

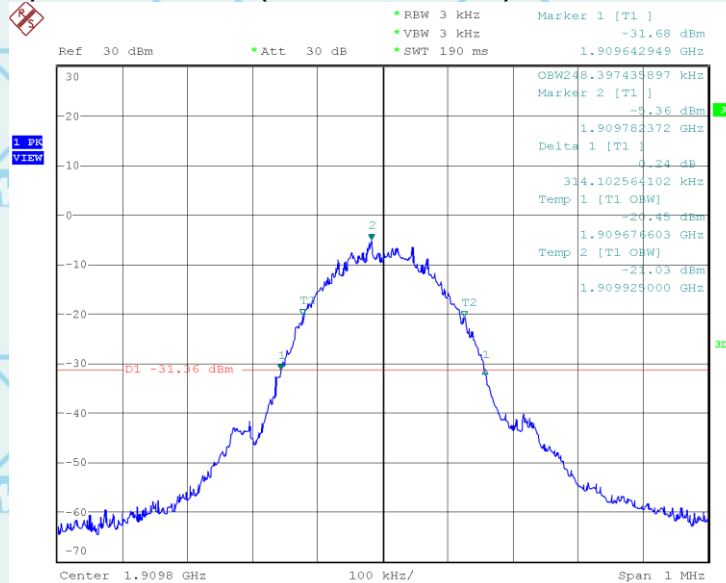


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

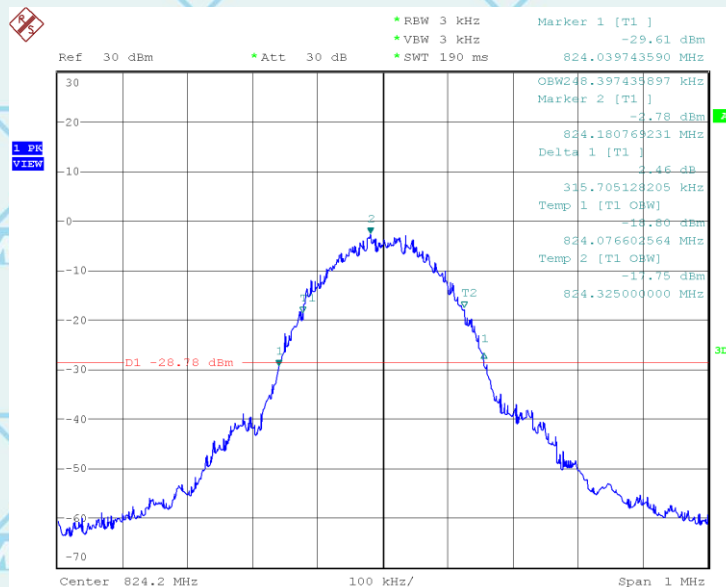
For Question,
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Occupied Bandwidth (99% and -26dBc) GPRS 1900 Band CH 810



Date: 19.JUL.2024 17:42:57

Occupied Bandwidth (99% and -26dBc) EGPRS 850 Band CH 128



Date: 19.JUL.2024 17:25:53



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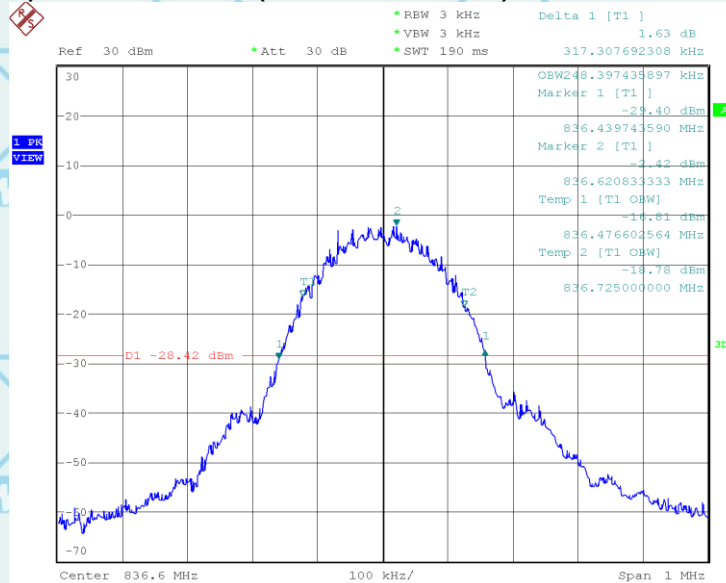


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

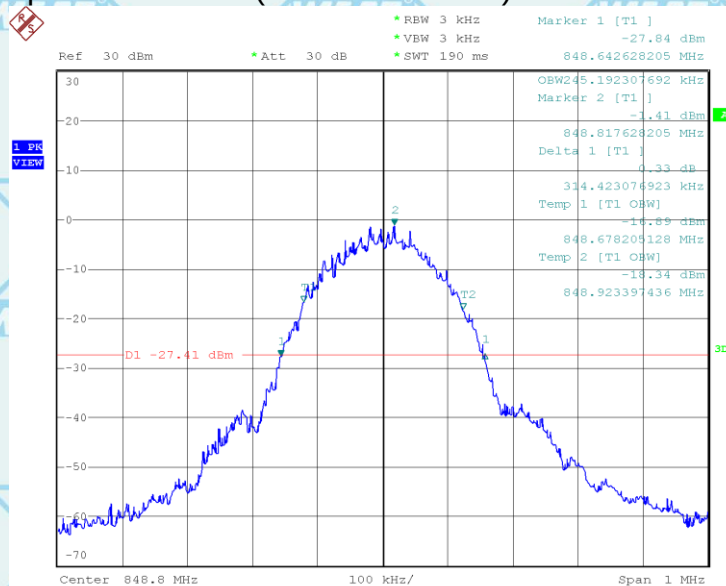
For Question,
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Occupied Bandwidth (99% and -26dBc) EGPRS 850 Band CH 190



Date: 19.JUL.2024 17:24:50

Occupied Bandwidth (99% and -26dBc) EGPRS 850 Band CH 251



Date: 19.JUL.2024 17:23:37

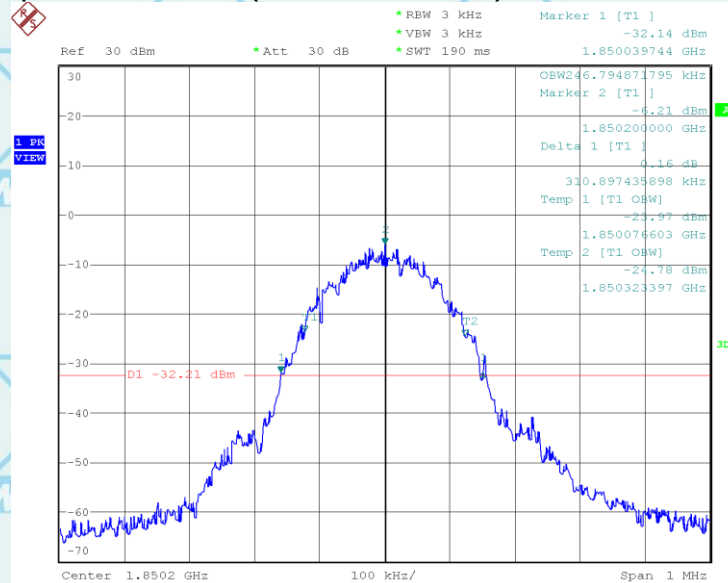


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

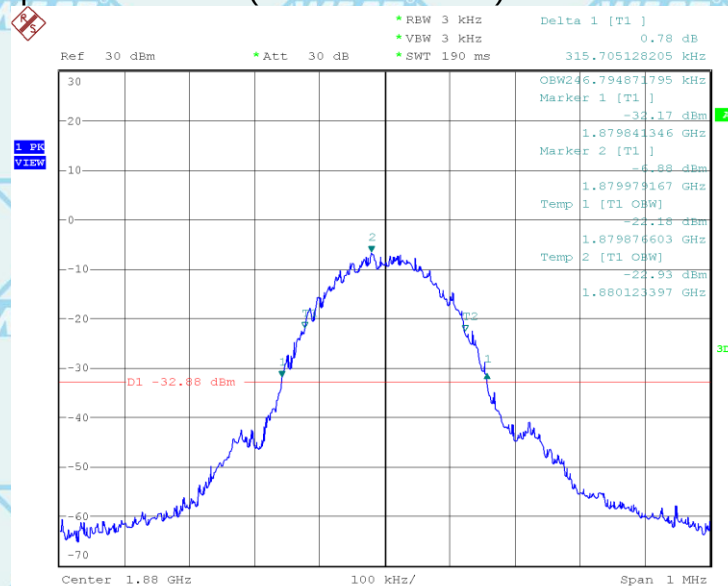
For Question,
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Occupied Bandwidth (99% and -26dBc) EGPRS 1900 Band CH 512



Date: 19.JUL.2024 17:39:11

Occupied Bandwidth (99% and -26dBc) EGPRS 1900 Band CH 661



Date: 19.JUL.2024 17:40:31

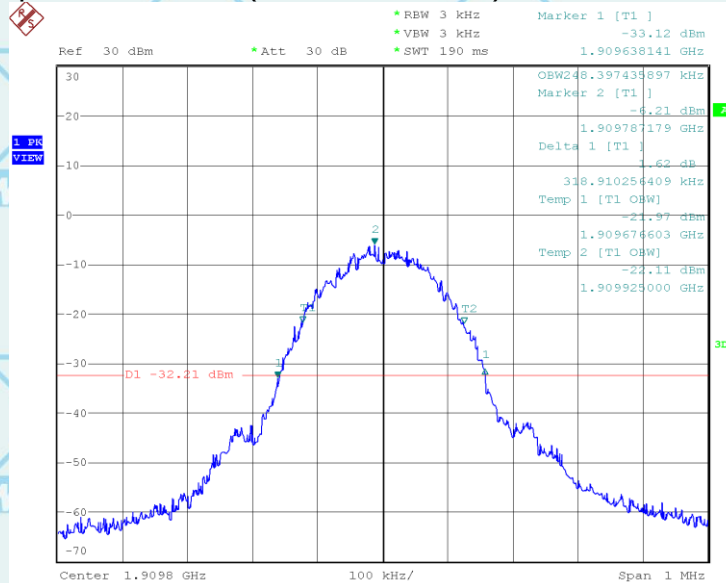


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

For Question,
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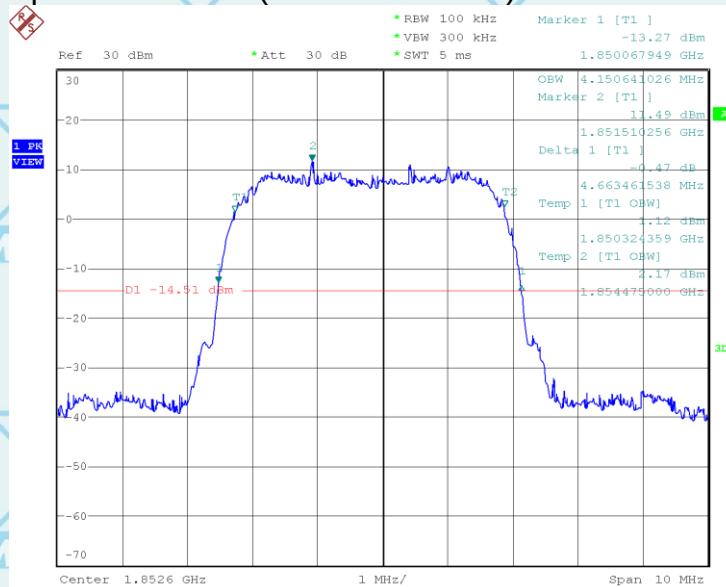
Occupied Bandwidth (99% and -26dBc) EGPRS 1900 Band CH 810



Date: 19.JUL.2024 17:41:30

UTRA BANDS

Occupied Bandwidth (99% and -26dBc) WCDMA Band 2 CH 9262



Date: 19.JUL.2024 11:37:01



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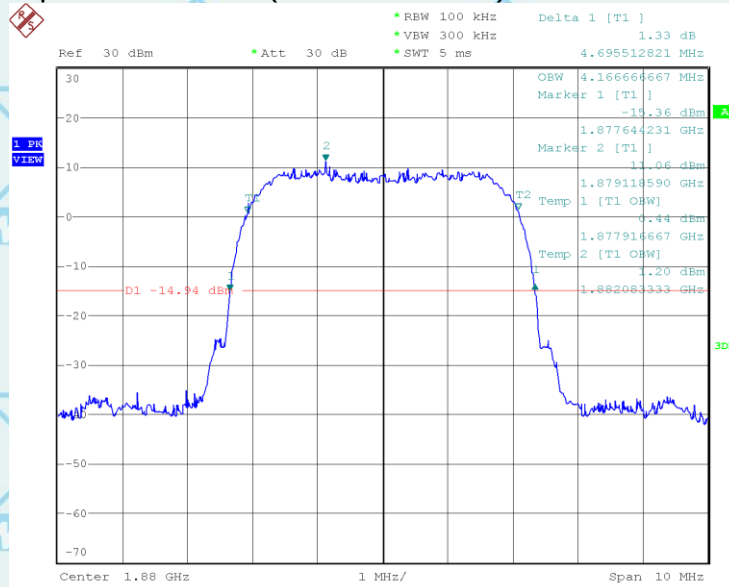


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

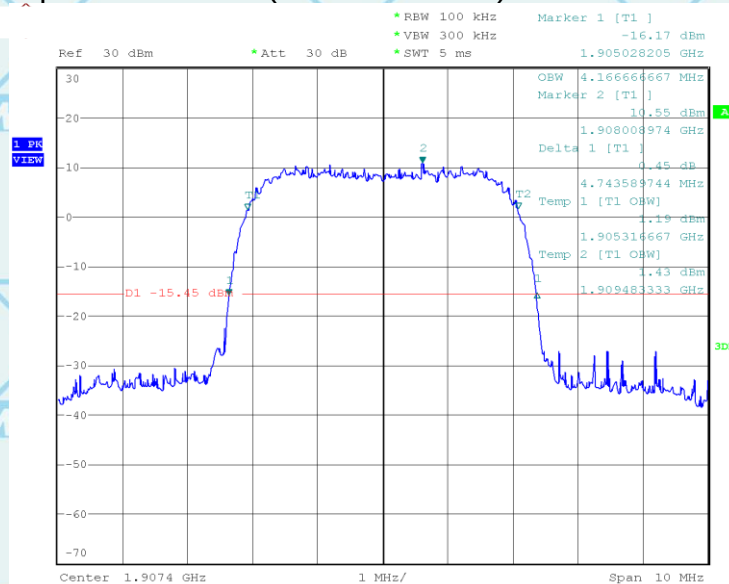
Occupied Bandwidth (99%and-26dBc) WCDMA Band 2 CH 9400

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Date: 19.JUL.2024 11:34:40

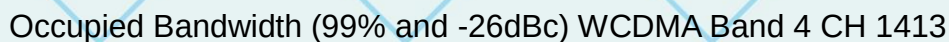
Occupied Bandwidth (99%and-26dBc) WCDMA Band 2 CH 9538



Date: 19.JUL.2024 11:33:19

Certificate Number : AT-3951

Occupied Bandwidth (99% and -26dBc) WCDMA Band 4 CH 1312



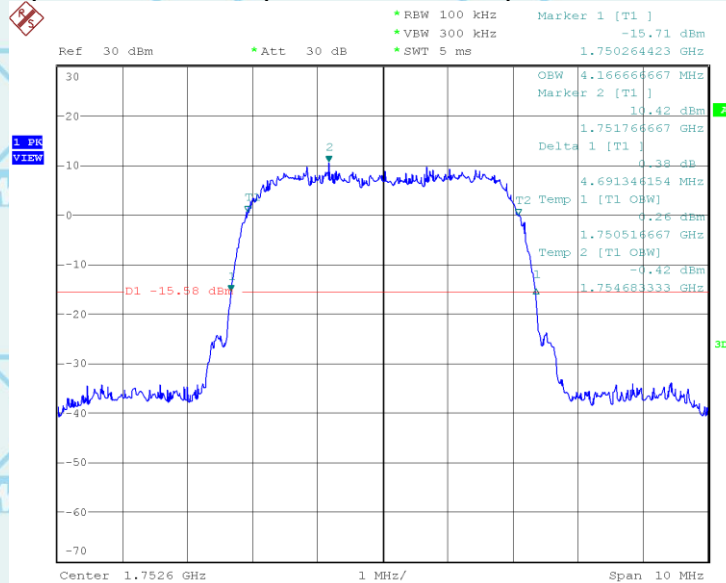


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

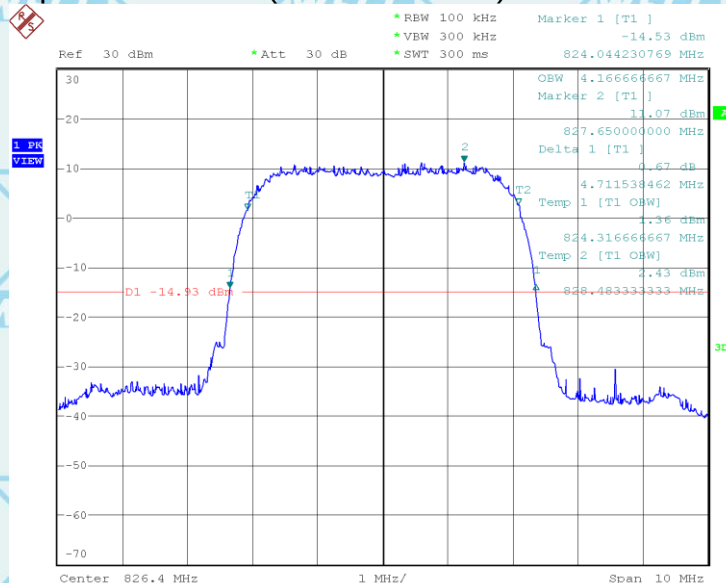
For Question,
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Occupied Bandwidth (99% and -26dBc) WCDMA Band 4 CH 1513



Date: 19.JUL.2024 11:45:53

Occupied Bandwidth (99%and-26dBc) WCDMA Band 5 CH 4132



Date: 19.JUL.2024 12:18:26

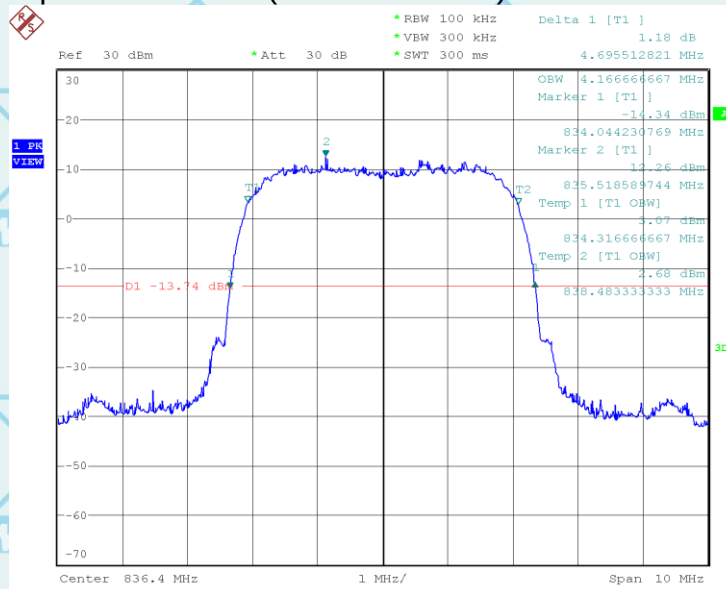


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

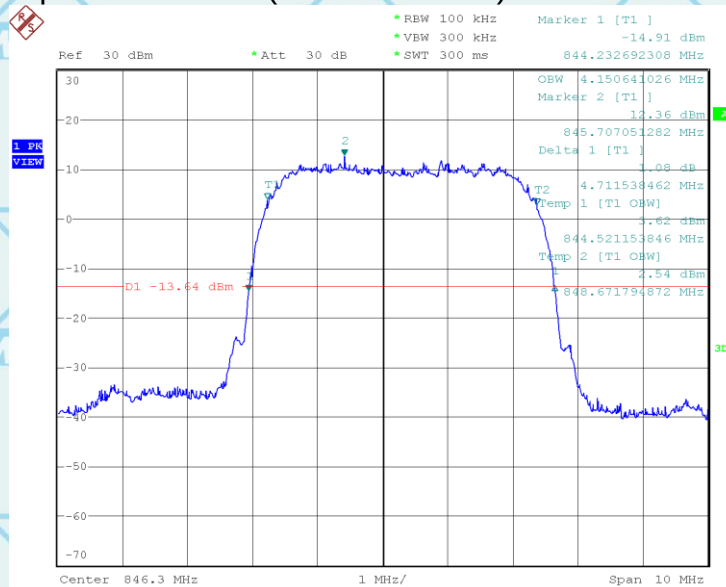
Occupied Bandwidth (99%and-26dBc) WCDMA Band 5 CH 4182

For Question,
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Date: 19.JUL.2024 12:10:10

Occupied Bandwidth (99%and-26dBc) WCDMA Band 5 CH 4233



Date: 19.JUL.2024 12:08:34

Note: Please refer to Annex (LTE&NR Occupied Bandwidth) for more test data



Report No.: WSCT-ANAB-R&E240700031A-RF

10. BAND EDGE

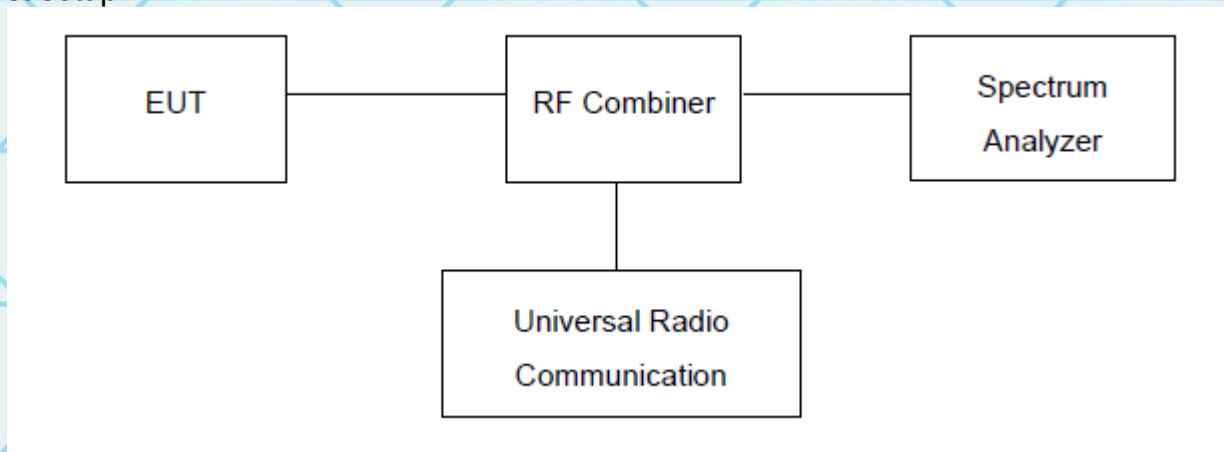
Test Limit:

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified. See section 4.

Test procedure:

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Test setup:





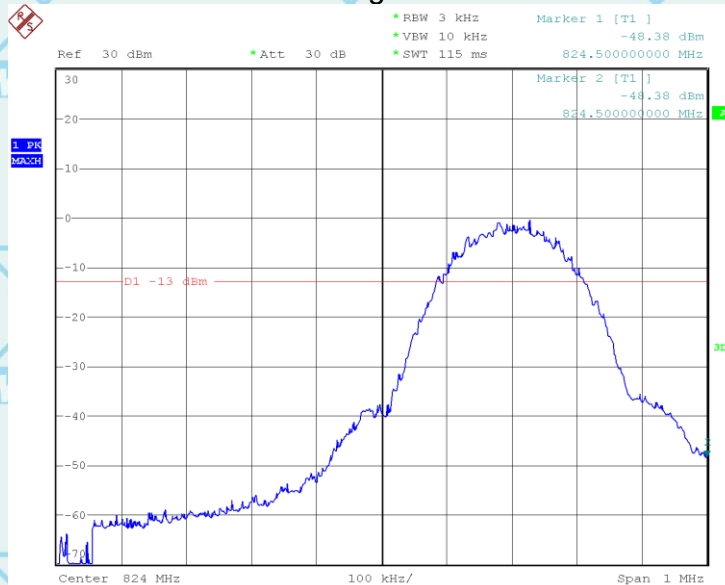
For Question,
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Report No.: WSCT-ANAB-R&E240700031A-RF

10.1. Measurement Result

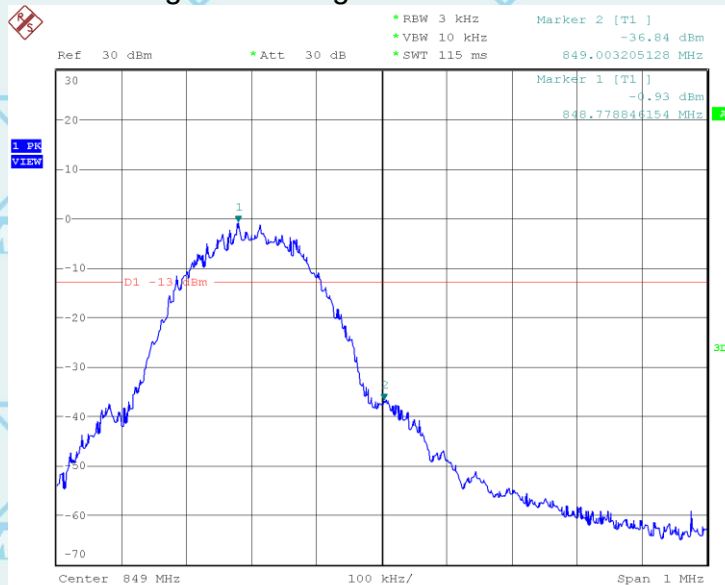
Test Plot(s)

Low Band Edge GSM 850 Band CH 128



Date: 19.JUL.2024 17:20:03

High Band Edge GSM 850 Band CH 251



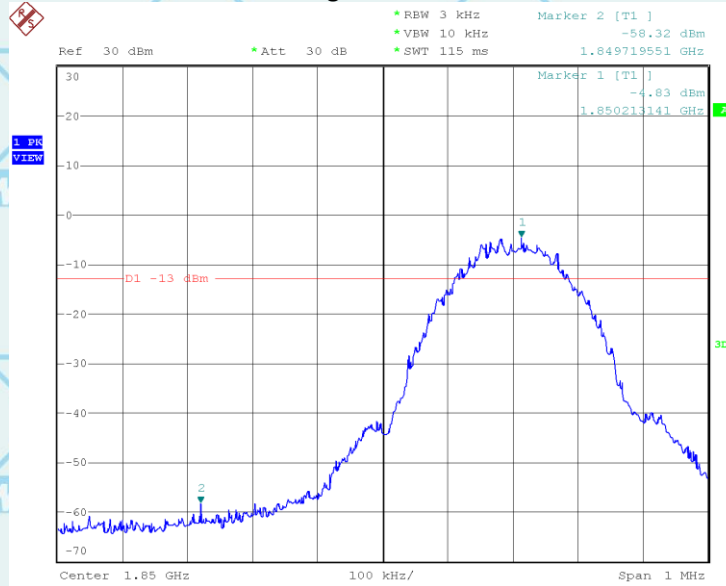


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

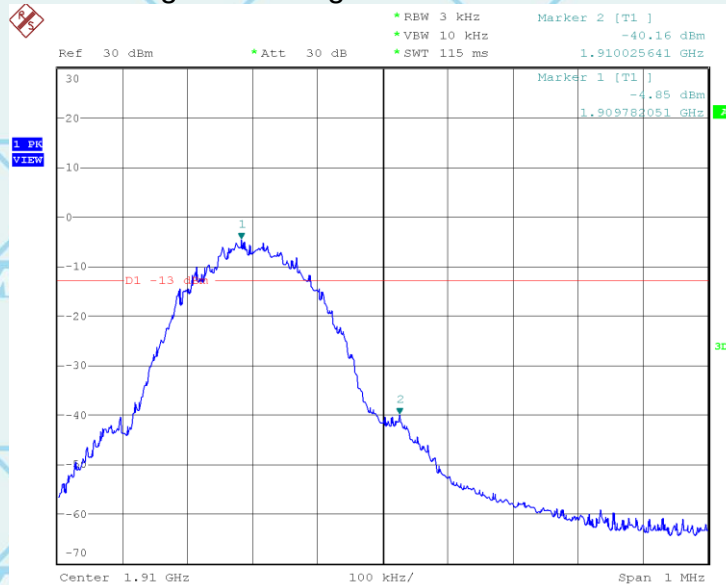
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Low Band Edge PCS 1900 Band CH 512



Date: 19.JUL.2024 10:48:16

High Band Edge PCS 1900 Band CH 810



Date: 19.JUL.2024 10:49:37



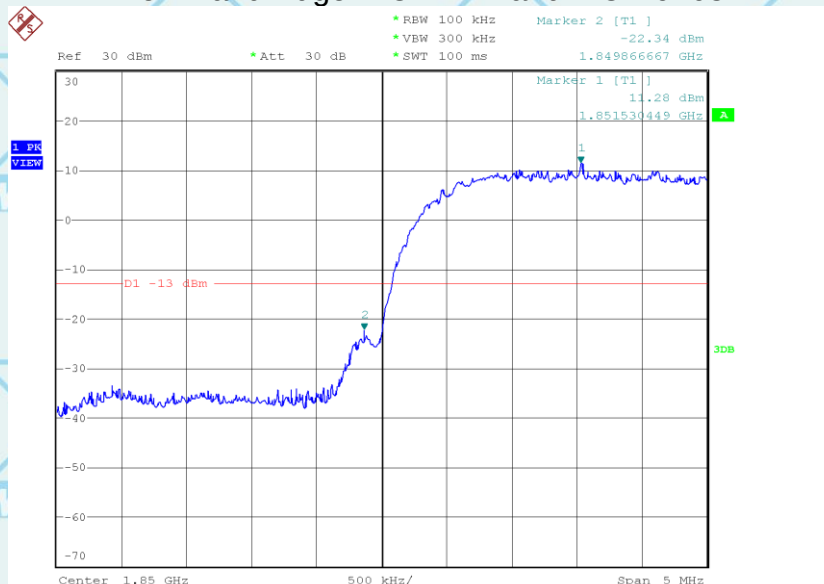


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

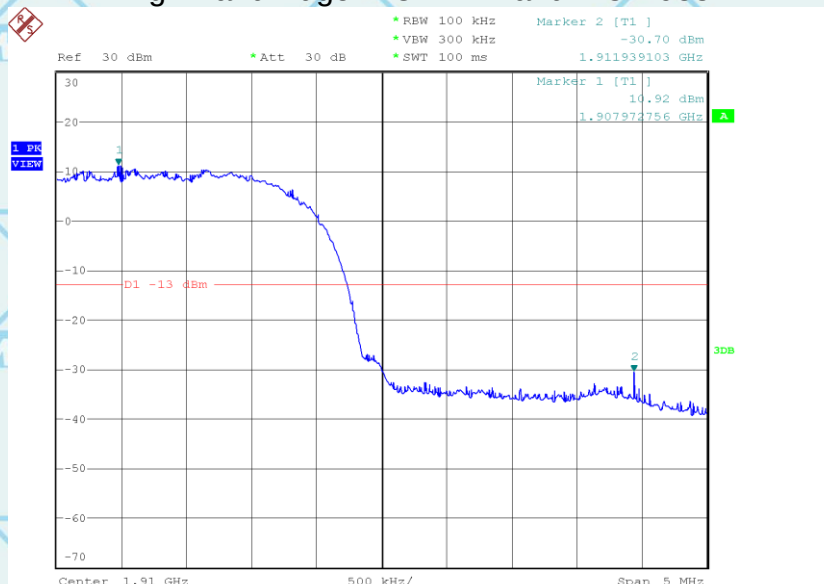
For Question,
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Low Band Edge WCDMA Band 2 CH 9263



Date: 19.JUL.2024 11:30:09

High Band Edge WCDMA Band 2 CH 9537



Date: 19.JUL.2024 11:31:19



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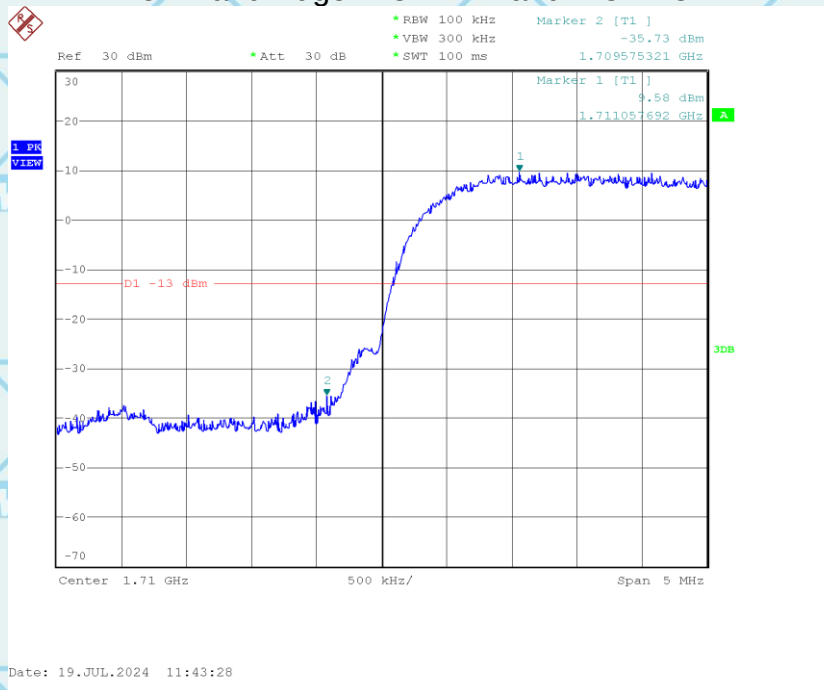


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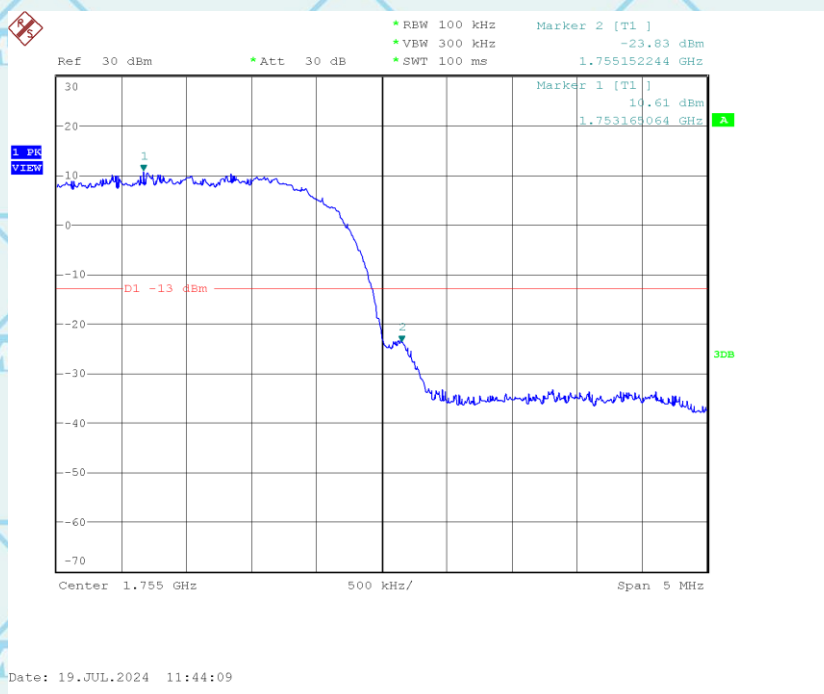
Certificate Number: AT-3951

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Low Band Edge WCDMA Band 4 CH 1312



Low Band Edge WCDMA Band 4 CH 1513



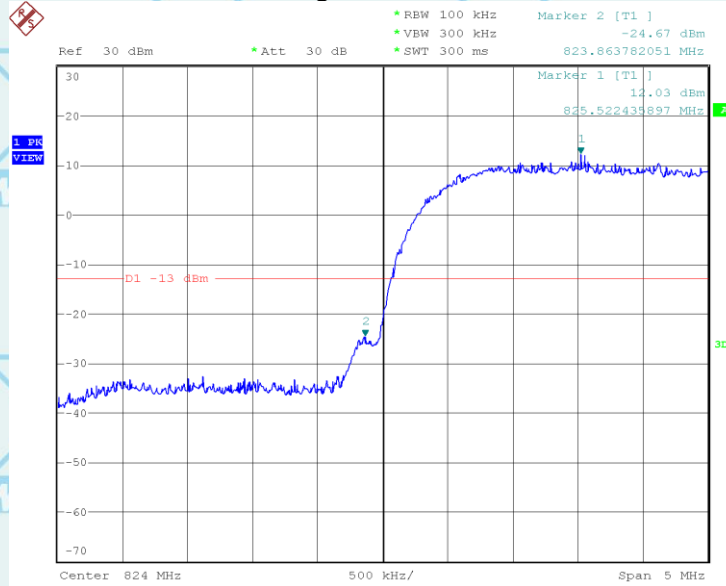


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

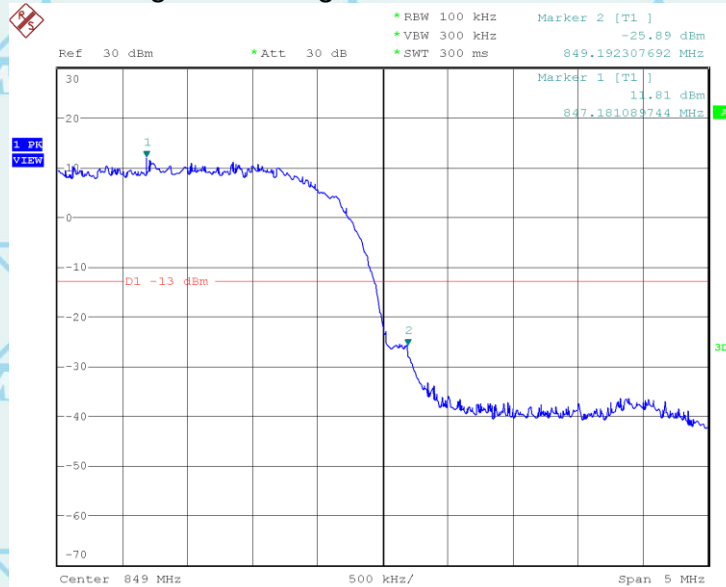
For Question,
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Low Band Edge WCDMA Band 5 CH 4132



Date: 19.JUL.2024 12:05:48

High Band Edge WCDMA Band 5 CH 4233



Date: 19.JUL.2024 12:06:35

Note: Please refer to Annex (LTE&NR Band Edge) for more test data



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Report No.: WSCT-ANAB-R&E240700031A-RF

11. SPURIOUS EMISSION (Conducted and Radiated)

11.1. Measurement Result (Pre-measurement)

GSM850:

Test Channel	BW(MHz)	UL Channel	Frequency(MHz)	Judgment
Low Range	0.2	128	824.2	Pass
Middle Range	0.2	190	836.6	Pass
High Range	0.2	251	848.8	Pass

PCS 1900 :

Test Channel	BW(MHz)	UL Channel	Frequency(MHz)	Judgment
Low Range	0.2	512	1850.2	Pass
Middle Range	0.2	661	1880.0	Pass
High Range	0.2	810	1909.8	Pass

UTRA BANDS

Band 2:

Test Channel	BW(MHz)	UL Channel	Frequency(MHz)	Judgment
Low Range	5	9262	1852.4	Pass
Middle Range	5	9400	1880.0	Pass
High Range	5	9538	1907.6	Pass

Band 4:

Test Channel	BW(MHz)	UL Channel	Frequency(MHz)	Judgment
Low Range	5	1312	1712.4	Pass
Middle Range	5	1413	1732.6	Pass
High Range	5	1513	1752.6	Pass

Band 5:

Test Channel	BW(MHz)	UL Channel	Frequency(MHz)	Judgment
Low Range	5	4132	826.4	Pass
Middle Range	5	4182	836.4	Pass
High Range	5	4233	846.6	Pass



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Report No.: WSCT-ANAB-R&E240700031A-RF

Test Plot(s)

Conducted method

Test limit:

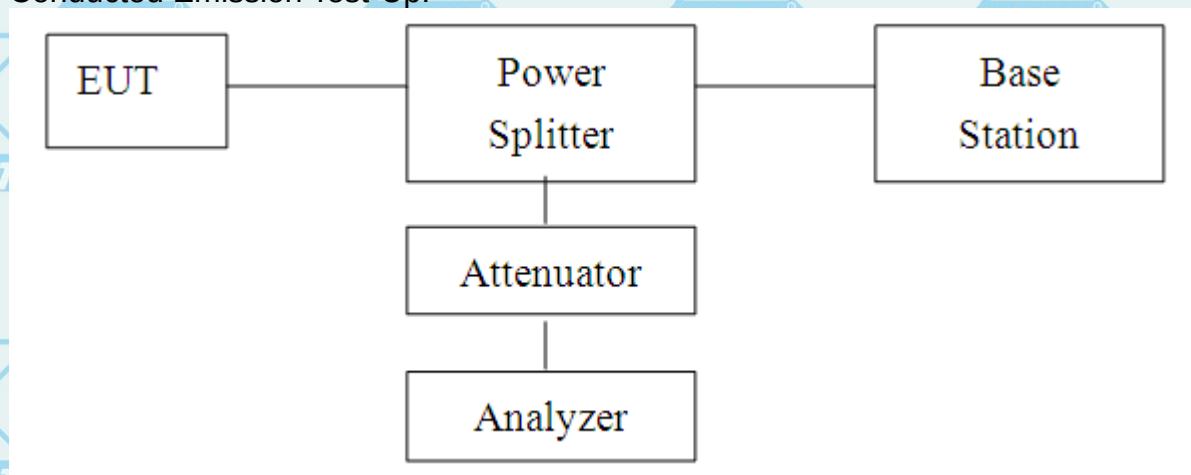
The spurious (unwanted) emission limits specified in the individual FCC rule parts applicable to licensed digital transmitters (typically referred to under the heading 'emission limits') normally apply to any and all emissions that are present outside of the authorized frequency band/block and apply to emissions in both the out-of-band and spurious domains. In some rule parts, the unwanted emission limits are specified by an emission mask that defines the applicable limit as a function of the frequency range relative to the authorized frequency block.

Typically, unwanted emissions are required by the licensed rule parts to be attenuated below the transmitter power by a factor of at least $X + 10\log(P)$ dB, where P represents the transmitter power expressed in watts and X is a specified scalar value (e.g., 43). This specification can be interpreted in one of two equivalent ways. First, the required attenuation can be construed to be relative to the mean carrier power, with the resultant of the equation $X + 10\log(P)$ being expressed in dBc (dB relative to the maximum carrier power). Alternatively, the specification can be interpreted as an absolute limit when the specified attenuation is actually subtracted from the maximum permissible transmitter power [i.e., $10\log(P) - \{X + 10\log(P)\}$], resulting in an absolute level of -X dBW [or $(-X + 30)$ dBm]. See section 4.

Test procedure:

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz below 1 GHz and 1 MHz above 1 GHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonics.

Conducted Emission Test-Up:



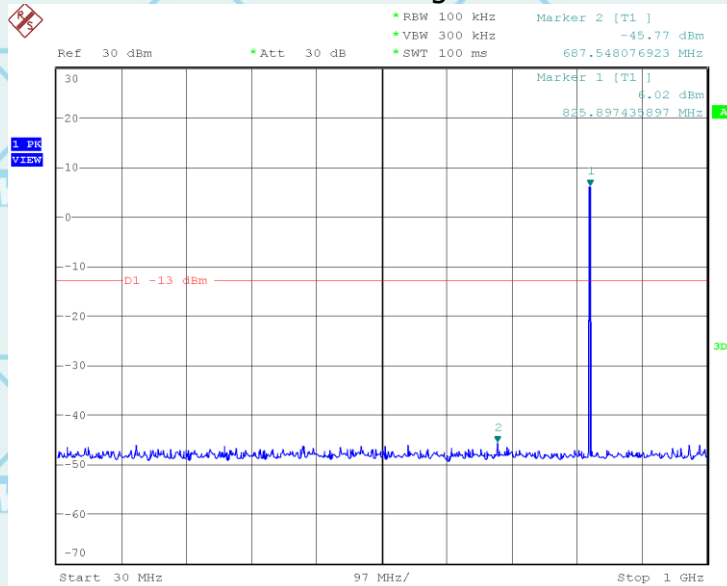


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

CONDUCTED EMISSION IN GSM850 Band Conducted Emission Transmitting Mode CH 128 30MHz – 1GHz

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Date: 17.JUL.2024 17:53:19



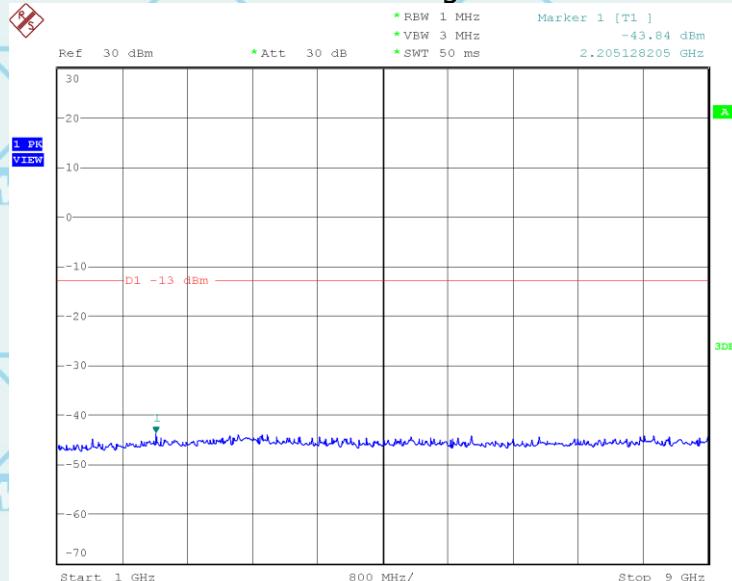


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

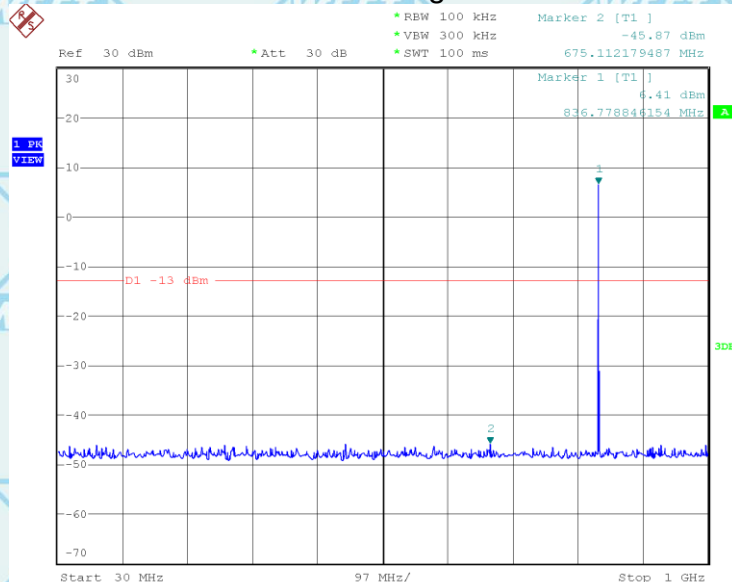
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Conducted Emission Transmitting Mode CH 128 1GHz – 9GHz



Date: 17.JUL.2024 17:51:40

Conducted Emission Transmitting Mode CH 190 30MHz – 1GHz



Date: 17.JUL.2024 17:54:02

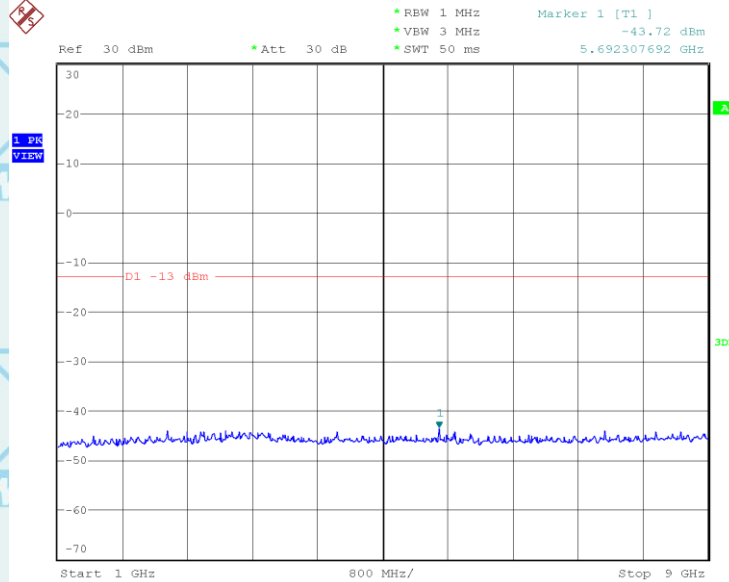


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

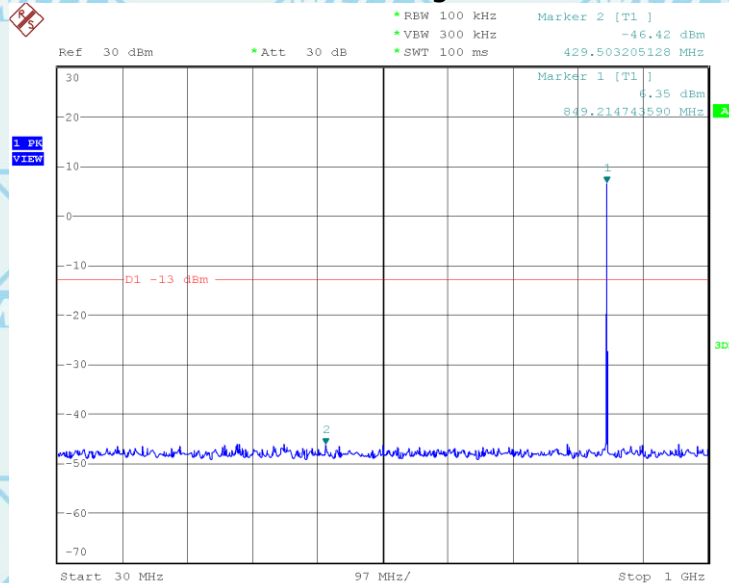
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Conducted Emission Transmitting Mode CH 190 1GHz – 9GHz



Date: 17.JUL.2024 17:50:50

Conducted Emission Transmitting Mode CH 251 30MHz – 1GHz



Date: 17.JUL.2024 17:55:03



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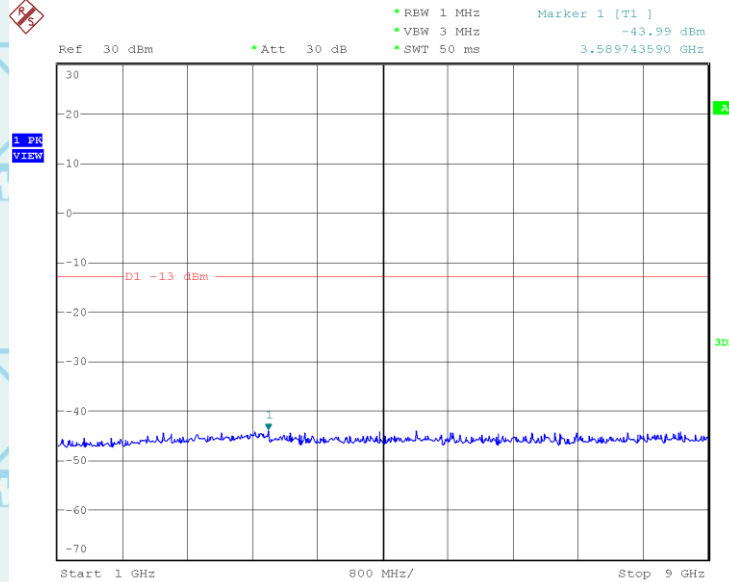


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

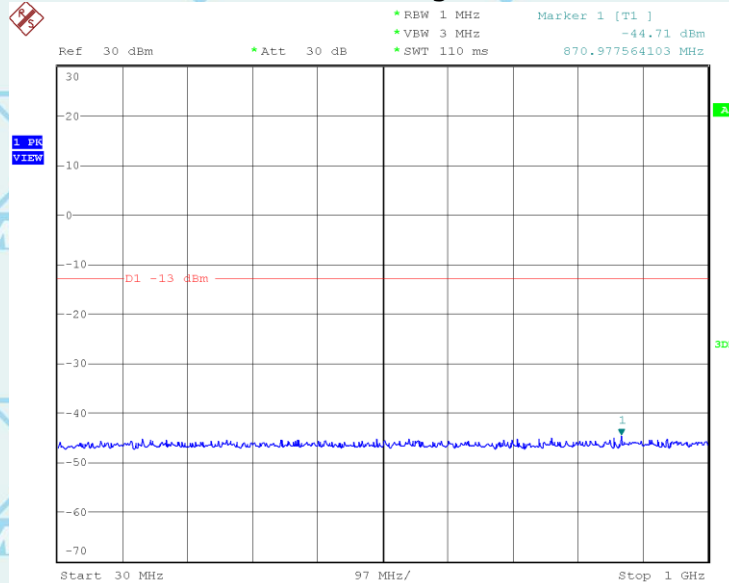
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Conducted Emission Transmitting Mode CH 251 1GHz – 9GHz



Date: 17.JUL.2024 17:50:03

CONDUCTED EMISSION IN PCS1900 BAND Conducted Emission Transmitting Mode CH 512 30MHz – 1GHz



Date: 19.JUL.2024 10:45:41



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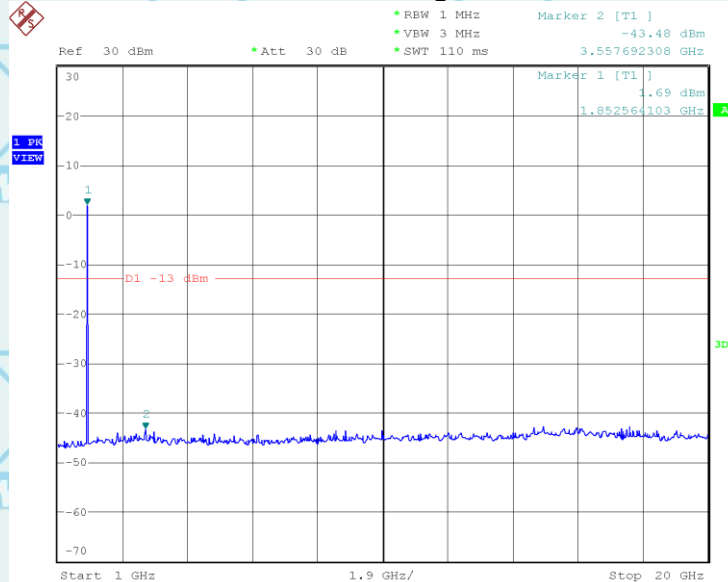


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

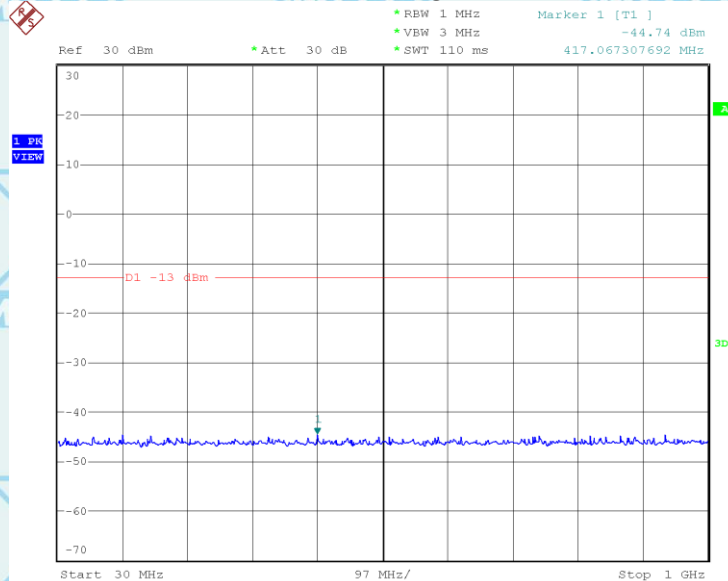
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Conducted Emission Transmitting Mode CH 512 1GHz – 20GHz



Date: 19.JUL.2024 10:36:47

Conducted Emission Transmitting Mode CH 661 30MHz – 1GHz



Date: 19.JUL.2024 10:44:54

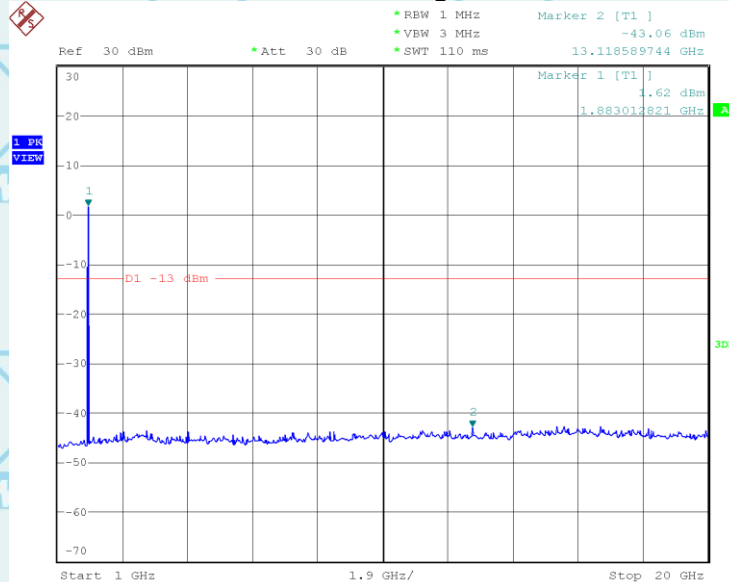


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

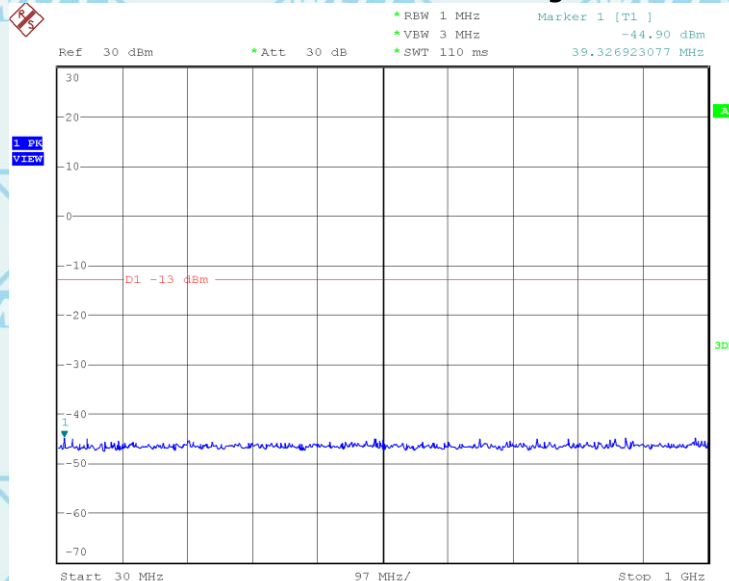
For Question,
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Conducted Emission Transmitting Mode CH 661 1GHz – 20GHz



Date: 19.JUL.2024 10:41:38

Conducted Emission Transmitting Mode CH 810 30MHz – 1GHz



Date: 19.JUL.2024 10:43:52

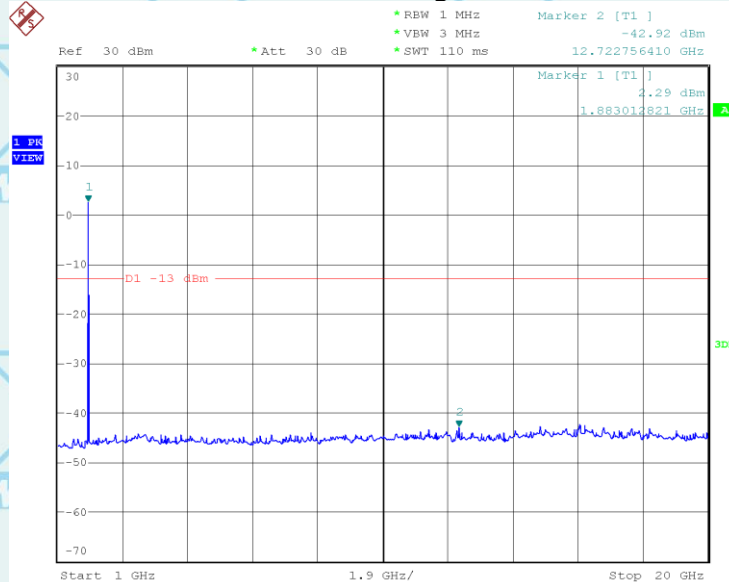


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

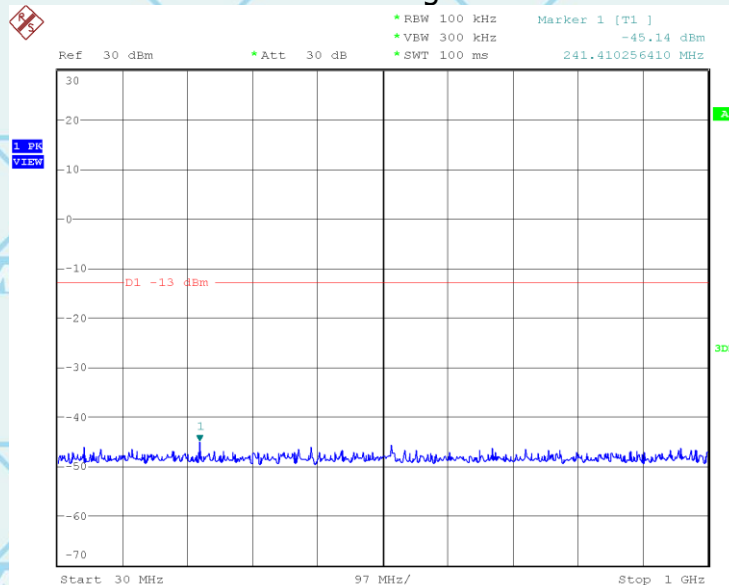
For Question,
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Conducted Emission Transmitting Mode CH 810 1GHz – 20GHz



Date: 19.JUL.2024 10:43:03

CONDUCTED EMISSION IN WCDMA Band 2 Conducted Emission Transmitting Mode CH 9262 30MHz – 1GHz



Date: 19.JUL.2024 11:42:05



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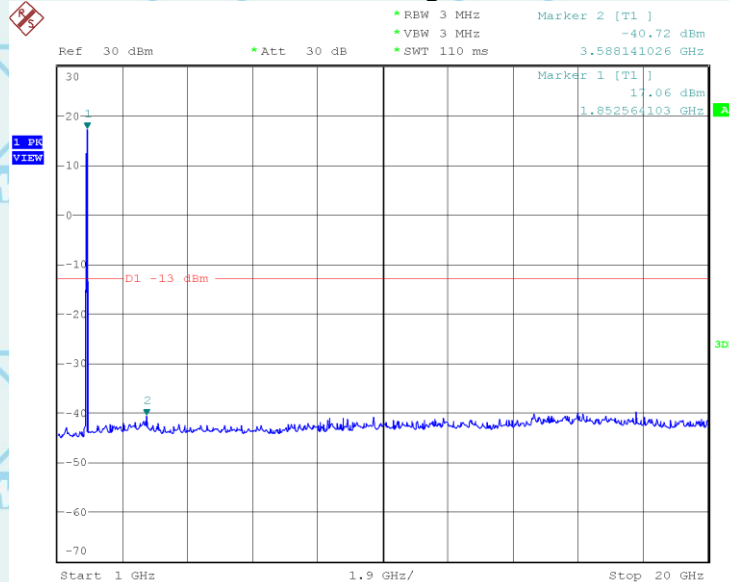


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

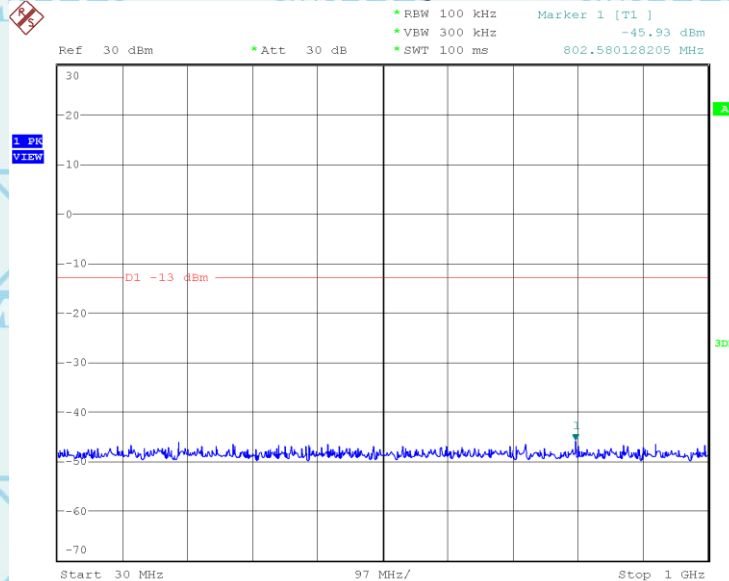
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Conducted Emission Transmitting Mode CH 9262 1GHz – 20GHz



Date: 19.JUL.2024 11:38:47

Conducted Emission Transmitting Mode CH 9400 30MHz – 1GHz



Date: 19.JUL.2024 11:41:27

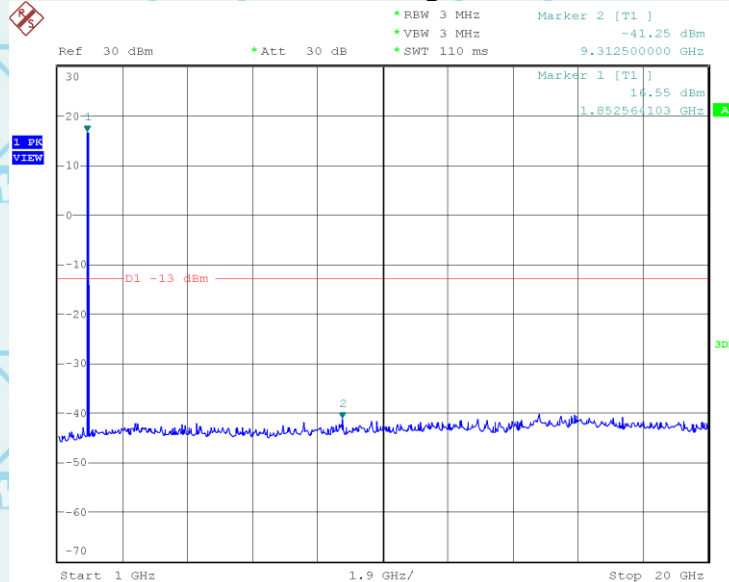


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

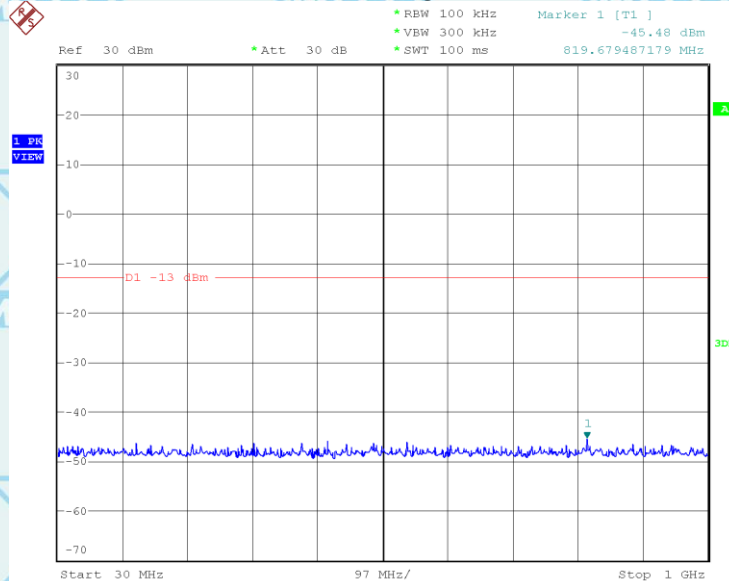
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Conducted Emission Transmitting Mode CH 9400 1GHz – 20GHz



Date: 19.JUL.2024 11:39:24

Conducted Emission Transmitting Mode CH 9538 30MHz – 1GHz



Date: 19.JUL.2024 11:40:49

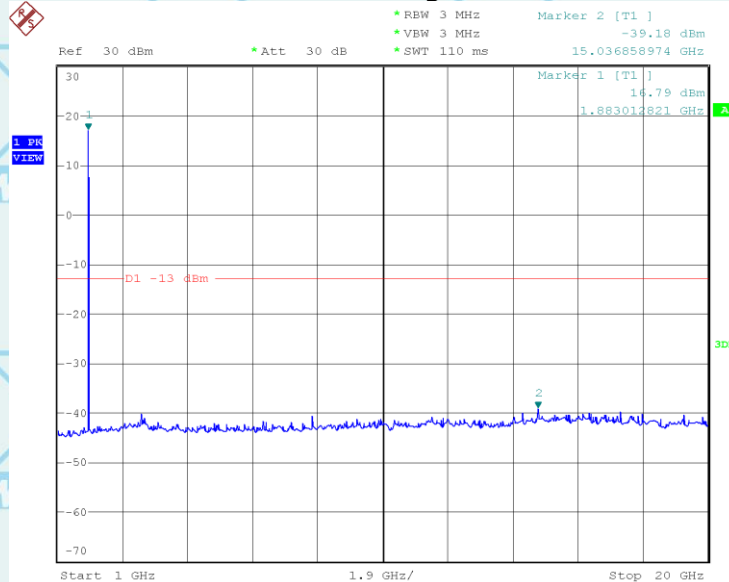


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Certificate Number: AT-3951

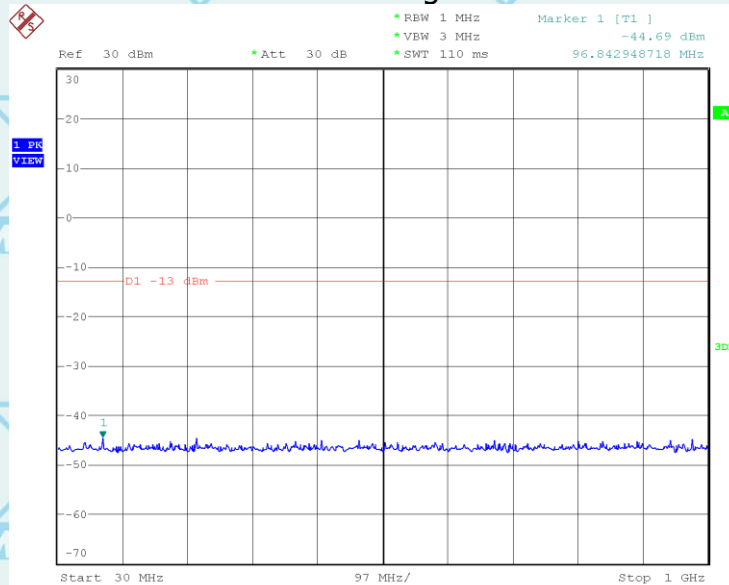
For Question,
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Conducted Emission Transmitting Mode CH 9538 1GHz – 20GHz



Date: 19.JUL.2024 11:39:58

CONDUCTED EMISSION IN WCDMA Band 4 Conducted Emission Transmitting Mode CH 1312 30MHz – 1GHz



Date: 19.JUL.2024 11:56:29



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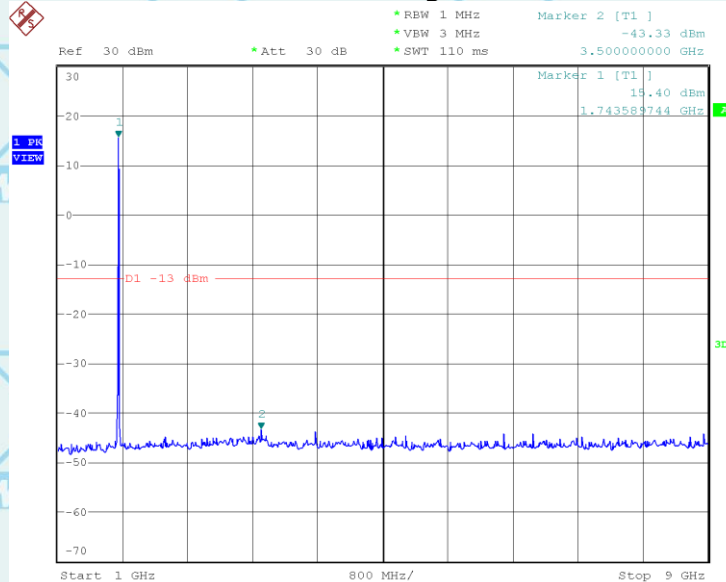


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

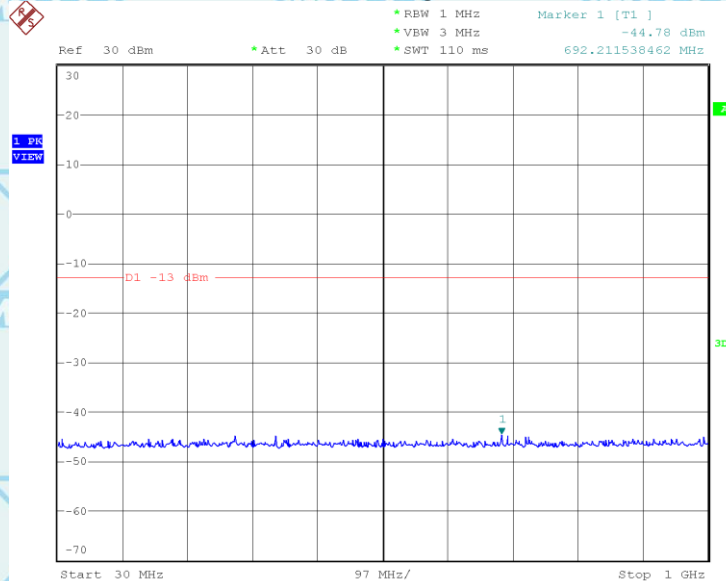
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Conducted Emission Transmitting Mode CH 1312 1GHz – 20GHz



Date: 19.JUL.2024 11:57:14

Conducted Emission Transmitting Mode CH 1413 30MHz – 1GHz



Date: 19.JUL.2024 11:55:58

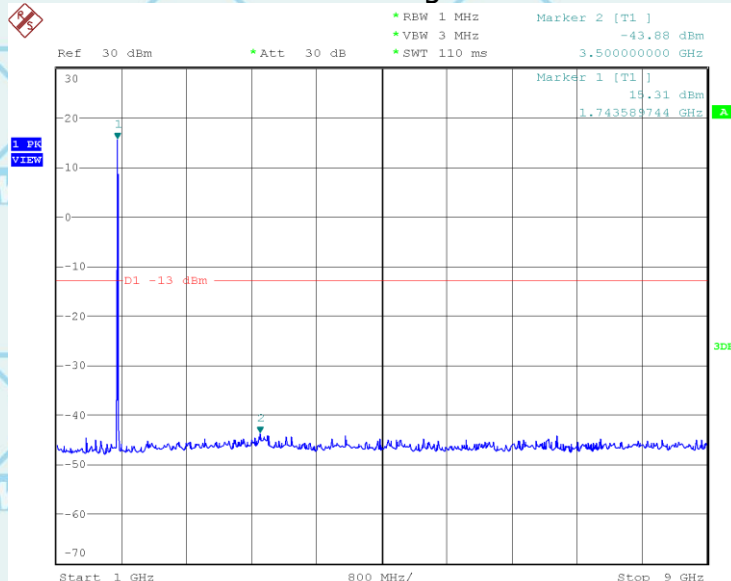


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

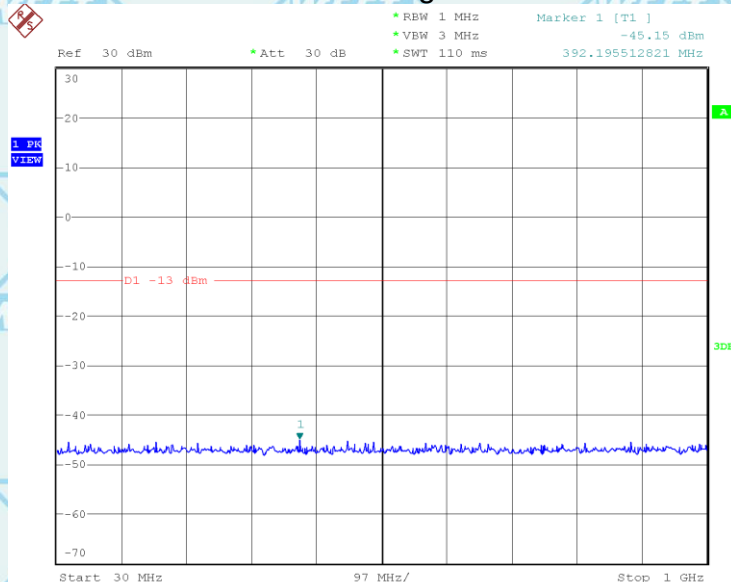
For Question,
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Conducted Emission Transmitting Mode CH 1413 1GHz – 20GHz



Date: 19.JUL.2024 11:57:46

Conducted Emission Transmitting Mode CH 1513 30MHz – 1GHz



Date: 19.JUL.2024 11:55:27

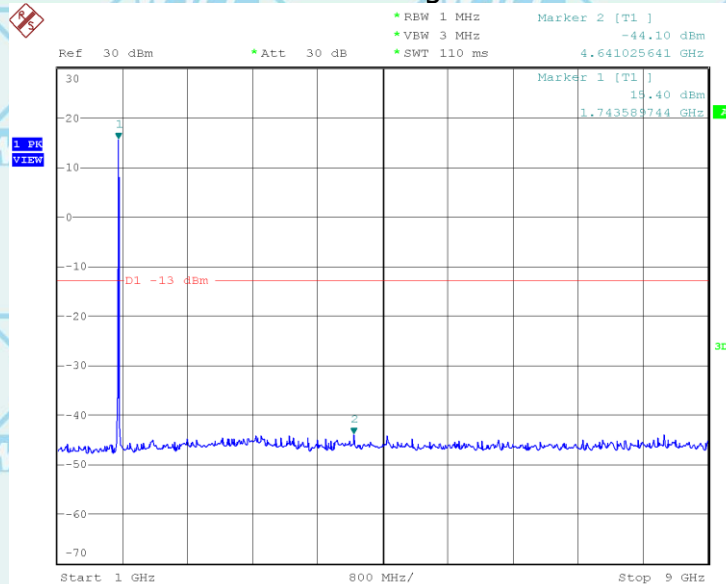


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

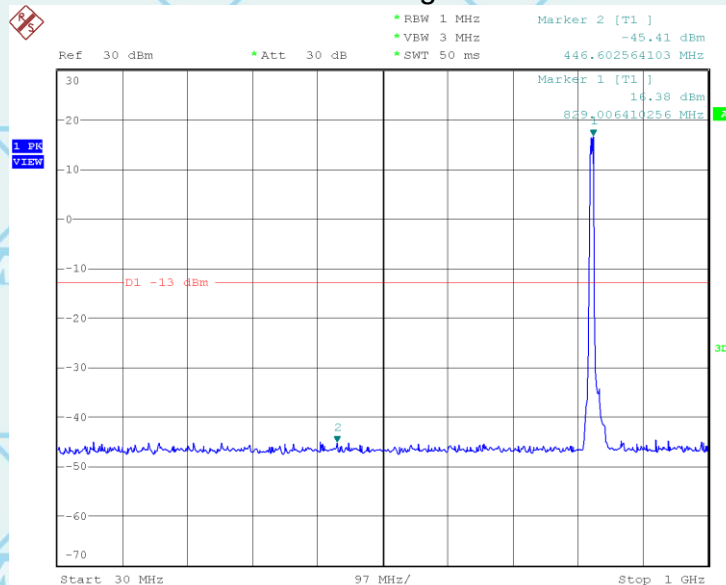
For Question,
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Conducted Emission Transmitting Mode CH 1513 1GHz – 20GHz



Date: 19.JUL.2024 11:58:18

CONDUCTED EMISSION IN WCDMA Band 5 Conducted Emission Transmitting Mode CH 4132 30MHz – 1GHz



Date: 19.JUL.2024 12:03:11



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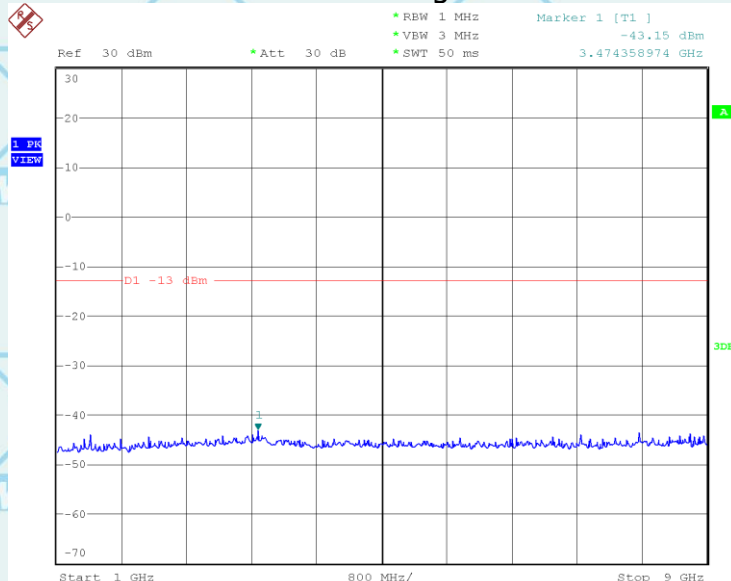


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

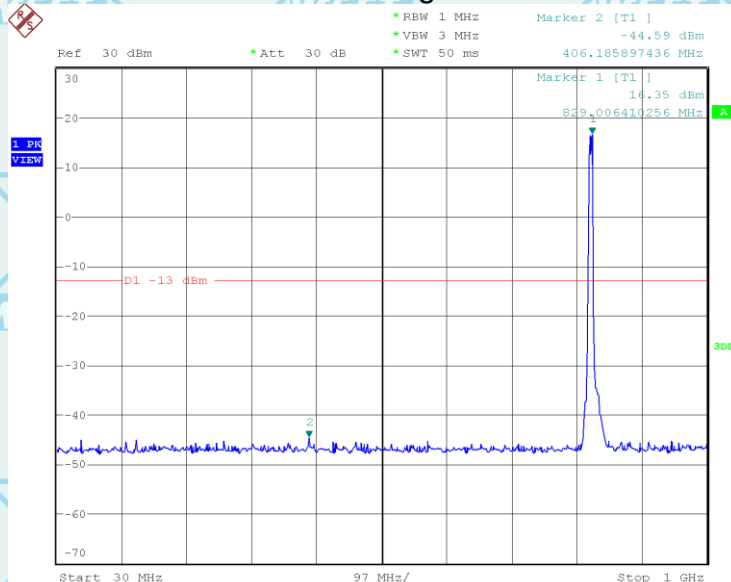
For Question,
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Conducted Emission Transmitting Mode CH 4132 1GHz – 9GHz



Date: 19.JUL.2024 12:00:50

Conducted Emission Transmitting Mode CH 4182 30MHz – 1GHz



Date: 19.JUL.2024 12:03:50

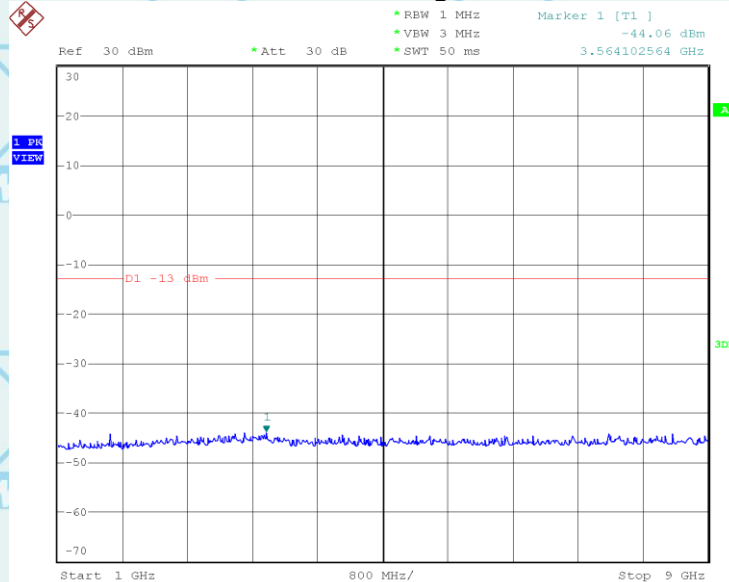


Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

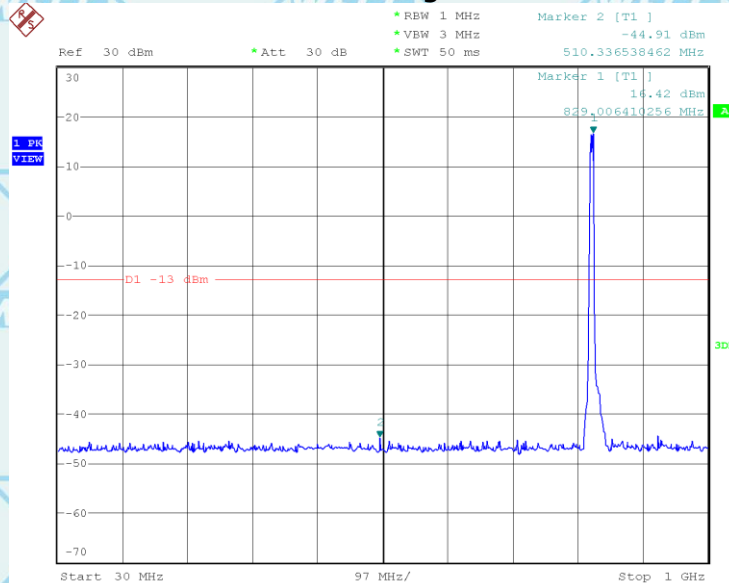
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Conducted Emission Transmitting Mode CH 4182 1GHz – 9GHz



Date: 19.JUL.2024 12:01:40

Conducted Emission Transmitting Mode CH 4233 30MHz – 1GHz



Date: 19.JUL.2024 12:04:27

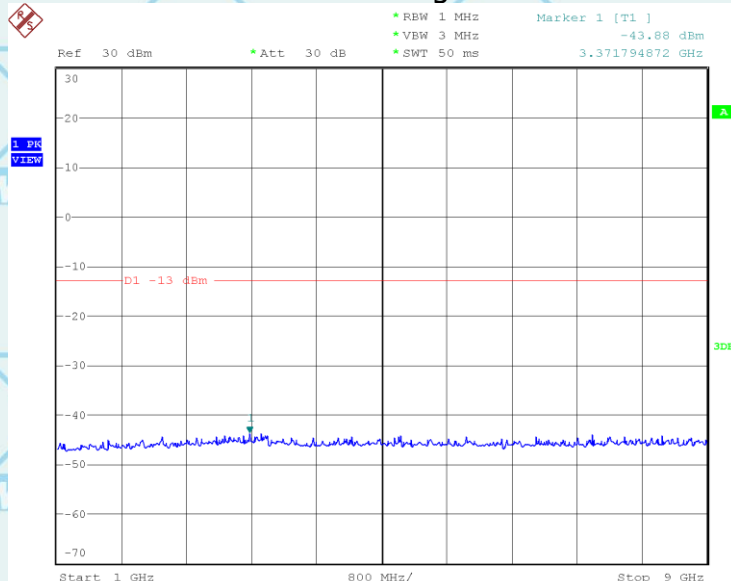


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Conducted Emission Transmitting Mode CH 4233 1GHz – 9GHz



Date: 19.JUL.2024 12:02:17

Note: Please refer to Annex (LTE&NR Out-of-band emissions) for more test data



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12. FREQUENCY STABILITY

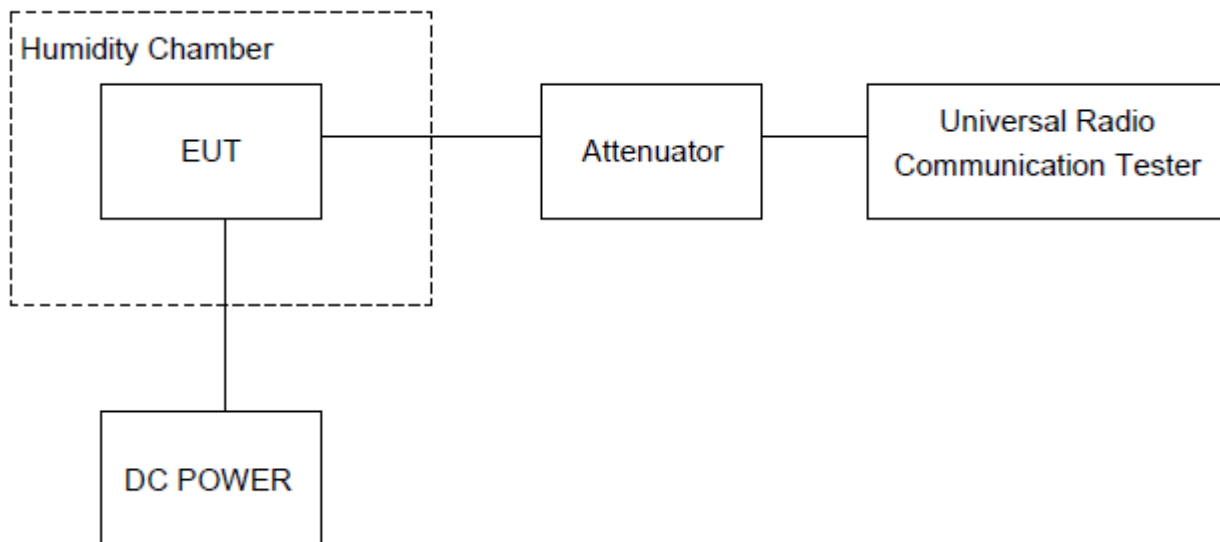
Test limit:

The frequency stability of the transmitter shall be measured while varying the ambient temperatures and supply voltages over the ranges specified in §2.1055. The specific frequency stability limits are provided in the relevant rules section(s). see section 4.

Test procedure:

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

Test setup:





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Report No.: WSCT-ANAB-R&E240700031A-RF

12.1. Measurement Result (Worst)

Frequency Error against Voltage for GSM 850 band (836.6MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	30	0.036
3.87	29	0.034
4.45	30	0.035

Frequency Error against Temperature for GSM 850 band (836.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-20	36	0.043
0	41	0.049
10	32	0.038
20	39	0.046
30	40	0.048
40	40	0.047
60	35	0.042

Frequency Error against Voltage for PCS 1900 band (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	30	0.016
3.87	29	0.016
4.45	29	0.016

Frequency Error against Temperature for PCS 1900 band (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-20	39	0.021
0	34	0.018
10	29	0.015
20	35	0.019
30	29	0.015
40	32	0.017
60	32	0.017



Report No.: WSCT-ANAB-R&E240700031A-RF

Frequency Error against Voltage for GPRS 850 band (836.6MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	36	0.043
3.87	40	0.048
4.45	40	0.048

Frequency Error against Temperature for GPRS 850 band (836.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-20	37	0.044
0	34	0.041
10	35	0.042
20	30	0.036
30	40	0.047
40	41	0.048
60	35	0.042

Frequency Error against Voltage for GPRS 1900 band (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	34	0.018
3.87	30	0.016
4.45	38	0.020

Frequency Error against Temperature for GPRS 1900 band (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-20	40	0.021
0	30	0.016
10	39	0.021
20	39	0.021
30	40	0.022
40	35	0.018
60	37	0.020



Report No.: WSCT-ANAB-R&E240700031A-RF

Certificate Number: AT-3951

For Question,
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Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	29	0.035
3.86	29	0.035
4.53	38	0.045

Frequency Error against Temperature for EGPRS 850 band (836.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	32	0.038
0	41	0.048
10	31	0.037
20	41	0.049
30	39	0.046
40	37	0.045
55	34	0.040

Frequency Error against Voltage for EGPRS 1900 band (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	28	0.015
3.86	38	0.020
4.53	31	0.016

Frequency Error against Temperature for EGPRS 1900 band (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	38	0.020
0	37	0.019
10	32	0.017
20	35	0.018
30	30	0.016
40	41	0.022
55	37	0.020



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Report No.: WSCT-ANAB-R&E240700031A-RF

UTRA BANDS

Frequency Error against Voltage for WCDMA Band 2 (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	34	0.018
3.86	33	0.018
4.53	31	0.016

Frequency Error against Temperature for WCDMA Band 2 (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	30	0.016
0	30	0.016
10	29	0.015
20	40	0.021
30	40	0.022
40	30	0.016
55	31	0.017

Frequency Error against Voltage for WCDMA Band 4 (1732.6MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	35	0.020
3.86	34	0.020
4.53	38	0.022

Frequency Error against Temperature for WCDMA Band 4 (1732.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	29	0.017
0	41	0.024
10	35	0.020
20	39	0.022
30	36	0.021
40	38	0.022
55	31	0.018

**Frequency Error against Voltage for WCDMA Band 5 (836.4MHz)**

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	35	0.041
3.86	41	0.049
4.53	40	0.048

Frequency Error against Temperature for WCDMA Band 5 (836.4MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	36	0.043
0	39	0.047
10	30	0.036
20	34	0.040
30	34	0.041
40	39	0.047
55	31	0.037

Note: Please refer to Annex (LTE&NR Frequency Error against) for more test data



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Report No.: WSCT-ANAB-R&E240700031A-RF

13. Test Setup Photographs

Please refer to Annex "Set Up Photos-RF" for test setup photos

---END OF REPORT---