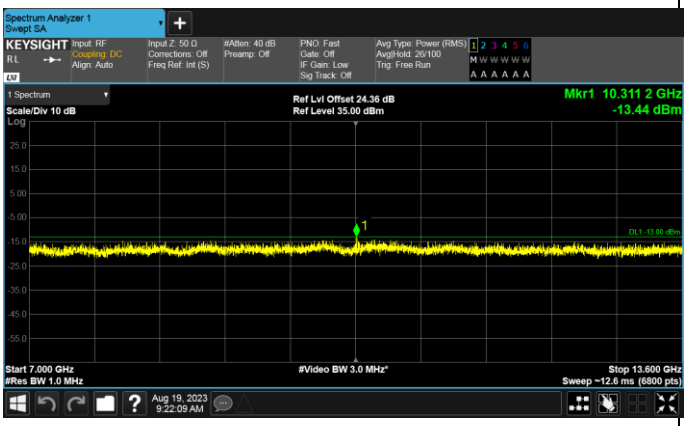
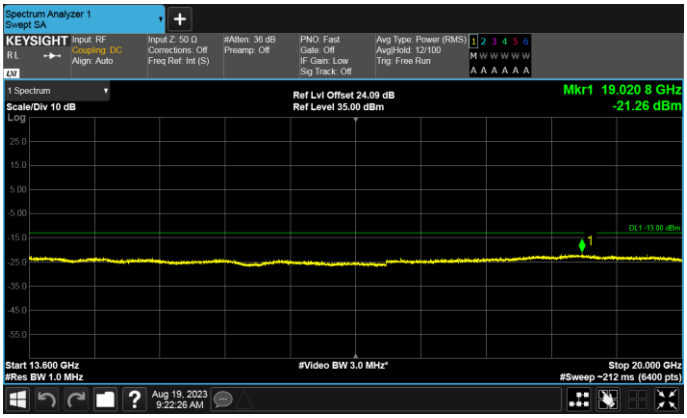
PCS 1900_MCH_EDGE



PCS 1900_MCH_EDGE



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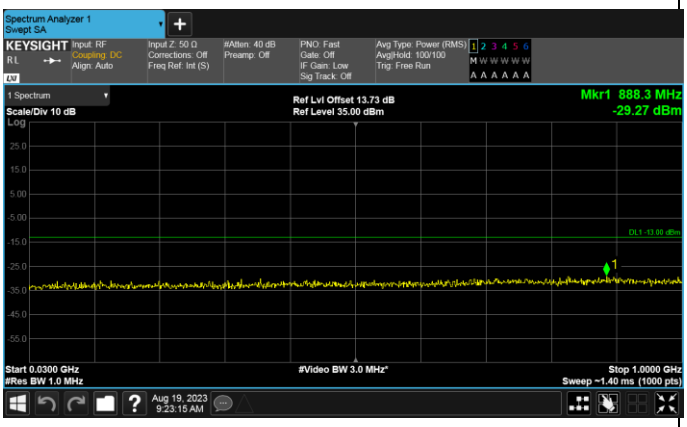

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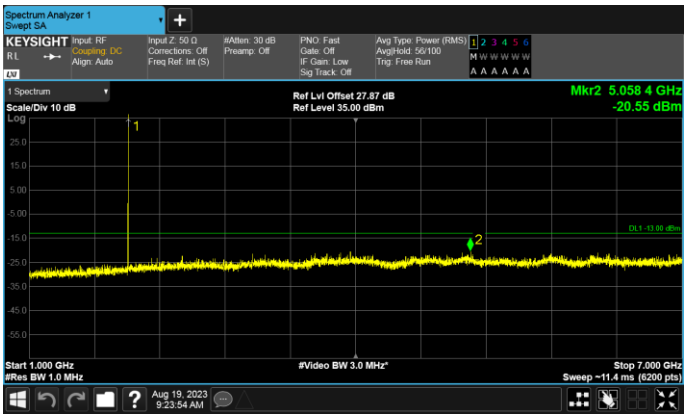

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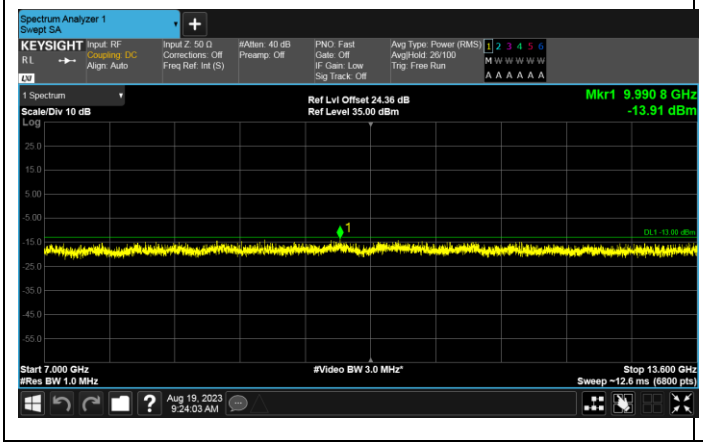

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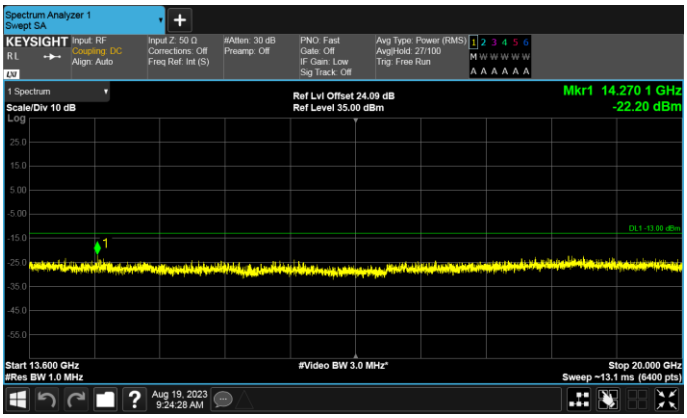

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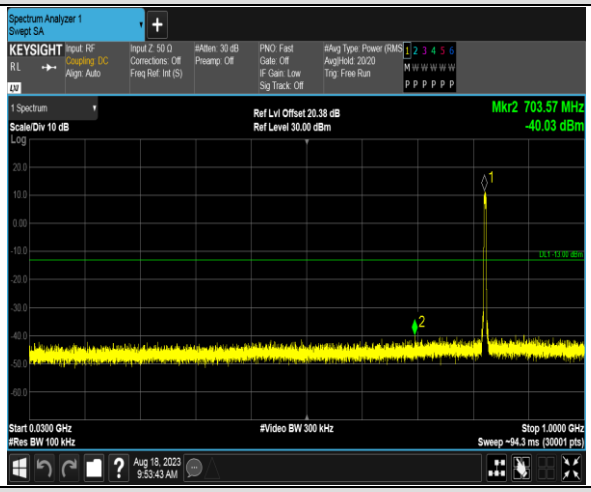
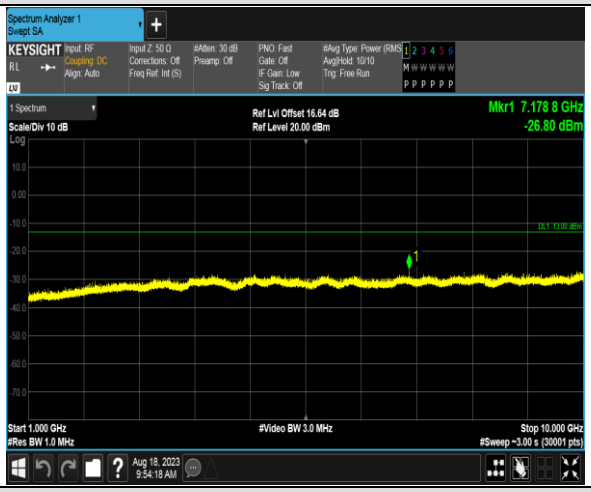
WCDMA 850_RMC 12.2kps_LCH	WCDMA 850_RMC 12.2kps_LCH
	
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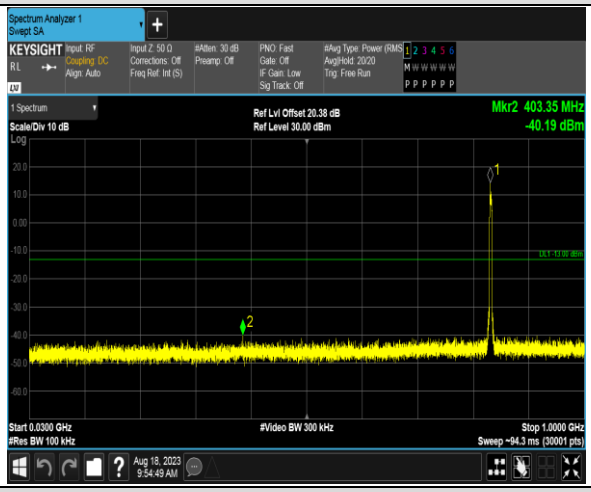	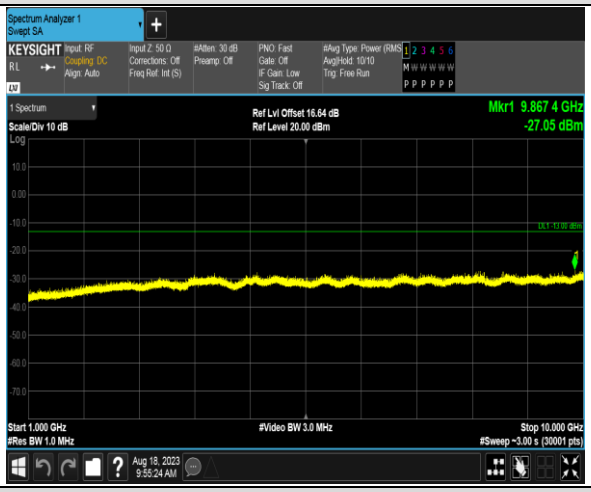
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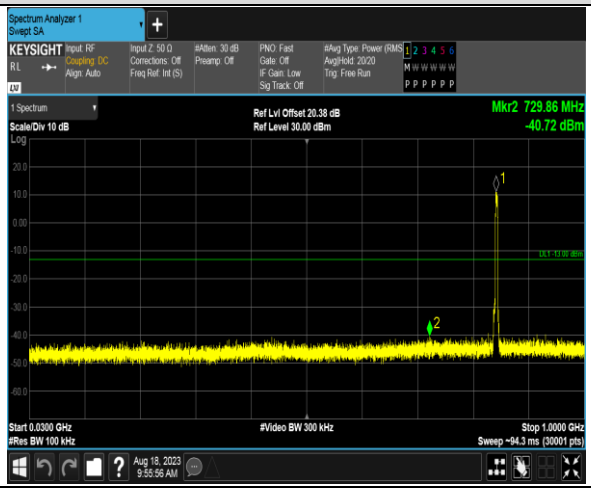	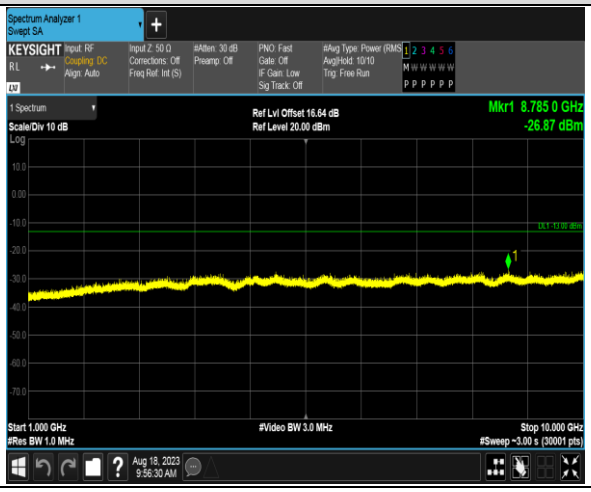

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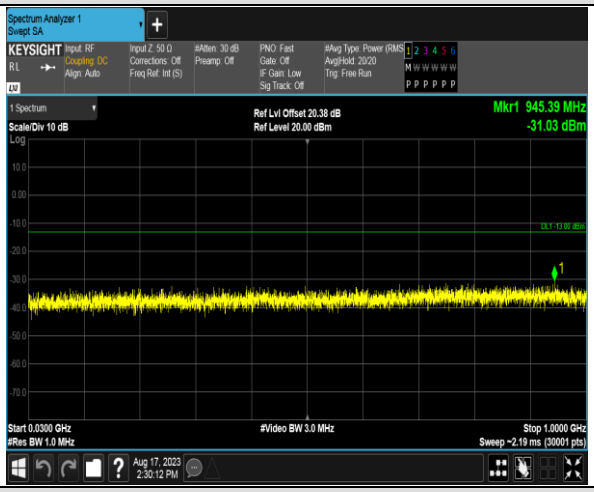
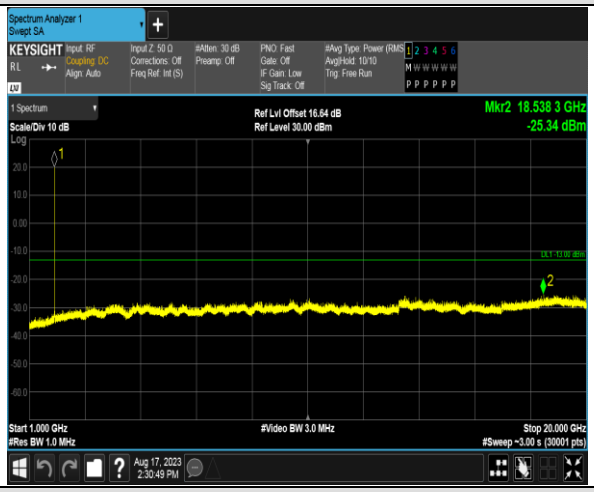
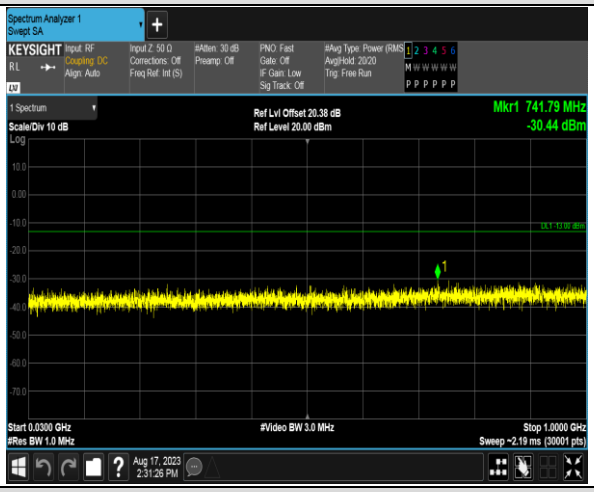
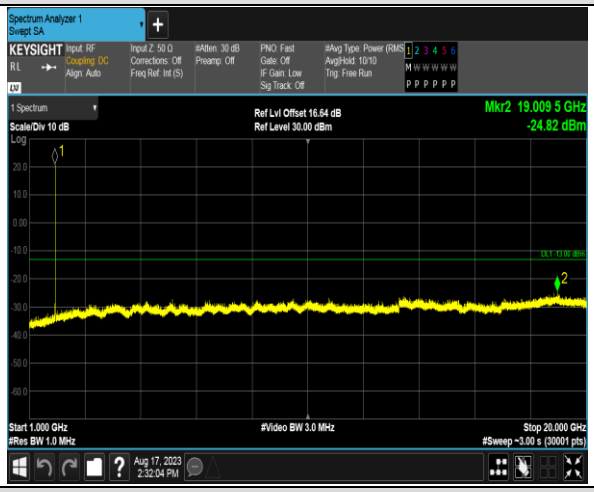
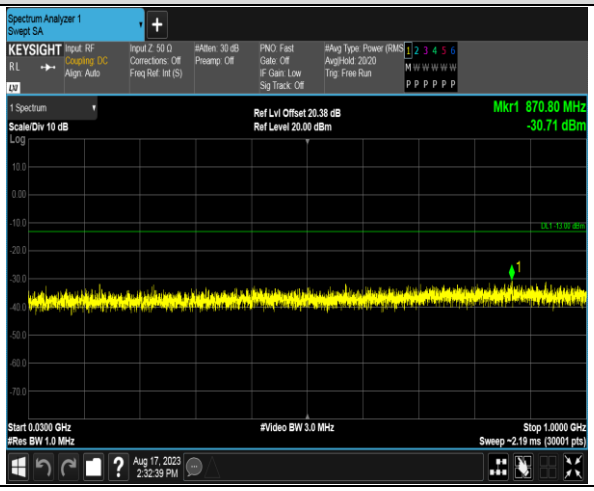
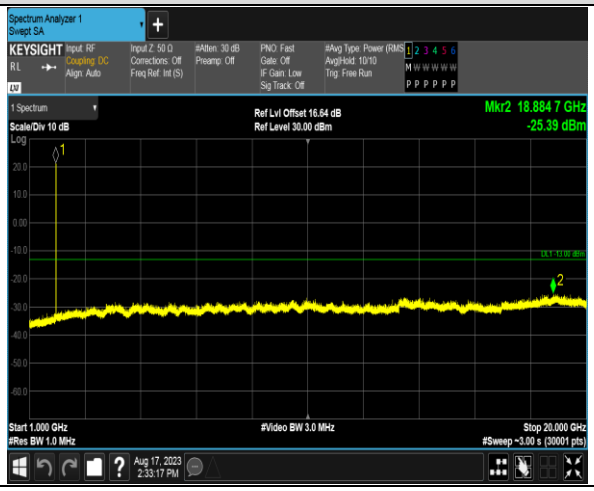
WCDMA 1900_RMC 12.2kps_LCH	WCDMA 1900_RMC 12.2kps_LCH
	
WCDMA 1900_RMC 12.2kps_MCH	**WCDMA 1900_RMC 12.2kps_MCH**
	
WCDMA 1900_RMC 12.2kps_HCH	**WCDMA 1900_RMC 12.2kps_HCH**
	

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.

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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.

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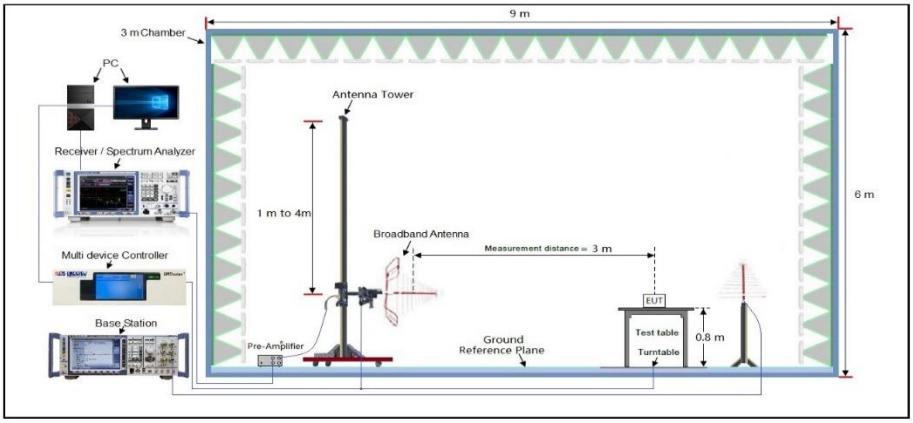
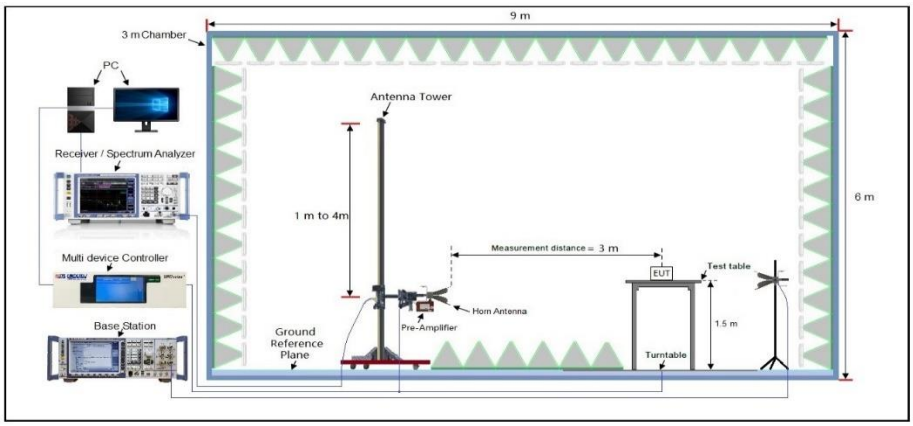
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured 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.
    The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.
    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)
    Where: Pgis the generator output power into the substitution antenna.
    If the fundalmatal 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



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13.4 MEASUREMENT RESULT

The measurement Below 1GHz data as follows:

GSM 850							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	ERP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
GSM_ Lowest Channel							
1	159.759	-34.82	15.52	-50.34	-13.00	-37.34	Horizontal
2	240.144	-28.88	16.75	-45.63	-13.00	-32.63	Horizontal
3	754.963	-20.71	19.35	-40.06	-13.00	-27.06	Horizontal
4	46.708	-43.67	10.44	-54.11	-13.00	-41.11	Vertical
5	433.340	-25.96	17.75	-43.71	-13.00	-30.71	Vertical
6	502.247	-21.61	18.66	-40.27	-13.00	-27.27	Vertical
GSM_ Middle Channel							
1	31.735	-63.28	9.78	-53.50	-13.00	-40.50	Horizontal
2	159.759	-62.93	13.75	-49.18	-13.00	-36.18	Horizontal
3	240.144	-60.44	16.75	-43.69	-13.00	-30.69	Horizontal
4	43.233	-63.40	10.23	-53.17	-13.00	-40.17	Vertical
5	433.340	-61.87	17.75	-44.12	-13.00	-31.12	Vertical
6	498.730	-58.89	18.02	-40.87	-13.00	-27.87	Vertical
GSM_ Highest Channel							
1	159.759	-63.43	13.75	-49.68	-13.00	-36.68	Horizontal
2	240.144	-62.19	16.75	-45.44	-13.00	-32.44	Horizontal
3	679.435	-58.20	19.01	-39.19	-13.00	-26.19	Horizontal
4	43.233	-61.38	10.23	-51.15	-13.00	-38.15	Vertical
5	433.340	-60.56	17.75	-42.81	-13.00	-29.81	Vertical
6	498.730	-57.46	18.02	-39.44	-13.00	-26.44	Vertical

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PCS 1900							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
GSM_ Lowest Channel							
1	159.759	-34.35	15.52	-49.87	-13.00	-36.87	Horizontal
2	240.144	-27.72	16.75	-44.47	-13.00	-31.47	Horizontal
3	754.963	-19.07	19.35	-38.42	-13.00	-25.42	Horizontal
4	46.708	-42.50	10.44	-52.94	-13.00	-39.94	Vertical
5	433.340	-23.84	17.75	-41.59	-13.00	-28.59	Vertical
6	502.247	-20.20	18.66	-38.86	-13.00	-25.86	Vertical
GSM_ Middle Channel							
1	31.735	-62.96	9.78	-53.18	-13.00	-40.18	Horizontal
2	159.759	-63.47	13.75	-49.72	-13.00	-36.72	Horizontal
3	240.144	-61.75	16.75	-45.00	-13.00	-32.00	Horizontal
4	43.233	-63.62	10.23	-53.39	-13.00	-40.39	Vertical
5	433.340	-62.38	17.75	-44.63	-13.00	-31.63	Vertical
6	498.730	-59.53	18.02	-41.51	-13.00	-28.51	Vertical
GSM_ Highest Channel							
1	159.759	-63.66	13.75	-49.91	-13.00	-36.91	Horizontal
2	240.144	-61.81	16.75	-45.06	-13.00	-32.06	Horizontal
3	679.435	-57.71	19.01	-38.70	-13.00	-25.7	Horizontal
4	43.233	-63.22	10.23	-52.99	-13.00	-39.99	Vertical
5	433.340	-60.57	17.75	-42.82	-13.00	-29.82	Vertical
6	498.730	-57.55	18.02	-39.53	-13.00	-26.53	Vertical

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WCDMA Band II							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
RMC 12.2kbps_ Lowest Channel							
1	159.759	-66.12	15.52	-50.60	-13.00	-37.60	Horizontal
2	240.144	-62.81	16.75	-46.06	-13.00	-33.06	Horizontal
3	754.963	-59.05	19.35	-39.70	-13.00	-26.70	Horizontal
4	46.708	-64.96	10.44	-54.52	-13.00	-41.52	Vertical
5	433.340	-61.25	17.75	-43.50	-13.00	-30.50	Vertical
6	502.247	-59.34	18.66	-40.68	-13.00	-27.68	Vertical
RMC 12.2kbps_ Middle Channel							
1	31.735	-63.06	9.78	-53.28	-13.00	-40.28	Horizontal
2	159.759	-64.06	13.75	-50.31	-13.00	-37.31	Horizontal
3	240.144	-61.43	16.75	-44.68	-13.00	-31.68	Horizontal
4	43.233	-63.51	10.23	-53.28	-13.00	-40.28	Vertical
5	433.340	-63.19	17.75	-45.44	-13.00	-32.44	Vertical
6	498.730	-59.02	18.02	-41.00	-13.00	-28.00	Vertical
6							
1	159.759	-63.53	13.75	-49.78	-13.00	-36.78	Horizontal
2	240.144	-62.68	16.75	-45.93	-13.00	-32.93	Horizontal
3	679.435	-59.44	19.01	-40.43	-13.00	-27.43	Horizontal
4	43.233	-63.69	10.23	-53.46	-13.00	-40.46	Vertical
5	433.340	-62.17	17.75	-44.42	-13.00	-31.42	Vertical
6	498.730	-59.00	18.02	-40.98	-13.00	-27.98	Vertical

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WCDMA Band V							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	ERP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
RMC 12.2kbps_ Lowest Channel							
1	159.759	-34.42	15.52	-49.94	-13.00	-36.94	Horizontal
2	240.144	-28.65	16.75	-45.40	-13.00	-32.4	Horizontal
3	754.963	-20.88	19.35	-40.23	-13.00	-27.23	Horizontal
4	46.708	-43.90	10.44	-54.34	-13.00	-41.34	Vertical
5	433.340	-25.60	17.75	-43.35	-13.00	-30.35	Vertical
6	502.247	-21.93	18.66	-40.59	-13.00	-27.59	Vertical
RMC 12.2kbps_ Middle Channel							
1	31.735	-60.95	9.78	-51.17	-13.00	-38.17	Horizontal
2	159.759	-61.93	13.75	-48.18	-13.00	-35.18	Horizontal
3	240.144	-60.16	16.75	-43.41	-13.00	-30.41	Horizontal
4	43.233	-62.80	10.23	-52.57	-13.00	-39.57	Vertical
5	433.340	-62.34	17.75	-44.59	-13.00	-31.59	Vertical
6	498.730	-58.53	18.02	-40.51	-13.00	-27.51	Vertical
RMC 12.2kbps_ Highest Channel							
1	159.759	-64.40	13.75	-50.65	-13.00	-37.65	Horizontal
2	240.144	-62.82	16.75	-46.07	-13.00	-33.07	Horizontal
3	679.435	-60.28	19.01	-41.27	-13.00	-28.27	Horizontal
4	43.233	-64.03	10.23	-53.80	-13.00	-40.8	Vertical
5	433.340	-62.18	17.75	-44.43	-13.00	-31.43	Vertical
6	498.730	-60.09	18.02	-42.07	-13.00	-29.07	Vertical

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The measurement Above 1GHz data as follows:

GSM 850							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	ERP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
GSM_ Lowest Channel							
1	1648.400	-88.45	23.50	-64.95	-13.00	-51.95	Horizontal
2	2472.600	-87.80	29.47	-58.33	-13.00	-45.33	Horizontal
3	1648.400	-88.98	23.72	-65.26	-13.00	-52.26	Vertical
4	2472.600	-88.79	29.47	-59.32	-13.00	-46.32	Vertical
GSM_ Middle Channel							
1	1673.200	-89.53	23.50	-66.03	-13.00	-53.03	Horizontal
2	2509.800	-91.16	29.47	-61.69	-13.00	-48.69	Horizontal
3	1673.200	-90.41	23.72	-66.69	-13.00	-53.69	Vertical
4	2509.800	-93.60	29.47	-64.13	-13.00	-51.13	Vertical
GSM_ Highest Channel							
1	1697.600	-91.36	23.50	-67.86	-13.00	-54.86	Horizontal
2	2546.400	-92.61	29.47	-63.14	-13.00	-50.14	Horizontal
3	1697.600	-91.79	23.72	-68.07	-13.00	-55.07	Vertical
4	2546.400	-92.65	29.47	-63.18	-13.00	-50.18	Vertical

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PCS 1900							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
GSM_ Lowest Channel							
1	3700.400	-88.18	32.11	-56.07	-13.00	-43.07	Horizontal
2	5550.600	-87.64	33.21	-54.43	-13.00	-41.43	Horizontal
3	3700.400	-89.39	32.09	-57.30	-13.00	-44.30	Vertical
4	5550.600	-86.77	34.03	-52.74	-13.00	-39.74	Vertical
GSM_ Middle Channel							
1	3760.000	-83.51	32.11	-51.40	-13.00	-38.4	Horizontal
2	5640.000	-86.64	33.21	-53.43	-13.00	-40.43	Horizontal
3	3760.000	-90.99	32.09	-58.90	-13.00	-45.9	Vertical
4	5640.000	-87.04	34.03	-53.01	-13.00	-40.01	Vertical
GSM_ Highest Channel							
1	3819.600	-88.00	32.11	-55.89	-13.00	-42.89	Horizontal
2	5729.400	-87.43	33.21	-54.22	-13.00	-41.22	Horizontal
3	3819.600	-89.56	32.09	-57.47	-13.00	-44.47	Vertical
4	5729.400	-87.84	34.03	-53.81	-13.00	-40.81	Vertical

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WCDMA Band II							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
RMC 12.2kbps_ Lowest Channel							
1	3704.800	-82.79	31.09	-51.70	-13.00	-38.70	Horizontal
2	5557.200	-90.01	34.14	-55.87	-13.00	-42.87	Horizontal
3	3704.800	-80.93	33.13	-47.80	-13.00	-34.80	Vertical
4	5557.200	-85.89	32.66	-53.23	-13.00	-40.23	Vertical
RMC 12.2kbps_ Middle Channel							
1	3760.000	-80.00	31.09	-48.91	-13.00	-35.91	Horizontal
2	5640.000	-88.12	34.14	-53.98	-13.00	-40.98	Horizontal
3	3760.000	-79.87	33.13	-46.74	-13.00	-33.74	Vertical
4	5640.000	-84.78	32.66	-52.12	-13.00	-39.12	Vertical
RMC 12.2kbps_ Highest Channel							
1	3815.200	-83.12	31.09	-52.03	-13.00	-39.03	Horizontal
2	5722.800	-85.99	34.14	-51.85	-13.00	-38.85	Horizontal
3	3815.200	-82.47	33.13	-49.34	-13.00	-36.34	Vertical
4	5722.800	-83.20	32.66	-50.54	-13.00	-37.54	Vertical

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WCDMA Band V							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	ERP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
RMC 12.2kbps_ Lowest Channel							
1	1652.800	-83.62	23.12	-60.50	-13.00	-47.50	Horizontal
2	2479.200	-86.15	28.47	-57.68	-13.00	-44.68	Horizontal
3	1652.800	-83.56	23.12	-60.44	-13.00	-47.44	Vertical
4	2479.200	-83.13	28.47	-54.66	-13.00	-41.66	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.he device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test. Subsequently, only the worst case emissions are reported.

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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, 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 METHOD

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.

7 Measure the carrier frequency at room temperature.

8 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.

9 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.

10 Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from

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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.

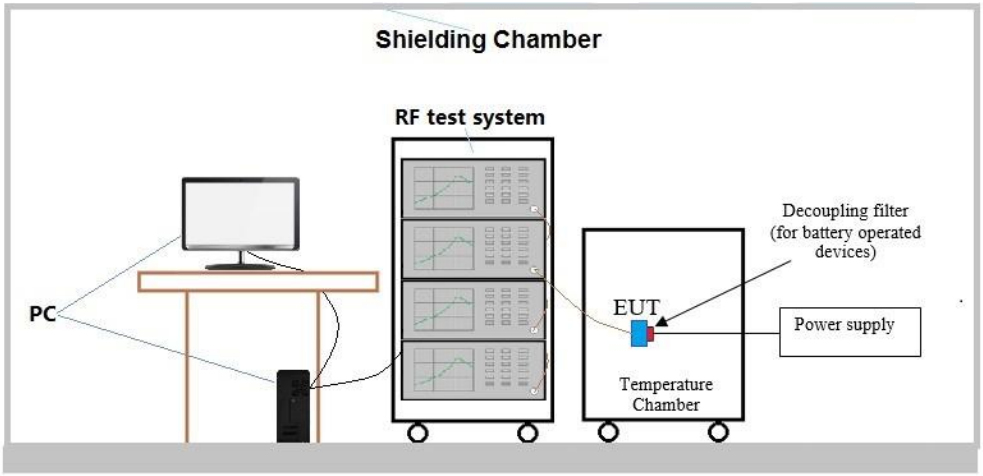
11 Subject the EUT to overnight soak at +50℃.

12 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.

13 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.

14 At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

14.3 MEASUREMENT SETUP



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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	17.63	0.021390	±2.5	PASS
			TN	VN	13.82	0.016768	±2.5	PASS
			TN	VH	18.85	0.022871	±2.5	PASS
		MCH	TN	VL	16.79	0.020069	±2.5	PASS
			TN	VN	13.43	0.016053	±2.5	PASS
			TN	VH	16.53	0.019759	±2.5	PASS
		HCH	TN	VL	13.69	0.016129	±2.5	PASS
			TN	VN	9.62	0.011334	±2.5	PASS
			TN	VH	12.79	0.015068	±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	20.24	0.024557	±2.5	PASS
			TN	VN	21.18	0.025698	±2.5	PASS
			TN	VH	17.89	0.021706	±2.5	PASS
		MCH	TN	VL	19.37	0.023153	±2.5	PASS
			TN	VN	17.31	0.020691	±2.5	PASS
			TN	VH	19.21	0.022962	±2.5	PASS
		HCH	TN	VL	17.43	0.020535	±2.5	PASS
			TN	VN	23.34	0.027498	±2.5	PASS
			TN	VH	18.56	0.021866	±2.5	PASS

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Test Band	Test Mode	Test Channel	Test Temp.	Test Volt. (V)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict
PCS1900	GSM	LCH	TN	VL	29.38	0.015879	PASS
			TN	VN	24.54	0.013263	PASS
			TN	VH	26.86	0.014517	PASS
		MCH	TN	VL	25.12	0.013362	PASS
			TN	VN	17.05	0.009069	PASS
			TN	VH	25.70	0.013670	PASS
		HCH	TN	VL	16.85	0.008823	PASS
			TN	VN	21.76	0.011394	PASS
			TN	VH	20.08	0.010514	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt. (V)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict
PCS1900	EDGE	LCH	TN	VL	27.12	0.014658	PASS
			TN	VN	25.89	0.013993	PASS
			TN	VH	25.63	0.013853	PASS
		MCH	TN	VL	32.12	0.017085	PASS
			TN	VN	32.19	0.017122	PASS
			TN	VH	28.86	0.015351	PASS
		HCH	TN	VL	21.50	0.011258	PASS
			TN	VN	21.57	0.011294	PASS
			TN	VH	22.12	0.011582	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.

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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	10.20	0.012376	±2.5	PASS
			VN	-20	7.94	0.009634	±2.5	PASS
			VN	-10	13.11	0.015906	±2.5	PASS
			VN	0	9.23	0.011199	±2.5	PASS
			VN	10	11.24	0.013637	±2.5	PASS
			VN	20	14.79	0.017945	±2.5	PASS
			VN	30	15.17	0.018406	±2.5	PASS
			VN	40	17.05	0.020687	±2.5	PASS
			VN	50	16.21	0.019668	±2.5	PASS
GSM850	GSM	MCH	VN	-30	13.30	0.015898	±2.5	PASS
			VN	-20	12.53	0.014977	±2.5	PASS
			VN	-10	8.27	0.009885	±2.5	PASS
			VN	0	13.62	0.016280	±2.5	PASS
			VN	10	16.47	0.019687	±2.5	PASS
			VN	20	14.08	0.016830	±2.5	PASS
			VN	30	10.59	0.012658	±2.5	PASS
			VN	40	11.95	0.014284	±2.5	PASS
			VN	50	9.23	0.011033	±2.5	PASS
GSM850	GSM	HCH	VN	-30	13.56	0.015975	±2.5	PASS
			VN	-20	8.72	0.010273	±2.5	PASS
			VN	-10	18.79	0.022137	±2.5	PASS
			VN	0	17.76	0.020924	±2.5	PASS
			VN	10	8.72	0.010273	±2.5	PASS
			VN	20	17.89	0.021077	±2.5	PASS
			VN	30	12.98	0.015292	±2.5	PASS
			VN	40	17.50	0.020617	±2.5	PASS
			VN	50	14.21	0.016741	±2.5	PASS

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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	21.53	0.026122	±2.5	PASS
			VN	-20	20.82	0.025261	±2.5	PASS
			VN	-10	20.37	0.024715	±2.5	PASS
			VN	0	20.24	0.024557	±2.5	PASS
			VN	10	18.73	0.022725	±2.5	PASS
			VN	20	23.60	0.028634	±2.5	PASS
			VN	30	20.57	0.024958	±2.5	PASS
			VN	40	21.47	0.026050	±2.5	PASS
			VN	50	22.34	0.027105	±2.5	PASS
GSM850	EDGE	MCH	VN	-30	18.47	0.022077	±2.5	PASS
			VN	-20	19.69	0.023536	±2.5	PASS
			VN	-10	20.31	0.024277	±2.5	PASS
			VN	0	19.15	0.022890	±2.5	PASS
			VN	10	22.37	0.026739	±2.5	PASS
			VN	20	18.47	0.022077	±2.5	PASS
			VN	30	17.43	0.020834	±2.5	PASS
			VN	40	16.56	0.019794	±2.5	PASS
			VN	50	18.37	0.021958	±2.5	PASS
GSM850	EDGE	HCH	VN	-30	22.99	0.027085	±2.5	PASS
			VN	-20	18.40	0.021678	±2.5	PASS
			VN	-10	19.95	0.023504	±2.5	PASS
			VN	0	19.98	0.023539	±2.5	PASS
			VN	10	21.08	0.024835	±2.5	PASS
			VN	20	21.11	0.024870	±2.5	PASS
			VN	30	21.86	0.025754	±2.5	PASS
			VN	40	20.50	0.024152	±2.5	PASS
			VN	50	20.18	0.023775	±2.5	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM1900	GSM	LCH	VN	-30	29.77	0.016090	±2.5	PASS
			VN	-20	27.25	0.014728	±2.5	PASS
			VN	-10	24.54	0.013263	±2.5	PASS
			VN	0	30.80	0.016647	±2.5	PASS
			VN	10	29.83	0.016123	±2.5	PASS
			VN	20	28.28	0.015285	±2.5	PASS
			VN	30	24.34	0.013155	±2.5	PASS
			VN	40	27.96	0.015112	±2.5	PASS
			VN	50	26.09	0.014101	±2.5	PASS
GSM1900	GSM	MCH	VN	-30	20.15	0.010718	±2.5	PASS
			VN	-20	20.60	0.010957	±2.5	PASS
			VN	-10	26.73	0.014218	±2.5	PASS
			VN	0	24.60	0.013085	±2.5	PASS
			VN	10	18.85	0.010027	±2.5	PASS
			VN	20	24.15	0.012846	±2.5	PASS
			VN	30	20.92	0.011128	±2.5	PASS
			VN	40	25.18	0.013394	±2.5	PASS
			VN	50	25.70	0.013670	±2.5	PASS
GSM1900	GSM	HCH	VN	-30	18.79	0.009839	±2.5	PASS
			VN	-20	19.31	0.010111	±2.5	PASS
			VN	-10	26.67	0.013965	±2.5	PASS
			VN	0	18.73	0.009807	±2.5	PASS
			VN	10	20.40	0.010682	±2.5	PASS
			VN	20	22.99	0.012038	±2.5	PASS
			VN	30	22.92	0.012001	±2.5	PASS
			VN	40	24.92	0.013048	±2.5	PASS
			VN	50	26.86	0.014064	±2.5	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq.Error (Hz)	Freq.vs.rated (ppm)	Limit (ppm)	Verdict
GSM1900	EDGE	LCH	VN	-30	28.86	0.015598	±2.5	PASS
			VN	-20	31.70	0.017133	±2.5	PASS
			VN	-10	30.19	0.016317	±2.5	PASS
			VN	0	30.45	0.016458	±2.5	PASS
			VN	10	30.61	0.016544	±2.5	PASS
			VN	20	30.80	0.016647	±2.5	PASS
			VN	30	28.02	0.015144	±2.5	PASS
			VN	40	27.41	0.014815	±2.5	PASS
			VN	50	29.51	0.015950	±2.5	PASS
GSM1900	EDGE	MCH	VN	-30	25.02	0.013309	±2.5	PASS
			VN	-20	31.87	0.016952	±2.5	PASS
			VN	-10	30.61	0.016282	±2.5	PASS
			VN	0	27.02	0.014372	±2.5	PASS
			VN	10	32.00	0.017021	±2.5	PASS
			VN	20	30.67	0.016314	±2.5	PASS
			VN	30	29.70	0.015798	±2.5	PASS
			VN	40	30.67	0.016314	±2.5	PASS
			VN	50	34.16	0.018170	±2.5	PASS
GSM1900	EDGE	HCH	VN	-30	24.96	0.013069	±2.5	PASS
			VN	-20	23.89	0.012509	±2.5	PASS
			VN	-10	24.02	0.012577	±2.5	PASS
			VN	0	20.31	0.010635	±2.5	PASS
			VN	10	21.05	0.011022	±2.5	PASS
			VN	20	22.08	0.011561	±2.5	PASS
			VN	30	22.31	0.011682	±2.5	PASS
			VN	40	24.47	0.012813	±2.5	PASS
			VN	50	24.67	0.012918	±2.5	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.

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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
WCDMA850	UMTS	LCH	TN	VL	-6.82	-0.003682	±2.5	PASS
			TN	VN	-8.63	-0.004659	±2.5	PASS
			TN	VH	3.02	0.001630	±2.5	PASS
		MCH	TN	VL	3.65	0.001970	±2.5	PASS
			TN	VN	-1.88	-0.001015	±2.5	PASS
			TN	VH	-1.61	-0.000869	±2.5	PASS
		HCH	TN	VL	-1.33	-0.000718	±2.5	PASS
			TN	VN	-0.90	-0.000486	±2.5	PASS
			TN	VH	-0.27	-0.000146	±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	1.79	0.000966	PASS
			TN	VN	3.68	0.001987	PASS
			TN	VH	1.83	0.000988	PASS
		MCH	TN	VL	1.20	0.000638	PASS
			TN	VN	2.10	0.001117	PASS
			TN	VH	-5.06	-0.002691	PASS
		HCH	TN	VL	2.87	0.001505	PASS
			TN	VN	5.06	0.002653	PASS
			TN	VH	-2.40	-0.001258	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.

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Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict	Test Band
WCDMA850	UMTS	LCH	VN	-30	-1.68	-0.000907	±2.5	PASS
			VN	-20	-0.69	-0.000372	±2.5	PASS
			VN	-10	-4.90	-0.002645	±2.5	PASS
			VN	0	-9.11	-0.004918	±2.5	PASS
			VN	10	2.97	0.001603	±2.5	PASS
			VN	20	-2.07	-0.001117	±2.5	PASS
			VN	30	6.46	0.003487	±2.5	PASS
			VN	40	-4.43	-0.002391	±2.5	PASS
			VN	50	-7.05	-0.003806	±2.5	PASS
WCDMA850	UMTS	MCH	VN	-30	-2.42	-0.001306	±2.5	PASS
			VN	-20	-0.98	-0.000529	±2.5	PASS
			VN	-10	-1.15	-0.000621	±2.5	PASS
			VN	0	-0.12	-0.000065	±2.5	PASS
			VN	10	2.45	0.001323	±2.5	PASS
			VN	20	-1.37	-0.000740	±2.5	PASS
			VN	30	0.51	0.000275	±2.5	PASS
			VN	40	0.97	0.000524	±2.5	PASS
			VN	50	0.67	0.000362	±2.5	PASS
WCDMA850	UMTS	HCH	VN	-30	3.33	0.001798	±2.5	PASS
			VN	-20	0.36	0.000194	±2.5	PASS
			VN	-10	-1.90	-0.001011	±2.5	PASS
			VN	0	-3.62	-0.001926	±2.5	PASS
			VN	10	-4.06	-0.002160	±2.5	PASS
			VN	20	-4.01	-0.002133	±2.5	PASS
			VN	30	-7.41	-0.003941	±2.5	PASS
			VN	40	5.06	0.002691	±2.5	PASS
			VN	50	4.92	0.002617	±2.5	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Tem. (℃)	Freq.Error (Hz)	Freq.vs.rated (ppm)	Verdict	Test Band
WCDMA1900	UMTS	LCH	VN	-30	-0.41	-0.000221	±2.5	PASS
			VN	-20	-0.67	-0.000362	±2.5	PASS
			VN	-10	-0.04	-0.000022	±2.5	PASS
			VN	0	2.76	0.001490	±2.5	PASS
			VN	10	-0.77	-0.000416	±2.5	PASS
			VN	20	-3.72	-0.002008	±2.5	PASS
			VN	30	-1.49	-0.000804	±2.5	PASS
			VN	40	-1.53	-0.000826	±2.5	PASS
			VN	50	-2.19	-0.001182	±2.5	PASS
WCDMA1900	UMTS	MCH	VN	-30	-2.78	-0.001501	±2.5	PASS
			VN	-20	-1.17	-0.000632	±2.5	PASS
			VN	-10	1.61	0.000869	±2.5	PASS
			VN	0	2.70	0.001458	±2.5	PASS
			VN	10	-1.48	-0.000799	±2.5	PASS
			VN	20	-1.37	-0.000740	±2.5	PASS
			VN	30	-2.36	-0.001274	±2.5	PASS
			VN	40	0.37	0.000200	±2.5	PASS
			VN	50	-0.70	-0.000378	±2.5	PASS
WCDMA1900	UMTS	HCH	VN	-30	-1.22	-0.000659	±2.5	PASS
			VN	-20	0.74	0.000399	±2.5	PASS
			VN	-10	1.52	0.000821	±2.5	PASS
			VN	0	-1.14	-0.000615	±2.5	PASS
			VN	10	-1.83	-0.000988	±2.5	PASS
			VN	20	-0.46	-0.000248	±2.5	PASS
			VN	30	-0.39	-0.000211	±2.5	PASS
			VN	40	-0.88	-0.000468	±2.5	PASS
			VN	50	0.21	0.000112	±2.5	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.

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APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC00408230802AP02

APPENDIX II: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC00408230802AP04

----END OF REPORT----

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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.

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