Pass
			TN	VN	-8.08	-0.009777	±2.5	Pass
			TN	VH	-10.16	-0.012294	±2.5	Pass
		HCH	TN	VL	-7.93	-0.009596	±2.5	Pass
			TN	VN	-8.96	-0.010842	±2.5	Pass
			TN	VH	-11.07	-0.013395	±2.5	Pass

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.(V)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Verdict
WCDMA1900	UMTS	LCH	TN	VL	-14.38	-0.007763	Pass
			TN	VN	-12.30	-0.006640	Pass
			TN	VH	-12.53	-0.006764	Pass
		MCH	TN	VL	-15.65	-0.008324	Pass
			TN	VN	-12.76	-0.006787	Pass
			TN	VH	-11.03	-0.005867	Pass
		HCH	TN	VL	-8.93	-0.004681	Pass
			TN	VN	-10.89	-0.005709	Pass
			TN	VH	-7.81	-0.004094	Pass

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

- **Frequency Error vs. Temperature:**

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM850	GSM	LCH	VN	-30	-6.01	-0.007292	±2.5	PASS
			VN	-20	-3.81	-0.004623	±2.5	PASS
			VN	-10	-3.81	-0.004623	±2.5	PASS
			VN	0	-6.07	-0.007365	±2.5	PASS
			VN	10	-7.10	-0.008614	±2.5	PASS
			VN	20	-5.36	-0.006503	±2.5	PASS
			VN	30	-7.23	-0.008772	±2.5	PASS
			VN	40	-5.68	-0.006892	±2.5	PASS
			VN	50	-4.52	-0.005484	±2.5	PASS
GSM850	GSM	MCH	VN	-30	-4.84	-0.005785	±2.5	PASS
			VN	-20	-3.62	-0.004327	±2.5	PASS
			VN	-10	-6.26	-0.007483	±2.5	PASS
			VN	0	-6.65	-0.007949	±2.5	PASS
			VN	10	-7.75	-0.009264	±2.5	PASS
			VN	20	-4.65	-0.005558	±2.5	PASS
			VN	30	-5.75	-0.006873	±2.5	PASS
			VN	40	-4.13	-0.004937	±2.5	PASS
			VN	50	-7.23	-0.008642	±2.5	PASS
GSM850	GSM	HCH	VN	-30	-5.62	-0.006621	±2.5	PASS
			VN	-20	-6.26	-0.007375	±2.5	PASS
			VN	-10	-7.23	-0.008518	±2.5	PASS
			VN	0	-8.65	-0.010191	±2.5	PASS
			VN	10	-6.59	-0.007764	±2.5	PASS
			VN	20	-5.81	-0.006845	±2.5	PASS
			VN	30	-8.59	-0.010120	±2.5	PASS
			VN	40	-8.85	-0.010426	±2.5	PASS
			VN	50	-7.55	-0.008895	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM850	GPRS	LCH	VN	-30	-2.52	-0.003058	±2.5	PASS
			VN	-20	-4.39	-0.005326	±2.5	PASS
			VN	-10	-6.65	-0.008068	±2.5	PASS
			VN	0	-6.26	-0.007595	±2.5	PASS
			VN	10	-7.36	-0.008930	±2.5	PASS
			VN	20	1.68	0.002038	±2.5	PASS
			VN	30	2.52	0.003058	±2.5	PASS
			VN	40	4.33	0.005254	±2.5	PASS
			VN	50	4.20	0.005096	±2.5	PASS
GSM850	GPRS	MCH	VN	-30	-4.33	-0.005176	±2.5	PASS
			VN	-20	-6.01	-0.007184	±2.5	PASS
			VN	-10	-5.23	-0.006251	±2.5	PASS
			VN	0	-5.42	-0.006479	±2.5	PASS
			VN	10	-4.71	-0.005630	±2.5	PASS
			VN	20	-4.07	-0.004865	±2.5	PASS
			VN	30	-1.36	-0.001626	±2.5	PASS
			VN	40	-2.07	-0.002474	±2.5	PASS
			VN	50	-3.87	-0.004626	±2.5	PASS
GSM850	GPRS	HCH	VN	-30	-4.13	-0.004866	±2.5	PASS
			VN	-20	-5.49	-0.006468	±2.5	PASS
			VN	-10	-5.36	-0.006315	±2.5	PASS
			VN	0	-5.29	-0.006232	±2.5	PASS
			VN	10	-7.88	-0.009284	±2.5	PASS
			VN	20	-7.75	-0.009131	±2.5	PASS
			VN	30	-4.78	-0.005631	±2.5	PASS
			VN	40	-4.97	-0.005855	±2.5	PASS
			VN	50	-4.78	-0.005631	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM850	EDGE	LCH	VN	-30	3.29	0.003992	±2.5	PASS
			VN	-20	3.62	0.004392	±2.5	PASS
			VN	-10	9.36	0.011356	±2.5	PASS
			VN	0	8.68	0.010531	±2.5	PASS
			VN	10	7.30	0.008857	±2.5	PASS
			VN	20	7.55	0.009160	±2.5	PASS
			VN	30	5.29	0.006418	±2.5	PASS
			VN	40	6.62	0.008032	±2.5	PASS
			VN	50	6.07	0.007365	±2.5	PASS
GSM850	EDGE	MCH	VN	-30	3.97	0.004745	±2.5	PASS
			VN	-20	3.26	0.003897	±2.5	PASS
			VN	-10	4.33	0.005176	±2.5	PASS
			VN	0	5.91	0.007064	±2.5	PASS
			VN	10	4.81	0.005749	±2.5	PASS
			VN	20	4.36	0.005212	±2.5	PASS
			VN	30	4.75	0.005678	±2.5	PASS
			VN	40	4.81	0.005749	±2.5	PASS
			VN	50	5.33	0.006371	±2.5	PASS
GSM850	EDGE	HCH	VN	-30	2.00	0.002356	±2.5	PASS
			VN	-20	2.07	0.002439	±2.5	PASS
			VN	-10	2.91	0.003428	±2.5	PASS
			VN	0	5.55	0.006539	±2.5	PASS
			VN	10	2.39	0.002816	±2.5	PASS
			VN	20	2.20	0.002592	±2.5	PASS
			VN	30	4.75	0.005596	±2.5	PASS
			VN	40	3.94	0.004642	±2.5	PASS
			VN	50	2.58	0.003040	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict
GSM1900	GSM	LCH	VN	-30	-3.03	-0.001638	PASS
			VN	-20	-1.10	-0.000595	PASS
			VN	-10	-1.10	-0.000595	PASS
			VN	0	-5.94	-0.003210	PASS
			VN	10	-1.03	-0.000557	PASS
			VN	20	-3.23	-0.001746	PASS
			VN	30	-3.68	-0.001989	PASS
			VN	40	-2.13	-0.001151	PASS
			VN	50	-5.04	-0.002724	PASS
GSM1900	GSM	MCH	VN	-30	0.90	0.000479	PASS
			VN	-20	0.13	0.000069	PASS
			VN	-10	-3.03	-0.001612	PASS
			VN	0	0.65	0.000346	PASS
			VN	10	-1.10	-0.000585	PASS
			VN	20	-2.84	-0.001511	PASS
			VN	30	-4.91	-0.002612	PASS
			VN	40	-0.39	-0.000207	PASS
			VN	50	1.16	0.000617	PASS
GSM1900	GSM	HCH	VN	-30	-6.39	-0.003346	PASS
			VN	-20	-3.16	-0.001655	PASS
			VN	-10	-2.78	-0.001456	PASS
			VN	0	-2.52	-0.001320	PASS
			VN	10	-1.10	-0.000576	PASS
			VN	20	-3.87	-0.002026	PASS
			VN	30	-3.36	-0.001759	PASS
			VN	40	-3.16	-0.001655	PASS
			VN	50	-3.62	-0.001895	PASS

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is detemined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict
GSM1900	GPRS	LCH	VN	-30	3.16	0.001708	PASS
			VN	-20	0.65	0.000351	PASS
			VN	-10	-0.45	-0.000243	PASS
			VN	0	-2.78	-0.001503	PASS
			VN	10	-4.91	-0.002654	PASS
			VN	20	10.98	0.005934	PASS
			VN	30	10.59	0.005724	PASS
			VN	40	10.91	0.005897	PASS
			VN	50	13.04	0.007048	PASS
GSM1900	GPRS	MCH	VN	-30	-2.00	-0.001064	PASS
			VN	-20	2.39	0.001271	PASS
			VN	-10	0.06	0.000032	PASS
			VN	0	-0.65	-0.000346	PASS
			VN	10	-1.74	-0.000926	PASS
			VN	20	-0.77	-0.000410	PASS
			VN	30	3.75	0.001995	PASS
			VN	40	2.84	0.001511	PASS
			VN	50	3.49	0.001856	PASS
GSM1900	GPRS	HCH	VN	-30	-2.78	-0.001456	PASS
			VN	-20	-3.36	-0.001759	PASS
			VN	-10	-1.68	-0.000880	PASS
			VN	0	-5.88	-0.003079	PASS
			VN	10	-6.13	-0.003210	PASS
			VN	20	-6.20	-0.003246	PASS
			VN	30	-2.97	-0.001555	PASS
			VN	40	-2.07	-0.001084	PASS
			VN	50	-6.72	-0.003519	PASS

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is detemined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict
GSM1900	EDGE	LCH	VN	-30	15.46	0.008356	PASS
			VN	-20	14.98	0.008096	PASS
			VN	-10	34.38	0.018582	PASS
			VN	0	28.19	0.015236	PASS
			VN	10	26.96	0.014571	PASS
			VN	20	26.83	0.014501	PASS
			VN	30	20.99	0.011345	PASS
			VN	40	22.44	0.012128	PASS
			VN	50	19.18	0.010366	PASS
GSM1900	EDGE	MCH	VN	-30	12.46	0.006628	PASS
			VN	-20	12.95	0.006888	PASS
			VN	-10	13.11	0.006973	PASS
			VN	0	16.37	0.008707	PASS
			VN	10	11.56	0.006149	PASS
			VN	20	11.20	0.005957	PASS
			VN	30	20.79	0.011059	PASS
			VN	40	16.43	0.008739	PASS
			VN	50	15.27	0.008122	PASS
GSM1900	EDGE	HCH	VN	-30	10.30	0.005393	PASS
			VN	-20	8.98	0.004702	PASS
			VN	-10	10.07	0.005273	PASS
			VN	0	8.36	0.004377	PASS
			VN	10	15.82	0.008284	PASS
			VN	20	9.07	0.004749	PASS
			VN	30	15.98	0.008367	PASS
			VN	40	15.72	0.008231	PASS
			VN	50	8.39	0.004393	PASS

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is detemined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Limit (ppm)	Verdict
WCDMA 850	RMC 12.2kbps	LCH	VN	-30	-12.95	-0.015670	±2.5	PASS
			VN	-20	-10.99	-0.013299	±2.5	PASS
			VN	-10	-7.91	-0.009572	±2.5	PASS
			VN	0	-6.78	-0.008204	±2.5	PASS
			VN	10	-11.87	-0.014364	±2.5	PASS
			VN	20	-10.73	-0.012984	±2.5	PASS
			VN	30	-8.77	-0.010612	±2.5	PASS
			VN	40	-13.25	-0.016033	±2.5	PASS
			VN	50	-5.31	-0.006425	±2.5	PASS
WCDMA 850	RMC 12.2kbps	MCH	VN	-30	-8.38	-0.010140	±2.5	PASS
			VN	-20	-12.21	-0.014775	±2.5	PASS
			VN	-10	-6.51	-0.007878	±2.5	PASS
			VN	0	-9.37	-0.011338	±2.5	PASS
			VN	10	-12.41	-0.015017	±2.5	PASS
			VN	20	-4.46	-0.005397	±2.5	PASS
			VN	30	-6.99	-0.008458	±2.5	PASS
			VN	40	-8.78	-0.010624	±2.5	PASS
			VN	50	-10.84	-0.013117	±2.5	PASS
WCDMA 850	RMC 12.2kbps	HCH	VN	-30	-12.60	-0.015247	±2.5	PASS
			VN	-20	-4.56	-0.005518	±2.5	PASS
			VN	-10	-11.26	-0.013462	±2.5	PASS
			VN	0	-5.89	-0.007042	±2.5	PASS
			VN	10	-7.40	-0.008847	±2.5	PASS
			VN	20	-9.16	-0.010952	±2.5	PASS
			VN	30	-9.43	-0.011275	±2.5	PASS
			VN	40	-5.03	-0.006014	±2.5	PASS
			VN	50	-5.99	-0.007162	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Limit (ppm)	Verdict
WCDMA 850	HSUPA	LCH	VN	-30	-3.53	-0.004272	±2.5	PASS
			VN	-20	-2.51	-0.003037	±2.5	PASS
			VN	-10	-0.73	-0.000873	±2.5	PASS
			VN	0	-3.98	-0.004758	±2.5	PASS
			VN	10	-3.30	-0.003945	±2.5	PASS
			VN	20	-2.52	-0.003013	±2.5	PASS
			VN	30	-3.51	-0.004197	±2.5	PASS
			VN	40	-6.11	-0.007305	±2.5	PASS
			VN	50	-5.48	-0.006552	±2.5	PASS
WCDMA 850	HSUPA	MCH	VN	-30	-4.15	-0.004962	±2.5	PASS
			VN	-20	-4.80	-0.005739	±2.5	PASS
			VN	-10	-4.50	-0.005380	±2.5	PASS
			VN	0	-2.73	-0.003264	±2.5	PASS
			VN	10	-2.00	-0.002391	±2.5	PASS
			VN	20	-1.86	-0.002224	±2.5	PASS
			VN	30	-3.30	-0.003945	±2.5	PASS
			VN	40	-2.15	-0.002571	±2.5	PASS
			VN	50	-4.47	-0.005344	±2.5	PASS
WCDMA 850	HSUPA	HCH	VN	-30	-3.73	-0.004460	±2.5	PASS
			VN	-20	-3.23	-0.003862	±2.5	PASS
			VN	-10	-2.40	-0.002869	±2.5	PASS
			VN	0	-2.57	-0.003073	±2.5	PASS
			VN	10	-2.47	-0.002918	±2.5	PASS
			VN	20	-1.75	-0.002067	±2.5	PASS
			VN	30	-0.97	-0.001146	±2.5	PASS
			VN	40	-2.75	-0.003248	±2.5	PASS
			VN	50	-3.53	-0.004272	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Limit (ppm)	Verdict
WCDMA 850	HSDPA	LCH	VN	-30	-8.96	-0.010842	±2.5	PASS
			VN	-20	-9.02	-0.010915	±2.5	PASS
			VN	-10	-9.68	-0.011713	±2.5	PASS
			VN	0	-8.36	-0.010116	±2.5	PASS
			VN	10	-10.59	-0.012815	±2.5	PASS
			VN	20	-7.33	-0.008870	±2.5	PASS
			VN	30	-10.75	-0.013008	±2.5	PASS
			VN	40	-9.35	-0.011314	±2.5	PASS
			VN	50	-9.41	-0.011387	±2.5	PASS
WCDMA 850	HSDPA	MCH	VN	-30	-11.97	-0.014485	±2.5	PASS
			VN	-20	-10.71	-0.012960	±2.5	PASS
			VN	-10	-7.75	-0.009378	±2.5	PASS
			VN	0	-10.99	-0.013299	±2.5	PASS
			VN	10	-9.08	-0.010987	±2.5	PASS
			VN	20	-10.20	-0.012343	±2.5	PASS
			VN	30	-3.87	-0.004627	±2.5	PASS
			VN	40	-4.68	-0.005595	±2.5	PASS
			VN	50	-4.44	-0.005308	±2.5	PASS
WCDMA 850	HSDPA	HCH	VN	-30	-10.58	-0.012649	±2.5	PASS
			VN	-20	-10.62	-0.012697	±2.5	PASS
			VN	-10	-11.87	-0.014192	±2.5	PASS
			VN	0	-7.94	-0.009493	±2.5	PASS
			VN	10	-7.50	-0.008967	±2.5	PASS
			VN	20	-9.57	-0.011442	±2.5	PASS
			VN	30	-11.95	-0.014287	±2.5	PASS
			VN	40	-6.60	-0.007891	±2.5	PASS
			VN	50	-9.72	-0.011621	±2.5	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Verdict
WCDMA1900	RMC 12.2kbps	LCH	VN	-30	-11.97	-0.006462	Pass
			VN	-20	-5.72	-0.003088	Pass
			VN	-10	-7.32	-0.003952	Pass
			VN	0	-6.24	-0.003369	Pass
			VN	10	-9.19	-0.004961	Pass
			VN	20	-9.60	-0.005182	Pass
			VN	30	-7.45	-0.004022	Pass
			VN	40	-10.86	-0.005863	Pass
			VN	50	-8.39	-0.004529	Pass
WCDMA1900	RMC 12.2kbps	MCH	VN	-30	-11.01	-0.005944	Pass
			VN	-20	-12.17	-0.006570	Pass
			VN	-10	-9.80	-0.005290	Pass
			VN	0	-12.95	-0.006991	Pass
			VN	10	-9.34	-0.005042	Pass
			VN	20	-11.84	-0.006392	Pass
			VN	30	-5.16	-0.002786	Pass
			VN	40	-7.33	-0.003957	Pass
			VN	50	-7.40	-0.003995	Pass
WCDMA1900	RMC 12.2kbps	HCH	VN	-30	-6.83	-0.003687	Pass
			VN	-20	-5.42	-0.002926	Pass
			VN	-10	-6.24	-0.003369	Pass
			VN	0	-8.48	-0.004578	Pass
			VN	10	-10.21	-0.005512	Pass
			VN	20	-6.06	-0.003271	Pass
			VN	30	-8.47	-0.004572	Pass
			VN	40	-9.44	-0.005021	Pass
			VN	50	-11.97	-0.006462	Pass

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Verdict
WCDMA1900	HSDPA	LCH	VN	-30	-11.56	-0.006149	Pass
			VN	-20	-7.45	-0.003963	Pass
			VN	-10	-8.66	-0.004606	Pass
			VN	0	-9.99	-0.005314	Pass
			VN	10	-11.46	-0.006096	Pass
			VN	20	-14.01	-0.007452	Pass
			VN	30	-8.34	-0.004436	Pass
			VN	40	-10.74	-0.005713	Pass
			VN	50	-11.34	-0.006032	Pass
WCDMA1900	HSDPA	MCH	VN	-30	-13.23	-0.007037	Pass
			VN	-20	-8.31	-0.004420	Pass
			VN	-10	-8.58	-0.004564	Pass
			VN	0	-9.98	-0.005309	Pass
			VN	10	-10.95	-0.005824	Pass
			VN	20	-11.65	-0.006197	Pass
			VN	30	-12.88	-0.006851	Pass
			VN	40	-14.24	-0.007574	Pass
			VN	50	-4.28	-0.002277	Pass
WCDMA1900	HSDPA	HCH	VN	-30	-5.37	-0.002856	Pass
			VN	-20	-11.52	-0.006128	Pass
			VN	-10	-10.86	-0.005777	Pass
			VN	0	-8.71	-0.004633	Pass
			VN	10	-6.94	-0.003691	Pass
			VN	20	-5.78	-0.003074	Pass
			VN	30	-10.12	-0.005305	Pass
			VN	40	-9.97	-0.005226	Pass
			VN	50	-10.04	-0.005263	Pass

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq. Error (Hz)	Freq. vs Rated (ppm)	Verdict
WCDMA1900	HSUPA	LCH	VN	-30	-10.42	-0.005462	Pass
			VN	-20	-11.11	-0.005824	Pass
			VN	-10	-11.37	-0.005960	Pass
			VN	0	-5.29	-0.002773	Pass
			VN	10	-6.06	-0.003177	Pass
			VN	20	-6.34	-0.003324	Pass
			VN	30	-8.28	-0.004341	Pass
			VN	40	-10.49	-0.005499	Pass
			VN	50	-11.16	-0.005850	Pass
WCDMA1900	HSUPA	MCH	VN	-30	-12.28	-0.006437	Pass
			VN	-20	-7.50	-0.003932	Pass
			VN	-10	-8.65	-0.004534	Pass
			VN	0	-10.01	-0.005247	Pass
			VN	10	-8.05	-0.004220	Pass
			VN	20	-9.06	-0.004749	Pass
			VN	30	-10.24	-0.005368	Pass
			VN	40	-10.60	-0.005557	Pass
			VN	50	-13.07	-0.006852	Pass
WCDMA1900	HSUPA	HCH	VN	-30	-8.31	-0.004356	Pass
			VN	-20	-9.87	-0.005174	Pass
			VN	-10	-11.57	-0.006065	Pass
			VN	0	-11.25	-0.005897	Pass
			VN	10	-8.69	-0.010515	Pass
			VN	20	-8.75	-0.010588	Pass
			VN	30	-8.83	-0.010685	Pass
			VN	40	-7.77	-0.009402	Pass
			VN	50	-7.44	-0.009003	Pass

Note: Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Appendix I: Photographs of Test Setup

Refer to the Report No.: AGC03709240101AP04

Appendix II: Photographs of EUT

Refer to the Report No.: AGC03709240101AP03

-----End of Report-----

Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3.The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.