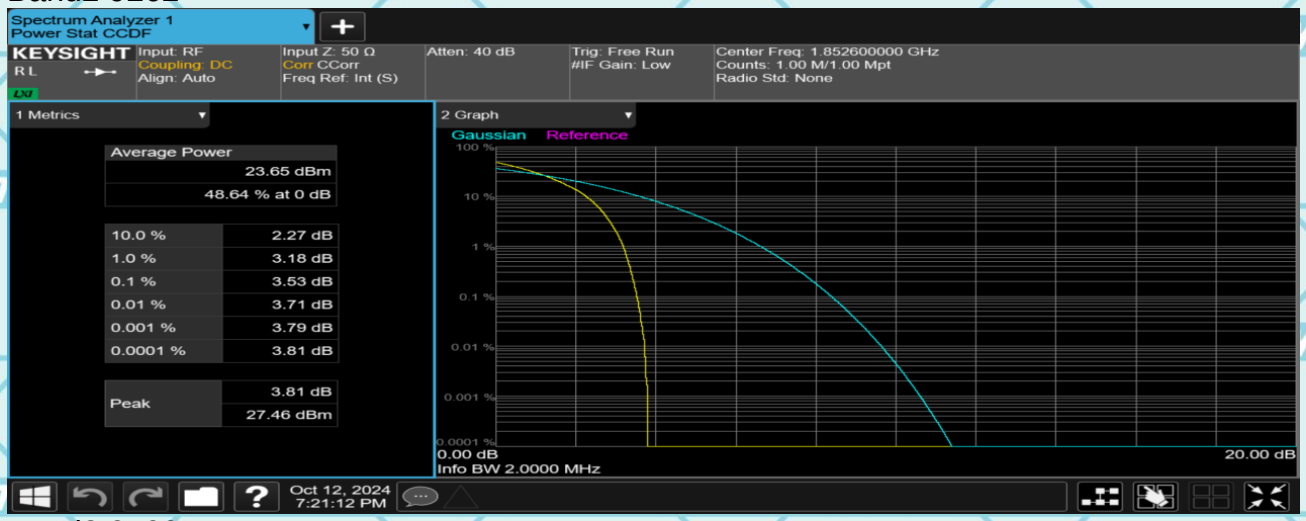
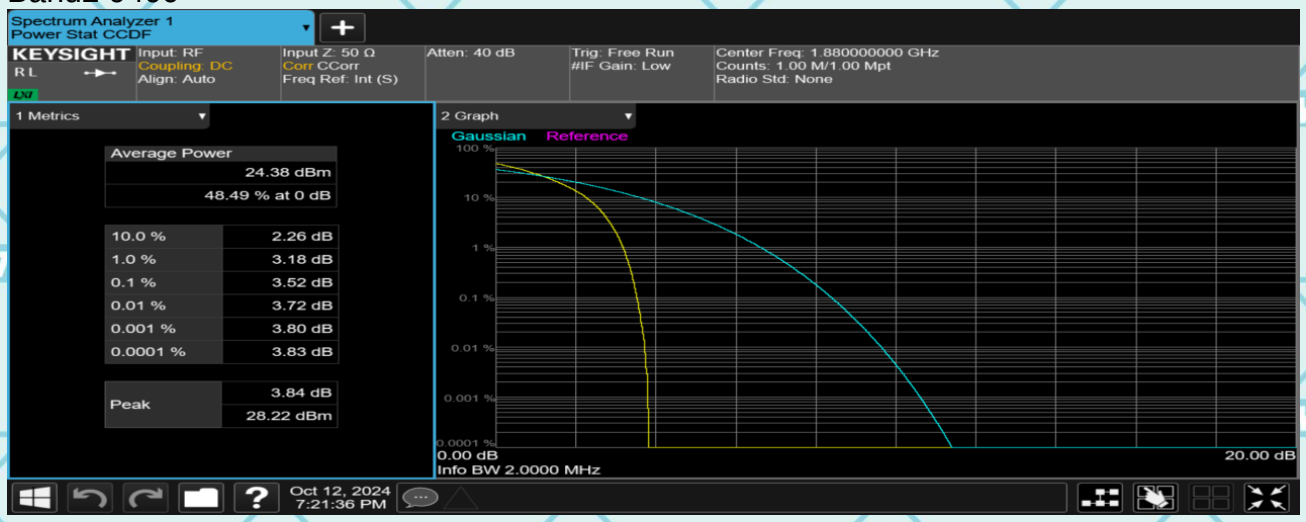
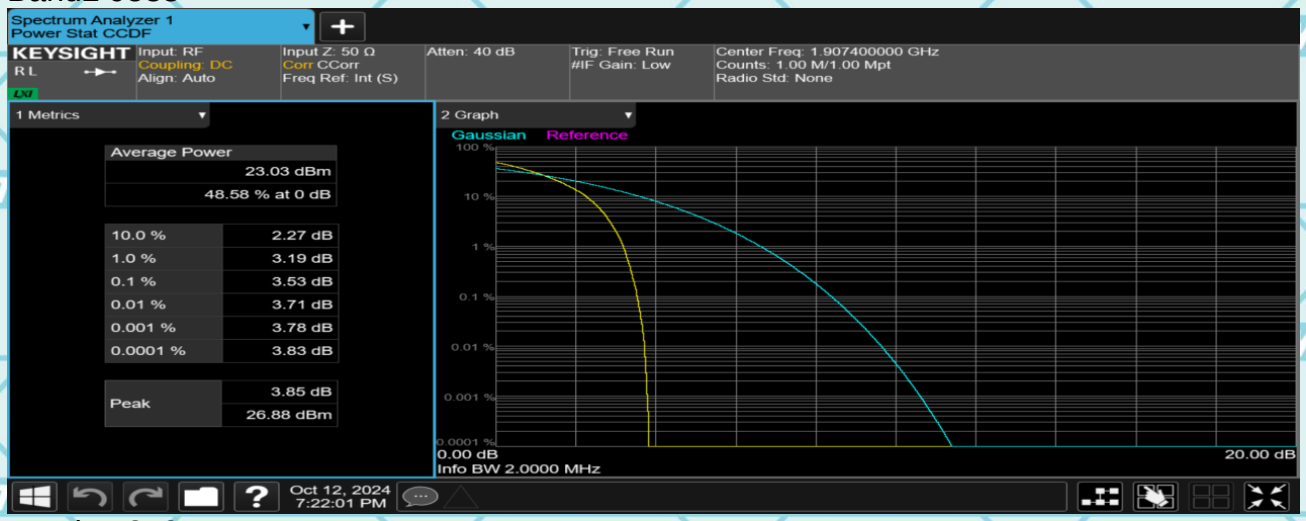
Band2 9262



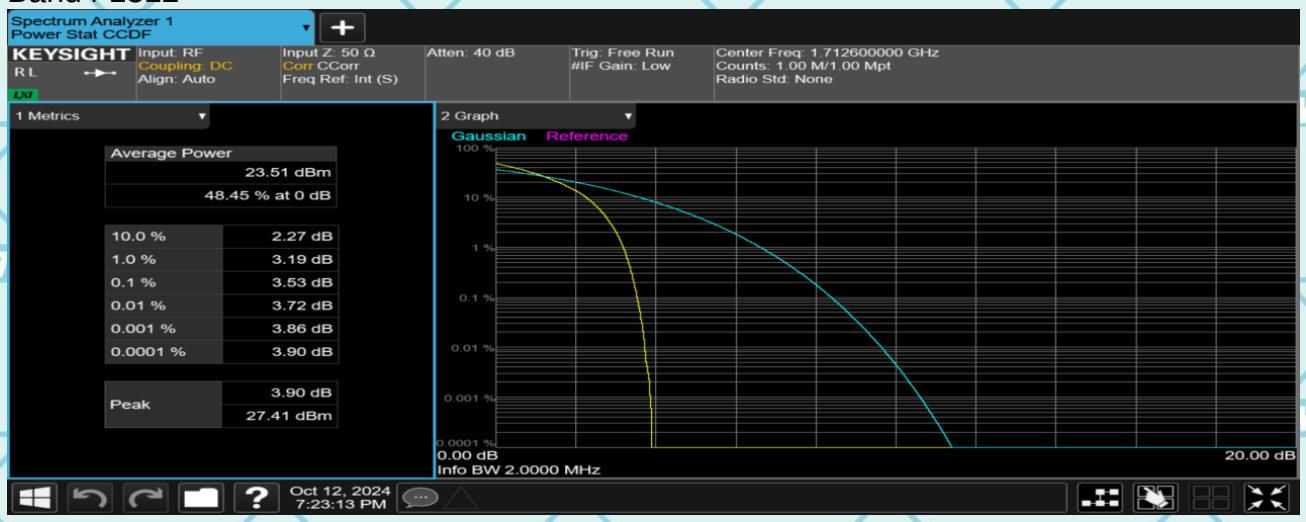
Band2 9400



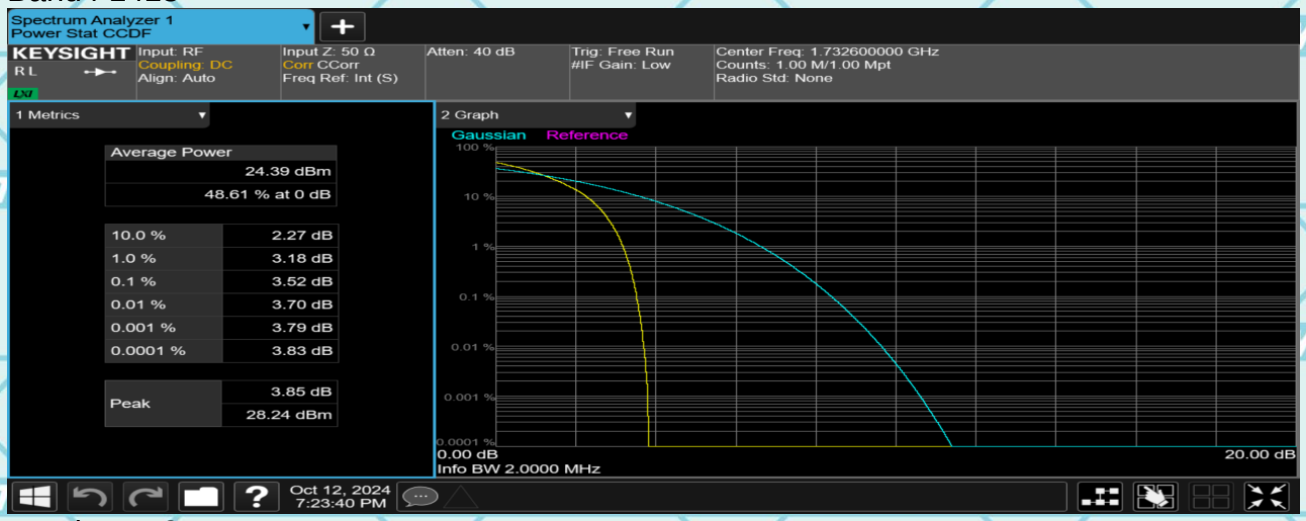
Band2 9538



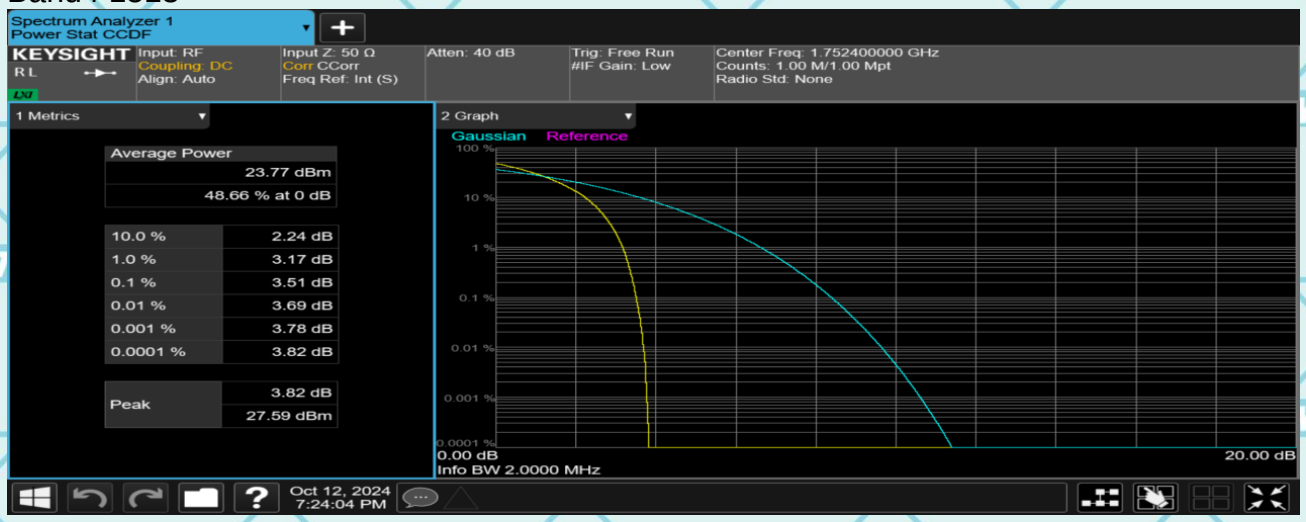
Band4 1312



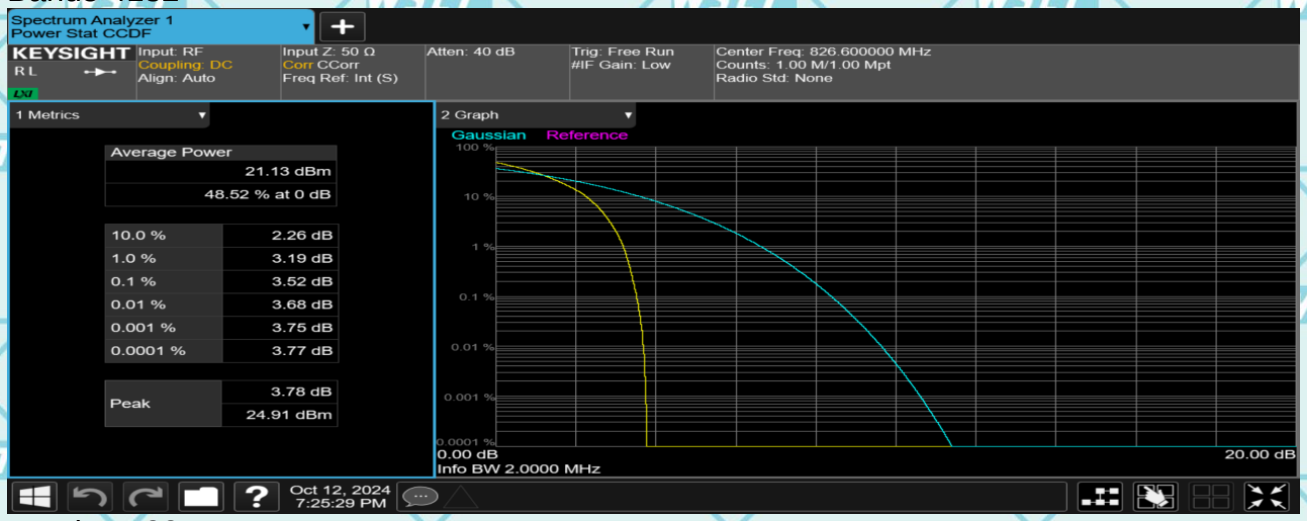
Band4 1413



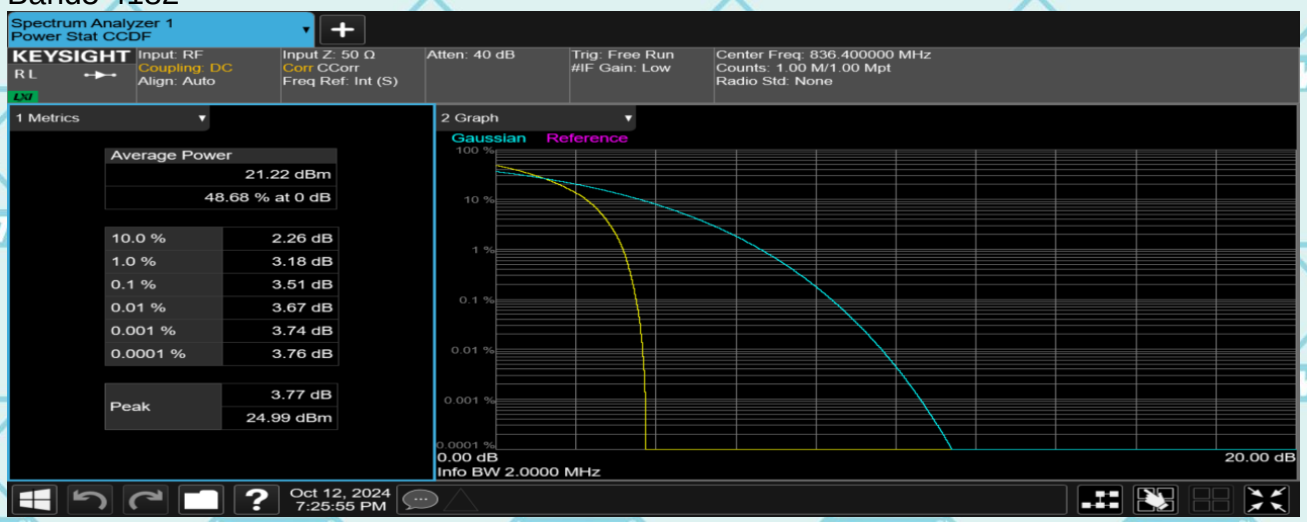
Band4 1513



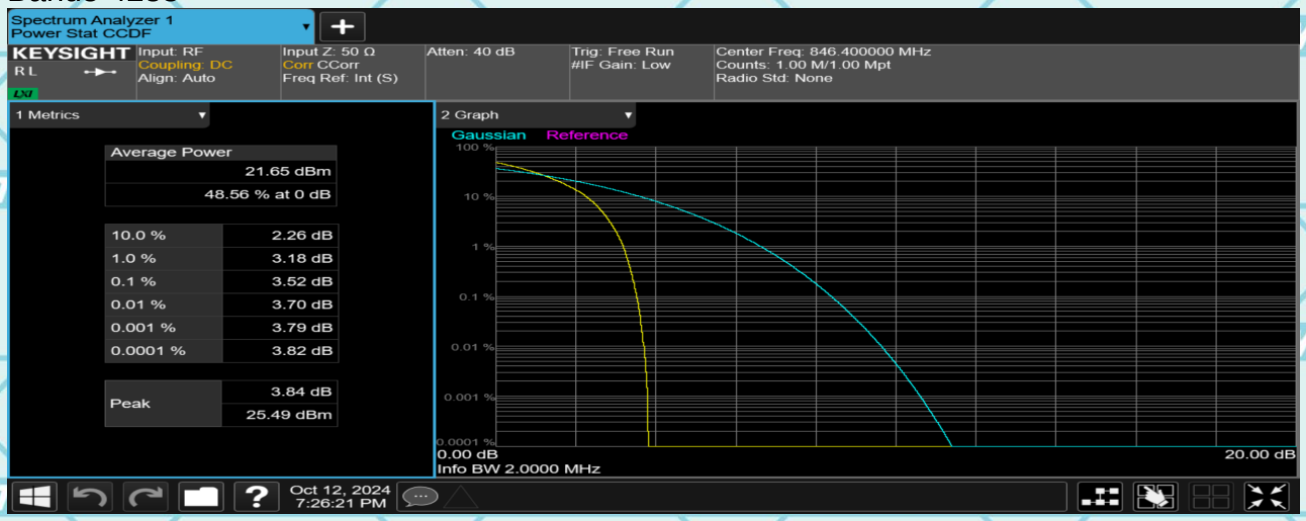
Band5 4132



Band5 4182



Band5 4233



Note: Please refer to Annex（LTE Chapter 2 Peak-to-Average Ratio） for more test data

8. SPURIOUS EMISSION (Conducted and Radiated)

8.1. 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

E-UTRA BANDS

Band 2:

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
1.4	18607	1850.7	QPSK	6	LOW	Pass
1.4	18607	1850.7	Q16	6	LOW	Pass
1.4	18900	1880	QPSK	6	LOW	Pass
1.4	18900	1880	Q16	6	LOW	Pass
1.4	19193	1909.3	QPSK	6	LOW	Pass
1.4	19193	1909.3	Q16	6	LOW	Pass
3	18615	1851.5	QPSK	15	LOW	Pass
3	18615	1851.5	Q16	15	LOW	Pass
3	18900	1880	QPSK	15	LOW	Pass
3	18900	1880	Q16	15	LOW	Pass
3	19185	1908.5	QPSK	15	LOW	Pass
3	19185	1908.5	Q16	15	LOW	Pass
5	18625	1852.5	QPSK	25	LOW	Pass
5	18625	1852.5	Q16	25	LOW	Pass
5	18900	1880	QPSK	25	LOW	Pass
5	18900	1880	Q16	25	LOW	Pass
5	19175	1907.5	QPSK	25	LOW	Pass
5	19175	1907.5	Q16	25	LOW	Pass
10	18650	1855	QPSK	50	LOW	Pass
10	18650	1855	Q16	50	LOW	Pass
10	18900	1880	QPSK	50	LOW	Pass
10	18900	1880	Q16	50	LOW	Pass
10	19150	1905	QPSK	50	LOW	Pass
10	19150	1905	Q16	50	LOW	Pass
15	18675	1857.5	QPSK	75	LOW	Pass
15	18675	1857.5	Q16	75	LOW	Pass
15	18900	1880	QPSK	75	LOW	Pass
15	18900	1880	Q16	75	LOW	Pass
15	19125	1902.5	QPSK	75	LOW	Pass
15	19125	1902.5	Q16	75	LOW	Pass
20	18700	1860	QPSK	100	LOW	Pass
20	18700	1860	Q16	100	LOW	Pass
20	18900	1880	QPSK	100	LOW	Pass
20	18900	1880	Q16	100	LOW	Pass
20	19100	1900	QPSK	100	LOW	Pass
20	19100	1900	Q16	100	LOW	Pass

Band 4:

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
1.4	19957	1710.7	QPSK	6	LOW	Pass
1.4	19957	1710.7	Q16	6	LOW	Pass
1.4	20393	1754.3	QPSK	6	LOW	Pass
1.4	20393	1754.3	Q16	6	LOW	Pass
1.4	20175	1732.5	QPSK	6	LOW	Pass
1.4	20175	1732.5	Q16	6	LOW	Pass
3	19965	1711.5	QPSK	15	LOW	Pass
3	19965	1711.5	Q16	15	LOW	Pass

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
3	20385	1753.5	QPSK	15	LOW	Pass
3	20385	1753.5	Q16	15	LOW	Pass
3	20175	1732.5	QPSK	15	LOW	Pass
3	20175	1732.5	Q16	15	LOW	Pass
5	19975	1712.5	QPSK	25	LOW	Pass
5	19975	1712.5	Q16	25	LOW	Pass
5	20375	1752.5	QPSK	25	LOW	Pass
5	20375	1752.5	Q16	25	LOW	Pass
5	20175	1732.5	QPSK	25	LOW	Pass
5	20175	1732.5	Q16	25	LOW	Pass
10	20000	1715	QPSK	50	LOW	Pass
10	20000	1715	Q16	50	LOW	Pass
10	20350	1750	QPSK	50	LOW	Pass
10	20350	1750	Q16	50	LOW	Pass
10	20175	1732.5	QPSK	50	LOW	Pass
10	20175	1732.5	Q16	50	LOW	Pass
15	20025	1717.5	QPSK	75	LOW	Pass
15	20025	1717.5	Q16	75	LOW	Pass
15	20325	1747.5	QPSK	75	LOW	Pass
15	20325	1747.5	Q16	75	LOW	Pass
15	20175	1732.5	QPSK	75	LOW	Pass
15	20175	1732.5	Q16	75	LOW	Pass
20	20050	1720	QPSK	100	LOW	Pass
20	20050	1720	Q16	100	LOW	Pass
20	20300	1745	QPSK	100	LOW	Pass
20	20300	1745	Q16	100	LOW	Pass
20	20175	1732.5	QPSK	100	LOW	Pass
20	20175	1732.5	Q16	100	LOW	Pass

Band 5:

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
1.4	20470	824.7	QPSK	6	LOW	Pass
1.4	20470	824.7	Q16	6	LOW	Pass
1.4	20525	836.5	QPSK	6	LOW	Pass
1.4	20525	836.5	Q16	6	LOW	Pass
1.4	20643	848.3	QPSK	6	LOW	Pass
1.4	20643	848.3	Q16	6	LOW	Pass
3	20415	825.5	QPSK	15	LOW	Pass
3	20415	825.5	Q16	15	LOW	Pass
3	20525	836.5	QPSK	15	LOW	Pass
3	20525	836.5	Q16	15	LOW	Pass
3	20635	847.5	QPSK	15	LOW	Pass
3	20635	847.5	Q16	15	LOW	Pass
5	20425	826.5	QPSK	25	LOW	Pass
5	20425	826.5	Q16	25	LOW	Pass
5	20525	836.5	QPSK	25	LOW	Pass
5	20525	836.5	Q16	25	LOW	Pass
5	20625	846.5	QPSK	25	LOW	Pass
5	20625	846.5	Q16	25	LOW	Pass
10	20450	829	QPSK	50	LOW	Pass

Report No.: WSCT-ANAB-R&E240900047A-RF

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
10	20450	829	Q16	50	LOW	Pass
10	20525	836.5	QPSK	50	LOW	Pass
10	20525	836.5	Q16	50	LOW	Pass
10	20600	844	QPSK	50	LOW	Pass
10	20600	844	Q16	50	LOW	Pass

Band 7:

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
5	20775	2502.5	QPSK	25	LOW	Pass
5	20775	2502.5	Q16	25	LOW	Pass
5	21425	2567.5	QPSK	25	LOW	Pass
5	21425	2567.5	Q16	25	LOW	Pass
5	21100	2535	QPSK	25	LOW	Pass
5	21100	2535	QPSK	25	LOW	Pass
10	20800	2505	QPSK	50	LOW	Pass
10	20800	2505	Q16	50	LOW	Pass
10	21400	2565	QPSK	50	LOW	Pass
10	21400	2565	Q16	50	LOW	Pass
10	21100	2535	QPSK	50	LOW	Pass
10	21100	2535	Q16	50	LOW	Pass
15	20825	2507.5	QPSK	75	LOW	Pass
15	20825	2507.5	Q16	75	LOW	Pass
15	21375	2562.5	QPSK	75	LOW	Pass
15	21375	2562.5	Q16	75	LOW	Pass
15	21100	2535	QPSK	75	LOW	Pass
15	21100	2535	Q16	75	LOW	Pass
20	20850	2510	QPSK	100	LOW	Pass
20	20850	2510	Q16	100	LOW	Pass
20	21350	2560	QPSK	100	LOW	Pass
20	21350	2560	Q16	100	LOW	Pass
20	21100	2535	QPSK	100	LOW	Pass
20	21100	2535	Q16	100	LOW	Pass

Band 38:

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
5	37775	2572.5	QPSK	25	LOW	Pass
5	37775	2572.5	Q16	25	LOW	Pass
5	38000	2595	QPSK	25	LOW	Pass
5	38000	2595	Q16	25	LOW	Pass
5	38225	2617.5	QPSK	25	LOW	Pass
5	38225	2617.5	Q16	25	LOW	Pass
10	37800	2575	QPSK	50	LOW	Pass
10	37800	2575	Q16	50	LOW	Pass
10	38000	2595	QPSK	50	LOW	Pass
10	38000	2595	Q16	50	LOW	Pass
10	38200	2615	QPSK	50	LOW	Pass
10	38200	2615	Q16	50	LOW	Pass

Report No.: WSCT-ANAB-R&E240900047A-RF

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
15	37825	2577.5	QPSK	75	LOW	Pass
15	37825	2577.5	Q16	75	LOW	Pass
15	38000	2595	QPSK	75	LOW	Pass
15	38000	2595	Q16	75	LOW	Pass
15	38175	2612.5	QPSK	75	LOW	Pass
15	38175	2612.5	Q16	75	LOW	Pass
20	37850	2580	QPSK	100	LOW	Pass
20	37850	2580	Q16	100	LOW	Pass
20	38000	2595	QPSK	100	LOW	Pass
20	38000	2595	Q16	100	LOW	Pass
20	38150	2610	QPSK	100	LOW	Pass
20	38150	2610	Q16	100	LOW	Pass

Band 41:

Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
5	39675	2498.5	QPSK	25	LOW	Pass
5	39675	2498.5	Q16	25	LOW	Pass
5	40620	2593	QPSK	25	LOW	Pass
5	40620	2593	Q16	25	LOW	Pass
5	41565	2687.5	QPSK	25	LOW	Pass
5	41565	2687.5	Q16	25	LOW	Pass
10	39700	2501	QPSK	50	LOW	Pass
10	39700	2501	Q16	50	LOW	Pass
10	40620	2593	QPSK	50	LOW	Pass
10	40620	2593	Q16	50	LOW	Pass
10	41540	2685	QPSK	50	LOW	Pass
10	41540	2685	Q16	50	LOW	Pass
15	39725	2503.5	QPSK	75	LOW	Pass
15	39725	2503.5	Q16	75	LOW	Pass
15	40620	2593	QPSK	75	LOW	Pass
15	40620	2593	Q16	75	LOW	Pass
15	41515	2682.5	QPSK	75	LOW	Pass
15	41515	2682.5	Q16	75	LOW	Pass
20	39750	2506	QPSK	100	LOW	Pass
20	39750	2506	Q16	100	LOW	Pass
20	40620	2593	QPSK	100	LOW	Pass
20	40620	2593	Q16	100	LOW	Pass
20	41490	2680	QPSK	100	LOW	Pass
20	41490	2680	Q16	100	LOW	Pass

Conducted method

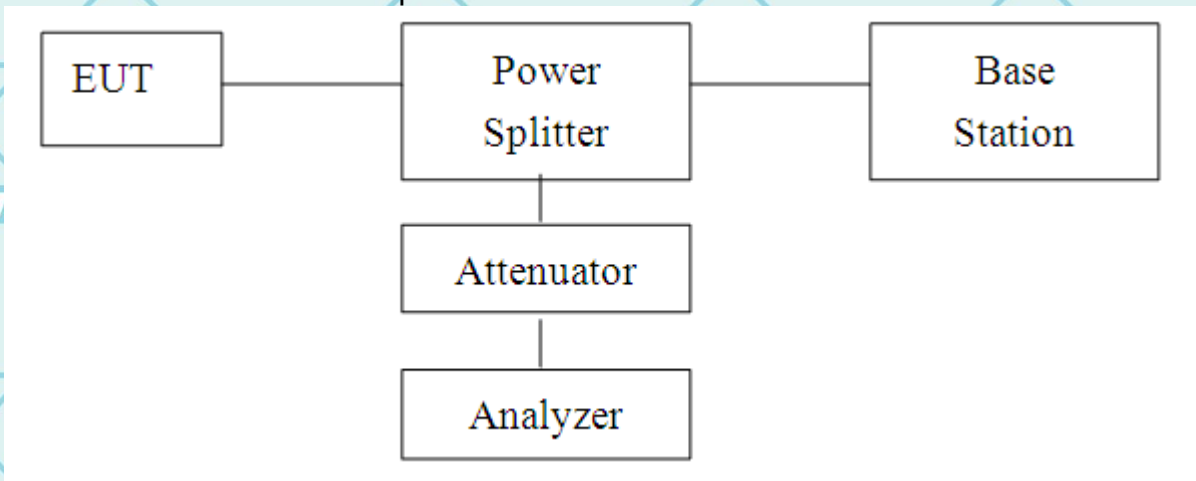
Test limit:

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 + 10log(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 + 10log(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., 10log(P) – {X + 10log(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:



Radiated 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.

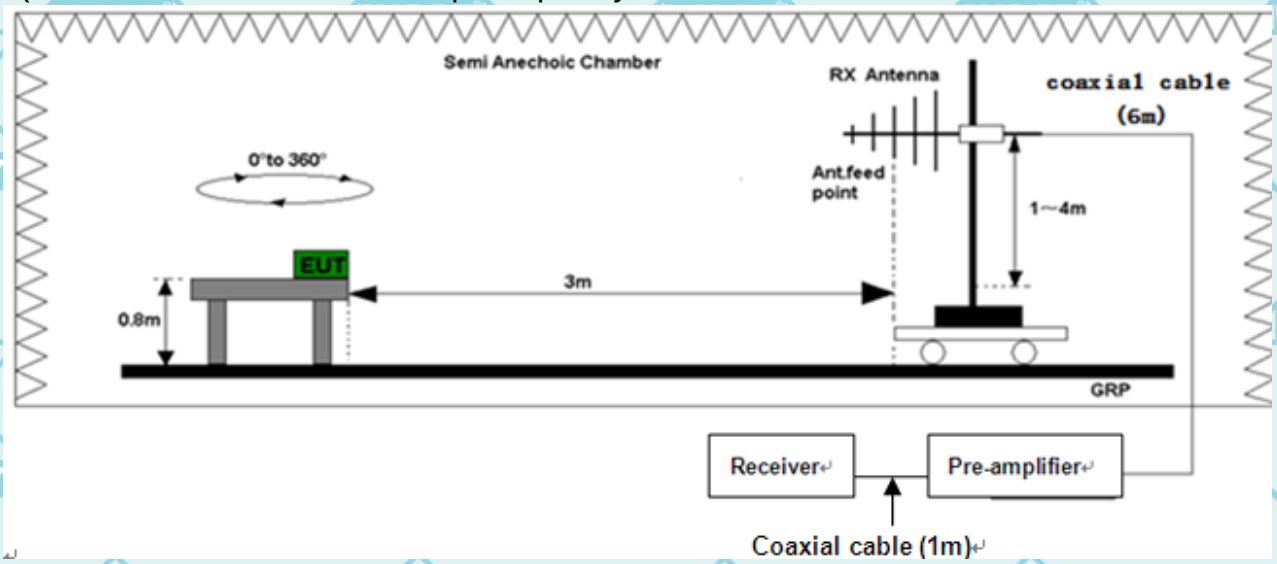
Typically, unwanted emissions are required by the licensed rule parts to be attenuated below the transmitter power by a factor of at least X + 10log(P) dB, where P represents the transmitter power expressed in watts and X is a specified scalar value (e.g., 43). This specification can be interpreted in 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 + 10log(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., 10log(P) – {X + 10log(P)}], resulting in an absolute level of -X dBW [or (-X + 30) dBm]. See section 4.

Test procedure:

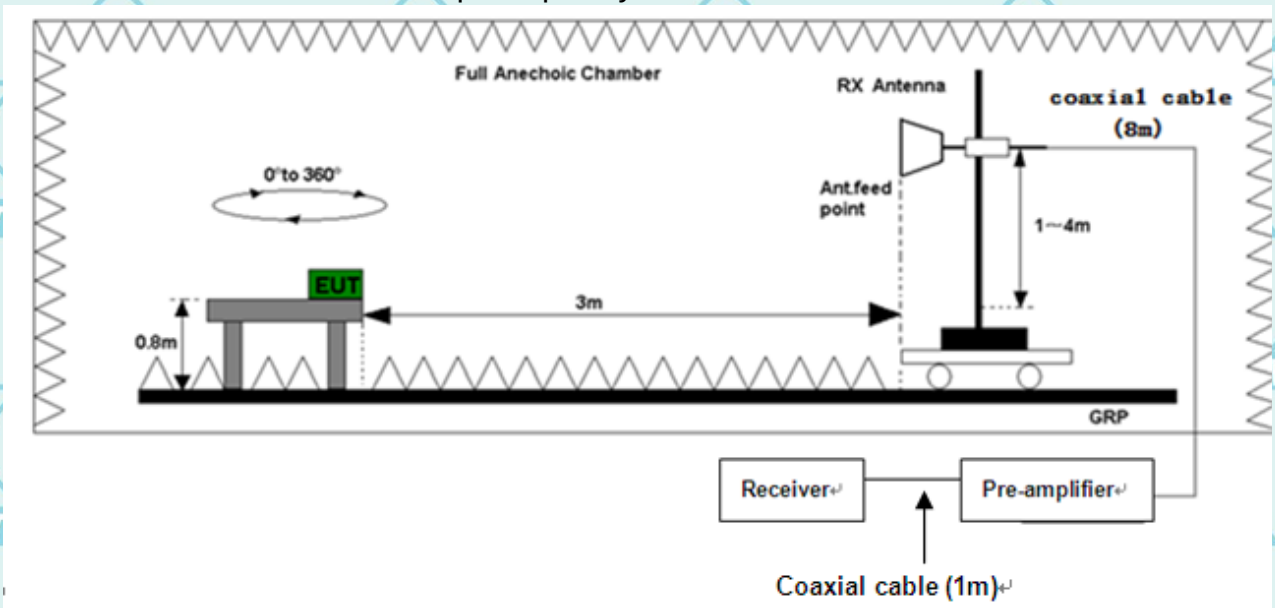
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site. The resolution bandwidth of the spectrum analyzer was set at 100 kHz below 1 GHz and 1 MHz above 1 GHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonics.

Test setup:

(A）Radiated Emission Test-Up Frequency 30MHz~1GHz



（B）Radiated Emission Test-Up Frequency Above 1GHz



Note:

1, Below 30MHz no Spurious found.

2, UE is positioned at 3 axis at the pre-scan stage, and only the measurement of the worst caseis reported in this part.

List of final test modes:

GSM850:

Channel	UL Channel	Frequency	Judgment
Middle	190	836.6	Pass

PCS1900

Channel	UL Channel	Frequency	Judgment
Middle	661	1880	Pass

UTRA BANDS

Band 2:

Channel	UL Channel	Frequency	Judgment
Middle	9400	1880	Pass

Band 4:.

Channel	UL Channel	Frequency	Judgment
Middle	1413	1732.6	Pass

Band 5:

Channel	UL Channel	Frequency	Judgment
Middle	4182	836.4	Pass

E-UTRA BANDS

This is the worst pattern data

Band 2:

Channel	Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
Middle	20	18900	1880	QPSK	100	LOW	Pass

Band 4:

Mode	Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
1	20	20300	1745	Q16	100	LOW	Pass

Band 5:

Channel	Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
Middle	10	20525	836.5	QPSK	50	LOW	Pass

Band 7:

Channel	Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
Middle	20	21350	2560	QPSK	100	LOW	Pass

Band 38:

Channel	Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
Middle	20	38000	2595	QPSK	100	LOW	Pass

Band 41:

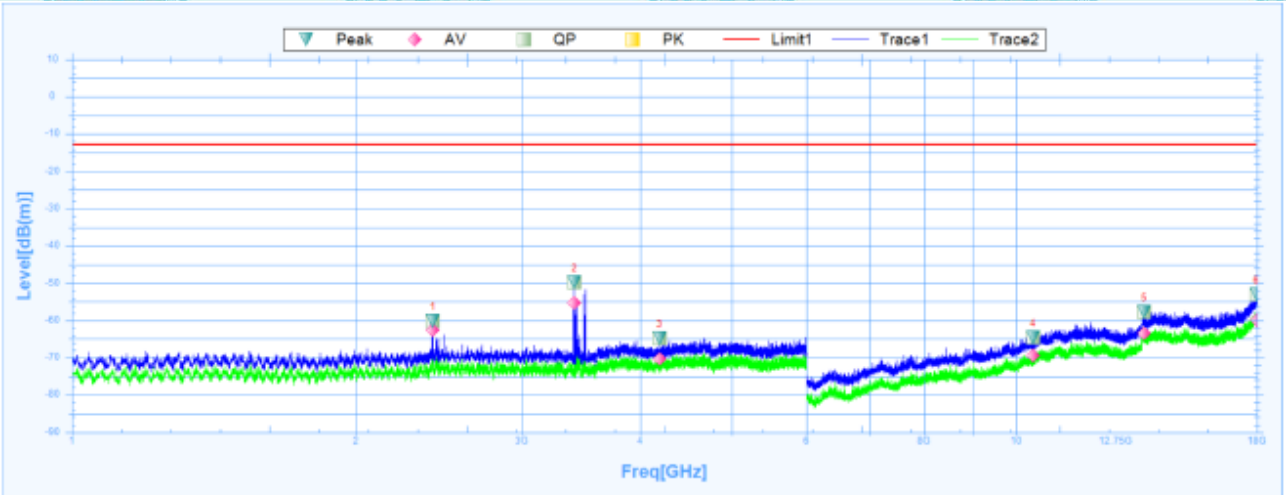
Channel	Bandwidth	UL Channel	Frequency	Modulation	RB Size	RB Offset	Judgment
Middle	20	40620	2593	QPSK	100	LOW	Pass

Test record:

Note:

1. The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:
   Power=P_{Mea}+A_{Rpl}
2. ARpl =Cable loss + Antenna gain

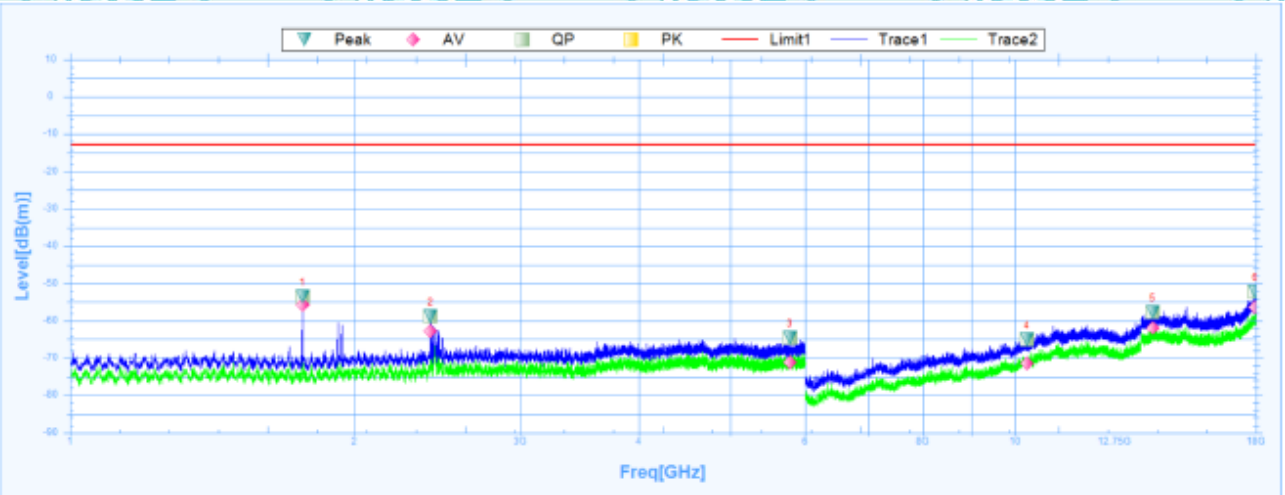
GSM850:
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2411.8750	-60.13	27.3	-87.43	-13	-47.13	188.7	Horizontal	PK	Pass
1	2411.8750	-62.67	27.3	-89.97	54	-116.67	188.7	Horizontal	AV	Pass
2	3407.5000	-49.82	28.44	-78.26	-13	-36.82	27.4	Horizontal	PK	Pass
2	3407.5000	-55.41	28.44	-83.85	54	-109.41	27.4	Horizontal	AV	Pass
3	4194.3750	-64.87	30.05	-94.92	-13	-51.87	52.5	Horizontal	PK	Pass
3	4194.3750	-70.32	30.05	-100.37	54	-124.32	52.5	Horizontal	AV	Pass
4	10428.0000	-64.51	13.68	-78.19	-13	-51.51	77	Horizontal	PK	Pass
4	10428.0000	-69.44	13.68	-83.12	54	-123.44	77	Horizontal	AV	Pass
5	13677.0000	-57.69	18.19	-75.88	-13	-44.69	7	Horizontal	PK	Pass
5	13677.0000	-63.39	18.19	-81.58	54	-117.39	7	Horizontal	AV	Pass
6	17974.5000	-53.2	23.75	-76.95	-13	-40.2	360.1	Horizontal	PK	Pass
6	17974.5000	-60.05	23.75	-83.8	54	-114.05	360.1	Horizontal	AV	Pass

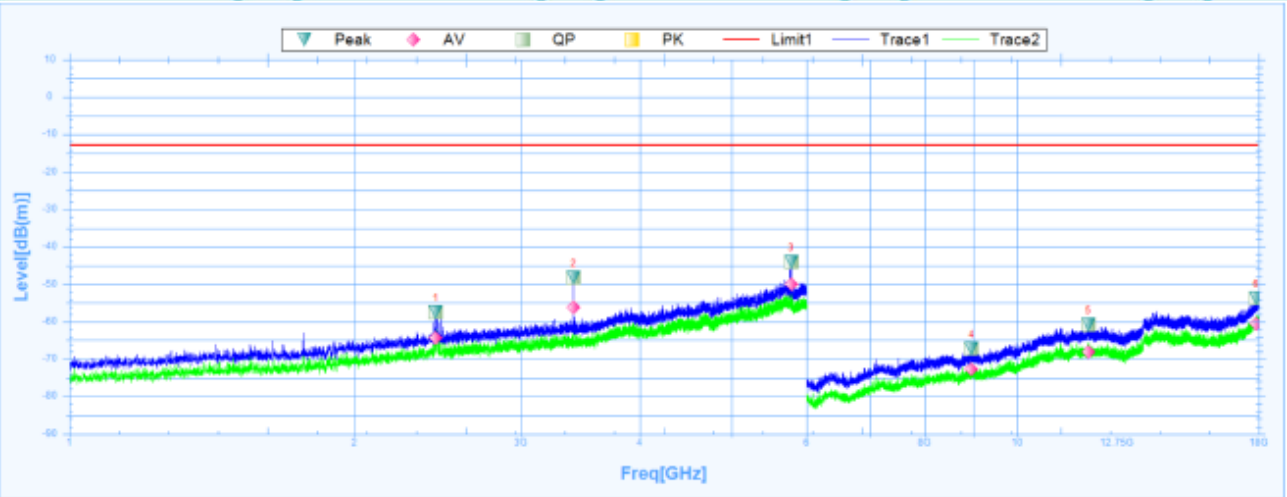
Vertical:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1762.5000	-53.49	24.98	-78.47	-13	-40.49	173.2	Vertical	PK	Pass
1	1762.5000	-55.72	24.98	-80.7	54	-109.72	173.2	Vertical	AV	Pass
2	2408.7500	-58.92	27.29	-86.21	-13	-45.92	338	Vertical	PK	Pass
2	2408.7500	-62.77	27.29	-90.06	54	-116.77	338	Vertical	AV	Pass
3	5781.2500	-64.51	32.45	-96.96	-13	-51.51	6.5	Vertical	PK	Pass
3	5781.2500	-71.14	32.45	-103.59	54	-125.14	6.5	Vertical	AV	Pass
4	10297.5000	-64.99	13.28	-78.27	-13	-51.99	182.2	Vertical	PK	Pass
4	10297.5000	-71.35	13.28	-84.63	54	-125.35	182.2	Vertical	AV	Pass
5	13992.0000	-57.76	19.1	-76.86	-13	-44.76	1.1	Vertical	PK	Pass
5	13992.0000	-62	19.1	-81.1	54	-116	1.1	Vertical	AV	Pass
6	17967.0000	-52.29	23.7	-75.99	-13	-39.29	360	Vertical	PK	Pass
6	17967.0000	-56.51	23.7	-80.21	54	-110.51	360	Vertical	AV	Pass

PCS1900:
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2436.2500	-57.48	27.38	-84.86	-13	-44.48	308.2	Horizontal	PK	Pass
1	2436.2500	-64.33	27.38	-91.71	54	-118.33	308.2	Horizontal	AV	Pass
2	3406.8750	-48.24	28.44	-76.68	-13	-35.24	347	Horizontal	PK	Pass
2	3406.8750	-56.19	28.44	-84.63	54	-110.19	347	Horizontal	AV	Pass
3	5780.0000	-44.11	32.45	-76.56	-13	-31.11	242.4	Horizontal	PK	Pass
3	5780.0000	-50.06	32.45	-82.51	54	-104.06	242.4	Horizontal	AV	Pass
4	8956.5000	-67.31	9.81	-77.12	-13	-54.31	137.9	Horizontal	PK	Pass
4	8956.5000	-72.71	9.81	-82.52	54	-126.71	137.9	Horizontal	AV	Pass
5	11898.0000	-60.91	16.52	-77.43	-13	-47.91	256.2	Horizontal	PK	Pass
5	11898.0000	-68.06	16.52	-84.58	54	-122.06	256.2	Horizontal	AV	Pass
6	17874.0000	-53.86	23.1	-76.96	-13	-40.86	320.8	Horizontal	PK	Pass
6	17874.0000	-60.67	23.1	-83.77	54	-114.67	320.8	Horizontal	AV	Pass

Vertical:

Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1942.5000	-50.09	25.64	-75.73	-13	-37.09	279.4	Vertical	PK	Pass
1	1942.5000	-55.38	25.64	-81.02	54	-109.38	279.4	Vertical	AV	Pass
2	2442.5000	-56.2	27.4	-83.6	-13	-43.2	104.9	Vertical	PK	Pass
2	2442.5000	-60.6	27.4	-88	54	-114.6	104.9	Vertical	AV	Pass
3	5967.5000	-49.37	32.75	-82.12	-13	-36.37	95.4	Vertical	PK	Pass
3	5967.5000	-52.35	32.75	-85.1	54	-106.35	95.4	Vertical	AV	Pass
4	11044.5000	-62.63	15.76	-78.39	-13	-49.63	311.3	Vertical	PK	Pass
4	11044.5000	-65.76	15.76	-81.52	54	-119.76	311.3	Vertical	AV	Pass
5	14377.5000	-57.56	18.74	-76.3	-13	-44.56	360	Vertical	PK	Pass
5	14377.5000	-62.74	18.74	-81.48	54	-116.74	360	Vertical	AV	Pass
6	17974.5000	-52.16	23.75	-75.91	-13	-39.16	9.2	Vertical	PK	Pass
6	17974.5000	-58.01	23.75	-81.76	54	-112.01	9.2	Vertical	AV	Pass

UTRA BANDS
Band 2:
Horizontal:

Susputed Data List

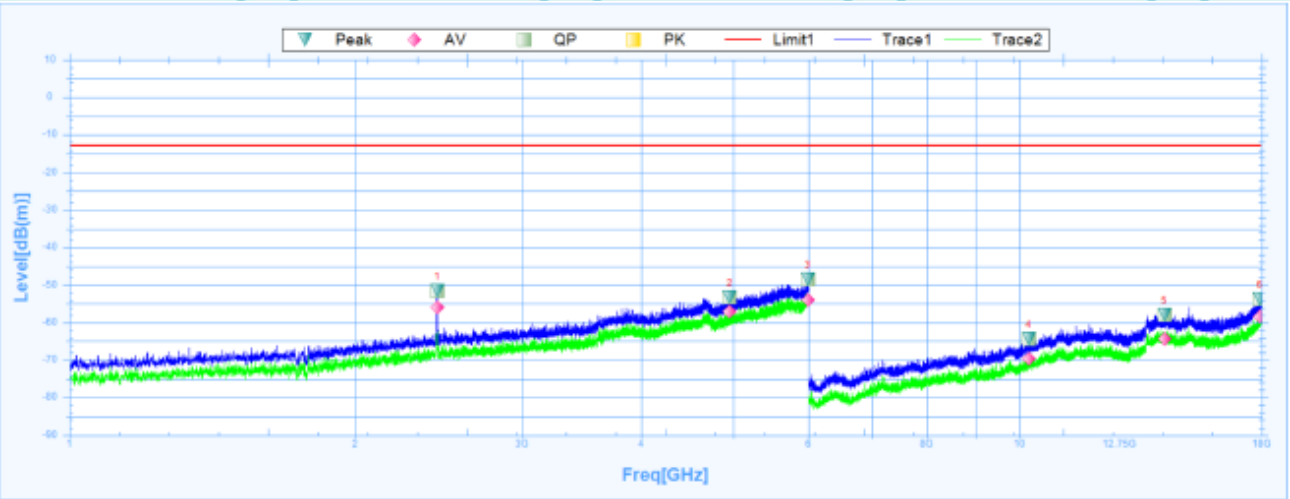
NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2381.8750	-62.98	27.2	-90.18	-13	-49.98	120.5	Horizontal	PK	Pass
1	2381.8750	-66.26	27.2	-93.46	54	-120.26	120.5	Horizontal	AV	Pass
2	3828.1250	-56.86	29.29	-86.15	-13	-43.86	155.1	Horizontal	PK	Pass
2	3828.1250	-61.36	29.29	-90.65	54	-115.36	155.1	Horizontal	AV	Pass
3	5714.3750	-48.37	32.34	-80.71	-13	-35.37	0	Horizontal	PK	Pass
3	5714.3750	-51.71	32.34	-84.05	54	-105.71	0	Horizontal	AV	Pass
4	10189.5000	-65.43	12.95	-78.38	-13	-52.43	142.7	Horizontal	PK	Pass
4	10189.5000	-70.4	12.95	-83.35	54	-124.4	142.7	Horizontal	AV	Pass
5	14130.0000	-58.14	19	-77.14	-13	-45.14	1.2	Horizontal	PK	Pass
5	14130.0000	-63.72	19	-82.72	54	-117.72	1.2	Horizontal	AV	Pass
6	17946.0000	-53.75	23.55	-77.3	-13	-40.75	44.7	Horizontal	PK	Pass
6	17946.0000	-58.64	23.55	-82.19	54	-112.64	44.7	Horizontal	AV	Pass

Vertical:

Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1906.2500	-64.81	25.48	-90.29	-13	-51.81	358.6	Vertical	PK	Pass
1	1906.2500	-69.92	25.48	-95.4	54	-123.92	358.6	Vertical	AV	Pass
2	3911.2500	-56.71	29.49	-86.2	-13	-43.71	351.2	Vertical	PK	Pass
2	3911.2500	-60.19	29.49	-89.68	54	-114.19	351.2	Vertical	AV	Pass
3	5725.6250	-49.33	32.36	-81.69	-13	-36.33	60.7	Vertical	PK	Pass
3	5725.6250	-53.91	32.36	-86.27	54	-107.91	60.7	Vertical	AV	Pass
4	10075.5000	-65.79	12.58	-78.37	-13	-52.79	187	Vertical	PK	Pass
4	10075.5000	-73.03	12.58	-85.61	54	-127.03	187	Vertical	AV	Pass
5	13603.5000	-57.73	17.98	-75.71	-13	-44.73	360	Vertical	PK	Pass
5	13603.5000	-63.21	17.98	-81.19	54	-117.21	360	Vertical	AV	Pass
6	17878.5000	-53.4	23.13	-76.53	-13	-40.4	177.4	Vertical	PK	Pass
6	17878.5000	-59.82	23.13	-82.95	54	-113.82	177.4	Vertical	AV	Pass

Band 4:
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2438.7500	-51.53	27.39	-78.92	-13	-38.53	10.8	Horizontal	PK	Pass
1	2438.7500	-55.94	27.39	-83.33	54	-109.94	10.8	Horizontal	AV	Pass
2	4958.1250	-53.28	31.52	-84.8	-13	-40.28	153.9	Horizontal	PK	Pass
2	4958.1250	-57.01	31.52	-88.53	54	-111.01	153.9	Horizontal	AV	Pass
3	5991.8750	-48.55	32.79	-81.34	-13	-35.55	348.6	Horizontal	PK	Pass
3	5991.8750	-53.99	32.79	-86.78	54	-107.99	348.6	Horizontal	AV	Pass
4	10230.0000	-64.35	13.07	-77.42	-13	-51.35	295.8	Horizontal	PK	Pass
4	10230.0000	-69.67	13.07	-82.74	54	-123.67	295.8	Horizontal	AV	Pass
5	14214.0000	-58.05	18.91	-76.96	-13	-45.05	273	Horizontal	PK	Pass
5	14214.0000	-64.37	18.91	-83.28	54	-118.37	273	Horizontal	AV	Pass
6	17913.0000	-53.71	23.34	-77.05	-13	-40.71	0.6	Horizontal	PK	Pass
6	17913.0000	-58.35	23.34	-81.69	54	-112.35	0.6	Horizontal	AV	Pass

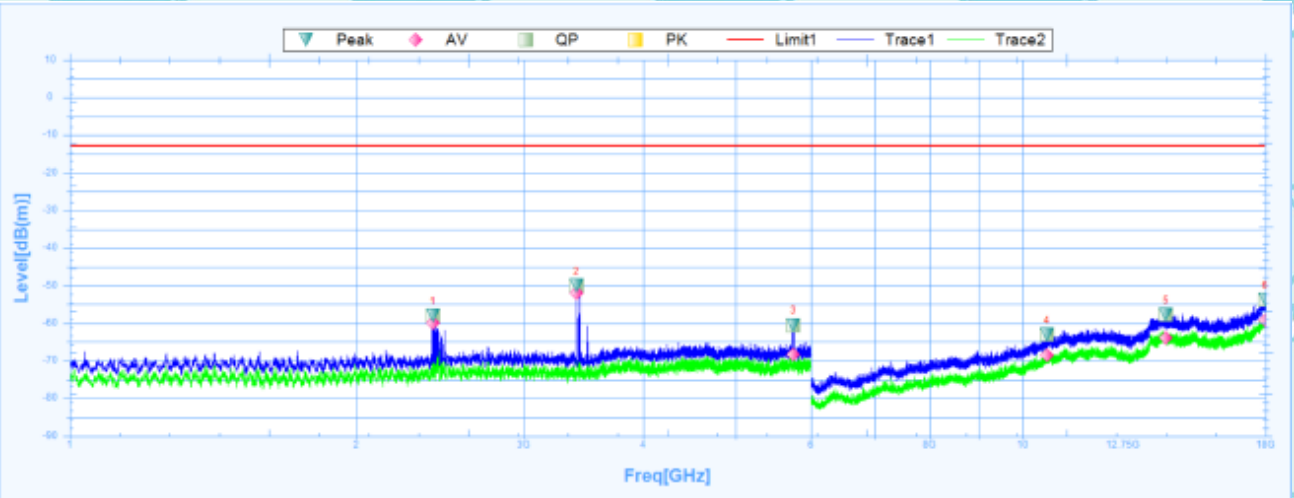
Vertical:

Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2460.0000	-57.47	27.46	-84.93	-13	-44.47	357.6	Vertical	PK	Pass
1	2460.0000	-60.44	27.46	-87.9	54	-114.44	357.6	Vertical	AV	Pass
2	3418.7500	-44.1	28.45	-72.55	-13	-31.1	248.3	Vertical	PK	Pass
2	3418.7500	-45.59	28.45	-74.04	54	-99.59	248.3	Vertical	AV	Pass
3	5960.0000	-49.36	32.74	-82.1	-13	-36.36	106.1	Vertical	PK	Pass
3	5960.0000	-51.13	32.74	-83.87	54	-105.13	106.1	Vertical	AV	Pass
4	9772.5000	-65.41	11.82	-77.23	-13	-52.41	227.4	Vertical	PK	Pass
4	9772.5000	-70.36	11.82	-82.18	54	-124.36	227.4	Vertical	AV	Pass
5	14076.0000	-57.35	19.05	-76.4	-13	-44.35	229.9	Vertical	PK	Pass
5	14076.0000	-64.73	19.05	-83.78	54	-118.73	229.9	Vertical	AV	Pass
6	17946.0000	-53.54	23.55	-77.09	-13	-40.54	231.1	Vertical	PK	Pass
6	17946.0000	-58.77	23.55	-82.32	54	-112.77	231.1	Vertical	AV	Pass

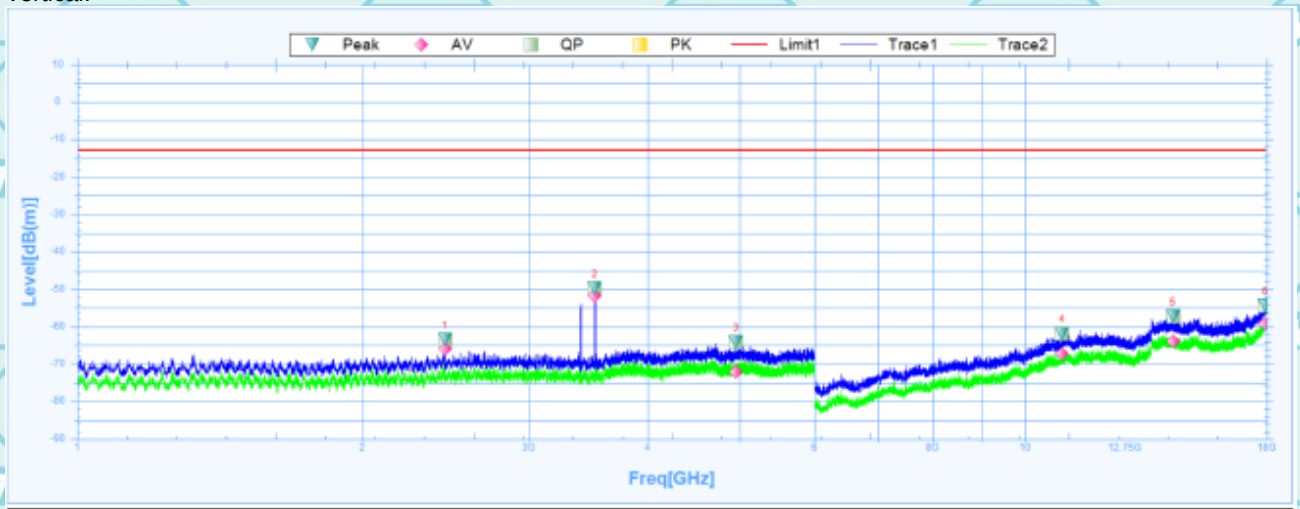
Band 5:

Horizontal:



Susputed Data List										
NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2405.0000	-58.01	27.28	-85.29	-13	-45.01	0	Horizontal	PK	Pass
1	2405.0000	-59.85	27.28	-87.13	54	-113.85	0	Horizontal	AV	Pass
2	3404.3750	-50.05	28.44	-78.49	-13	-37.05	304.6	Horizontal	PK	Pass
2	3404.3750	-51.94	28.44	-80.38	54	-105.94	304.6	Horizontal	AV	Pass
3	5751.8750	-60.5	32.4	-92.9	-13	-47.5	223.3	Horizontal	PK	Pass
3	5751.8750	-68.26	32.4	-100.66	54	-122.26	223.3	Horizontal	AV	Pass
4	10611.0000	-63.14	14.36	-77.5	-13	-50.14	6.2	Horizontal	PK	Pass
4	10611.0000	-68.65	14.36	-83.01	54	-122.65	6.2	Horizontal	AV	Pass
5	14155.5000	-57.71	18.97	-76.68	-13	-44.71	257.5	Horizontal	PK	Pass
5	14155.5000	-64	18.97	-82.97	54	-118	257.5	Horizontal	AV	Pass
6	17986.5000	-53.81	23.83	-77.64	-13	-40.81	80.6	Horizontal	PK	Pass
6	17986.5000	-59.18	23.83	-83.01	54	-113.18	80.6	Horizontal	AV	Pass

Vertical:



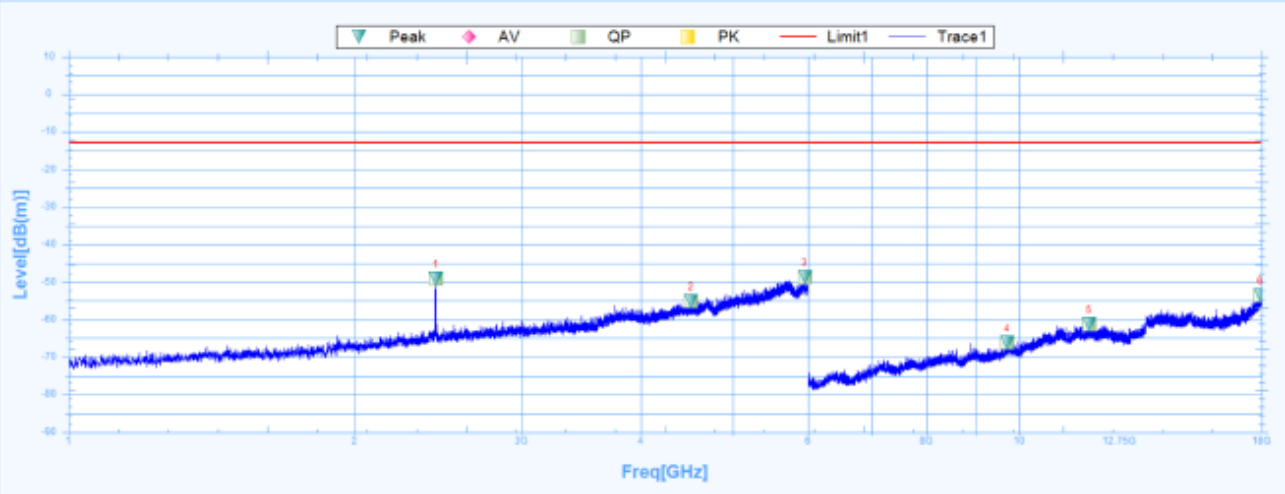
Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2443.1250	-63.5	27.41	-90.91	-13	-50.5	148.1	Vertical	PK	Pass
1	2443.1250	-65.81	27.41	-93.22	54	-119.81	148.1	Vertical	AV	Pass
2	3518.7500	-49.82	28.54	-78.36	-13	-36.82	181.6	Vertical	PK	Pass
2	3518.7500	-51.73	28.54	-80.27	54	-105.73	181.6	Vertical	AV	Pass
3	4958.7500	-64.22	31.52	-95.74	-13	-51.22	197.1	Vertical	PK	Pass
3	4958.7500	-72.07	31.52	-103.59	54	-126.07	197.1	Vertical	AV	Pass
4	10944.0000	-61.83	15.3	-77.13	-13	-48.83	219.3	Vertical	PK	Pass
4	10944.0000	-67.3	15.3	-82.6	54	-121.3	219.3	Vertical	AV	Pass
5	14328.0000	-57.3	18.79	-76.09	-13	-44.3	360.1	Vertical	PK	Pass
5	14328.0000	-63.95	18.79	-82.74	54	-117.95	360.1	Vertical	AV	Pass
6	17931.0000	-54.39	23.46	-77.85	-13	-41.39	360.1	Vertical	PK	Pass
6	17931.0000	-59.26	23.46	-82.72	54	-113.26	360.1	Vertical	AV	Pass

E-UTRA BANDS

Band 2:

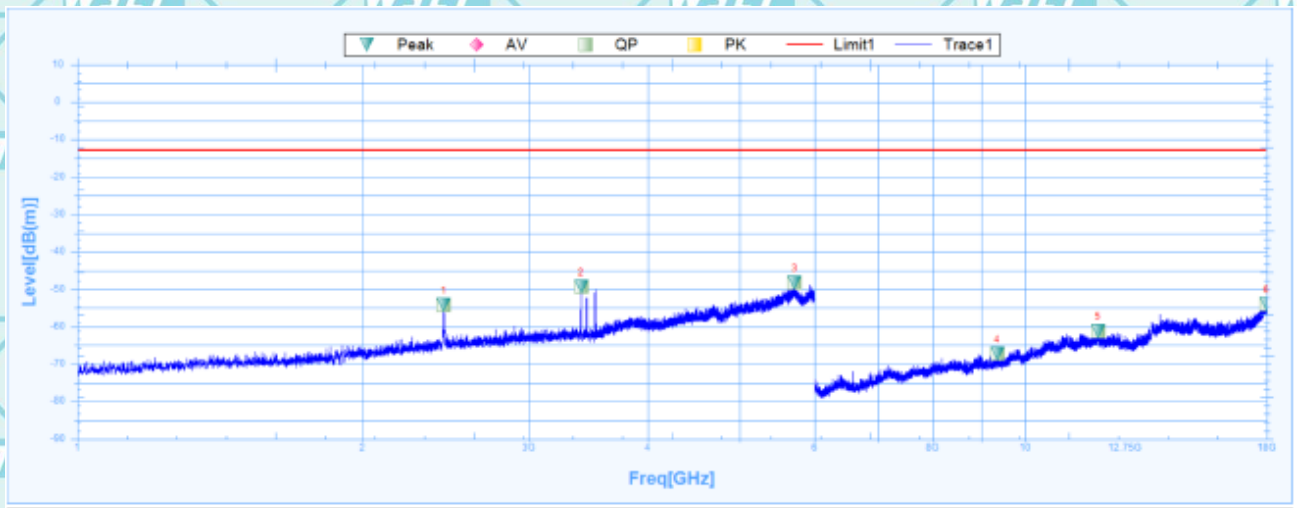
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2434.3750	-49.06	27.38	-76.44	-13	-36.06	360	Horizontal	PK	Pass
1	2434.3750		27.38		54		360	Horizontal	AV	Pass
2	4518.7500	-55.13	30.64	-85.77	-13	-42.13	210.8	Horizontal	PK	Pass
2	4518.7500		30.64		54		210.8	Horizontal	AV	Pass
3	5952.5000	-48.71	32.72	-81.43	-13	-35.71	118.8	Horizontal	PK	Pass
3	5952.5000		32.72		54		118.8	Horizontal	AV	Pass
4	9720.0000	-66.21	11.68	-77.89	-13	-53.21	229.3	Horizontal	PK	Pass
4	9720.0000		11.68		54		229.3	Horizontal	AV	Pass
5	11851.5000	-61.24	16.37	-77.61	-13	-48.24	357.6	Horizontal	PK	Pass
5	11851.5000		16.37		54		357.6	Horizontal	AV	Pass
6	17943.0000	-53.56	23.53	-77.09	-13	-40.56	143.2	Horizontal	PK	Pass
6	17943.0000		23.53		54		143.2	Horizontal	AV	Pass

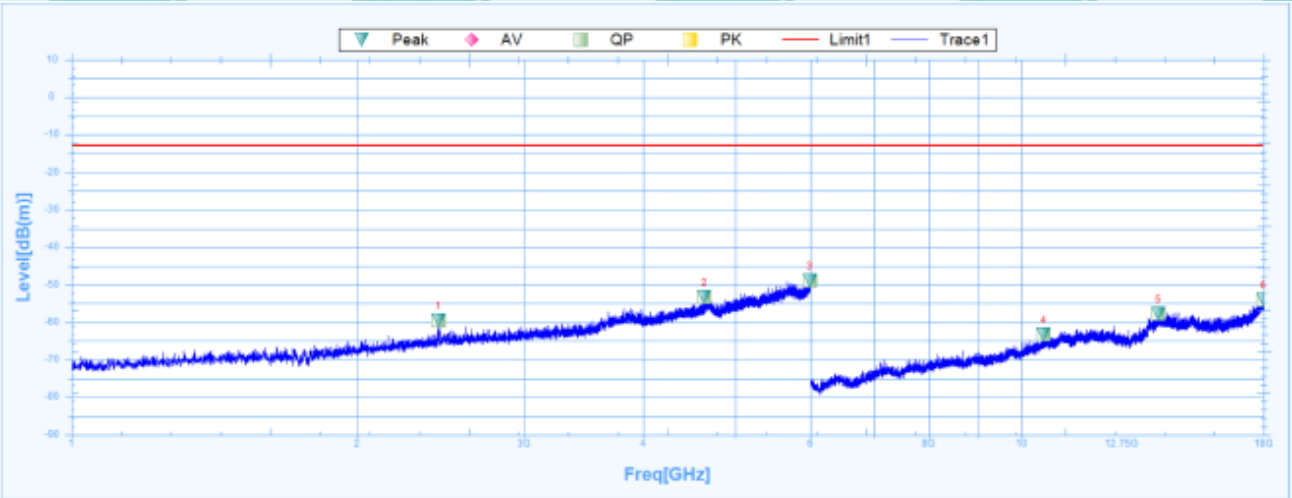
Vertical:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2436.2500	-54.13	27.38	-81.51	-13	-41.13	56.6	Vertical	PK	Pass
1	2436.2500		27.38		54		56.6	Vertical	AV	Pass
2	3402.5000	-49.36	28.44	-77.8	-13	-36.36	360	Vertical	PK	Pass
2	3402.5000		28.44		54		360	Vertical	AV	Pass
3	5717.5000	-48.26	32.35	-80.61	-13	-35.26	300.5	Vertical	PK	Pass
3	5717.5000		32.35		54		300.5	Vertical	AV	Pass
4	9351.0000	-67.18	10.61	-77.79	-13	-54.18	301.1	Vertical	PK	Pass
4	9351.0000		10.61		54		301.1	Vertical	AV	Pass
5	11943.0000	-61.16	16.65	-77.81	-13	-48.16	63.2	Vertical	PK	Pass
5	11943.0000		16.65		54		63.2	Vertical	AV	Pass
6	17982.0000	-53.96	23.8	-77.76	-13	-40.96	0.1	Vertical	PK	Pass
6	17982.0000		23.8		54		0.1	Vertical	AV	Pass

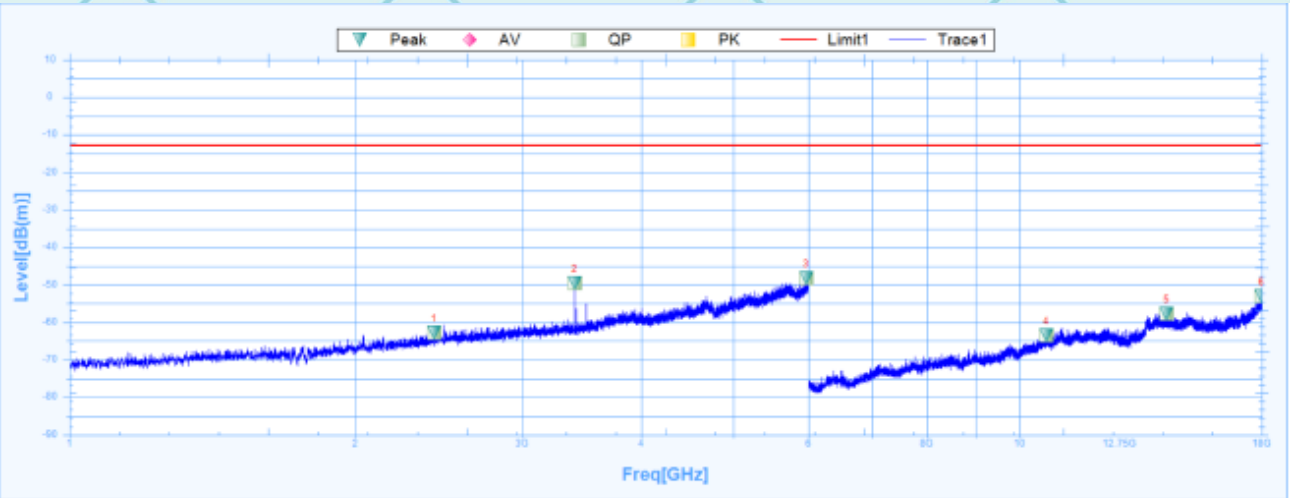
Report No.: WSCT-ANAB-R&E240900047A-RF
Band 4:
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2433.1250	-59.59	27.37	-86.96	-13	-46.59	9.3	Horizontal	PK	Pass
1	2433.1250		27.37		54		9.3	Horizontal	AV	Pass
2	4640.6250	-53.34	30.88	-84.22	-13	-40.34	359.9	Horizontal	PK	Pass
2	4640.6250		30.88		54		359.9	Horizontal	AV	Pass
3	5993.1250	-48.9	32.79	-81.69	-13	-35.9	80.4	Horizontal	PK	Pass
3	5993.1250		32.79		54		80.4	Horizontal	AV	Pass
4	10558.5000	-63.36	14.16	-77.52	-13	-50.36	355.3	Horizontal	PK	Pass
4	10558.5000		14.16		54		355.3	Horizontal	AV	Pass
5	13942.5000	-57.69	18.95	-76.64	-13	-44.69	205.3	Horizontal	PK	Pass
5	13942.5000		18.95		54		205.3	Horizontal	AV	Pass
6	17997.0000	-54	23.91	-77.91	-13	-41	-0.1	Horizontal	PK	Pass
6	17997.0000		23.91		54		-0.1	Horizontal	AV	Pass

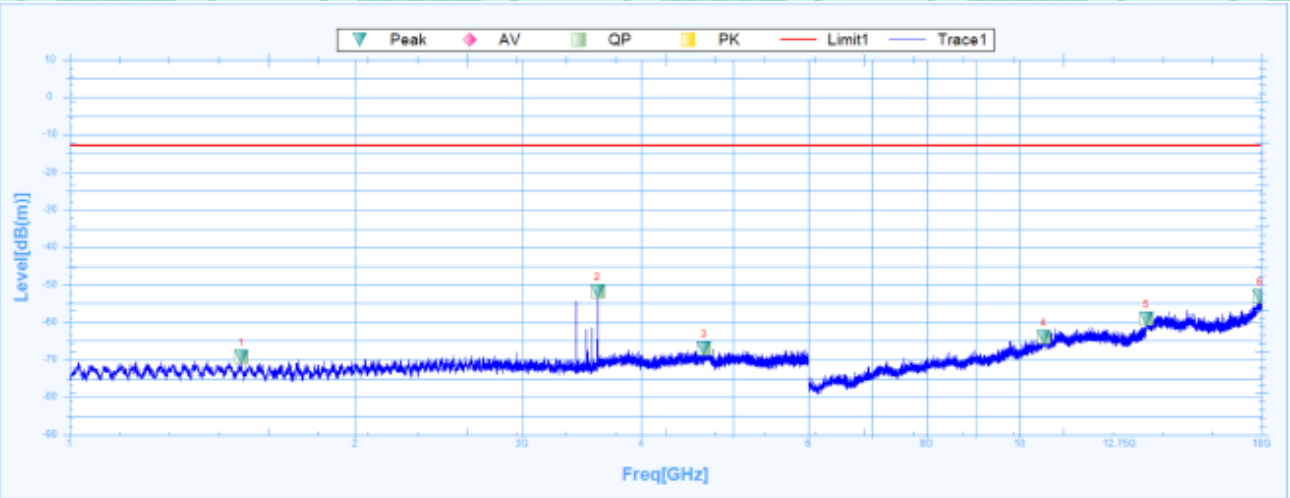
Vertical:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2420.0000	-62.81	27.33	-90.14	-13	-49.81	320.9	Vertical	PK	Pass
1	2420.0000		27.33		54		320.9	Vertical	AV	Pass
2	3403.1250	-49.61	28.44	-78.05	-13	-36.61	12	Vertical	PK	Pass
2	3403.1250		28.44		54		12	Vertical	AV	Pass
3	5967.5000	-48.29	32.75	-81.04	-13	-35.29	65	Vertical	PK	Pass
3	5967.5000		32.75		54		65	Vertical	AV	Pass
4	10675.5000	-63.5	14.57	-78.07	-13	-50.5	124.1	Vertical	PK	Pass
4	10675.5000		14.57		54		124.1	Vertical	AV	Pass
5	14292.0000	-57.69	18.83	-76.52	-13	-44.69	246	Vertical	PK	Pass
5	14292.0000		18.83		54		246	Vertical	AV	Pass
6	17992.5000	-53.15	23.88	-77.03	-13	-40.15	170.7	Vertical	PK	Pass
6	17992.5000		23.88		54		170.7	Vertical	AV	Pass

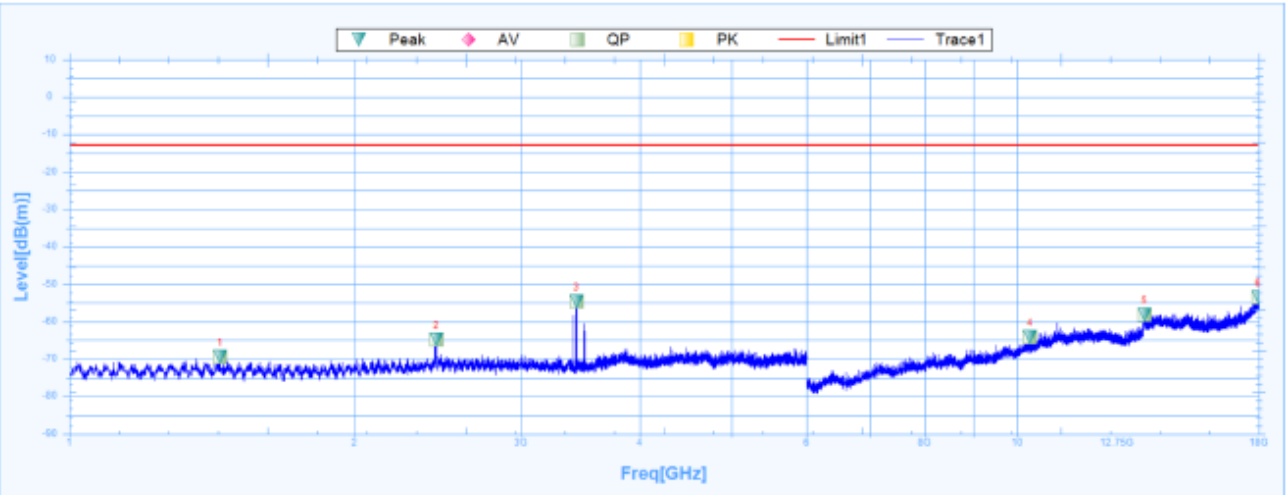
Band 5:
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1517.5000	-69.24	24.98	-94.22	-13	-56.24	61.4	Horizontal	PK	Pass
1	1517.5000		24.98		54		61.4	Horizontal	AV	Pass
2	3599.3750	-51.68	28.74	-80.42	-13	-38.68	12.1	Horizontal	PK	Pass
2	3599.3750		28.74		54		12.1	Horizontal	AV	Pass
3	4658.7500	-66.93	30.92	-97.85	-13	-53.93	354.5	Horizontal	PK	Pass
3	4658.7500		30.92		54		354.5	Horizontal	AV	Pass
4	10608.0000	-63.99	14.35	-78.34	-13	-50.99	91.8	Horizontal	PK	Pass
4	10608.0000		14.35		54		91.8	Horizontal	AV	Pass
5	13603.5000	-59.03	17.98	-77.01	-13	-46.03	16.5	Horizontal	PK	Pass
5	13603.5000		17.98		54		16.5	Horizontal	AV	Pass
6	17920.5000	-53.2	23.39	-76.59	-13	-40.2	76.2	Horizontal	PK	Pass
6	17920.5000		23.39		54		76.2	Horizontal	AV	Pass

Vertical:



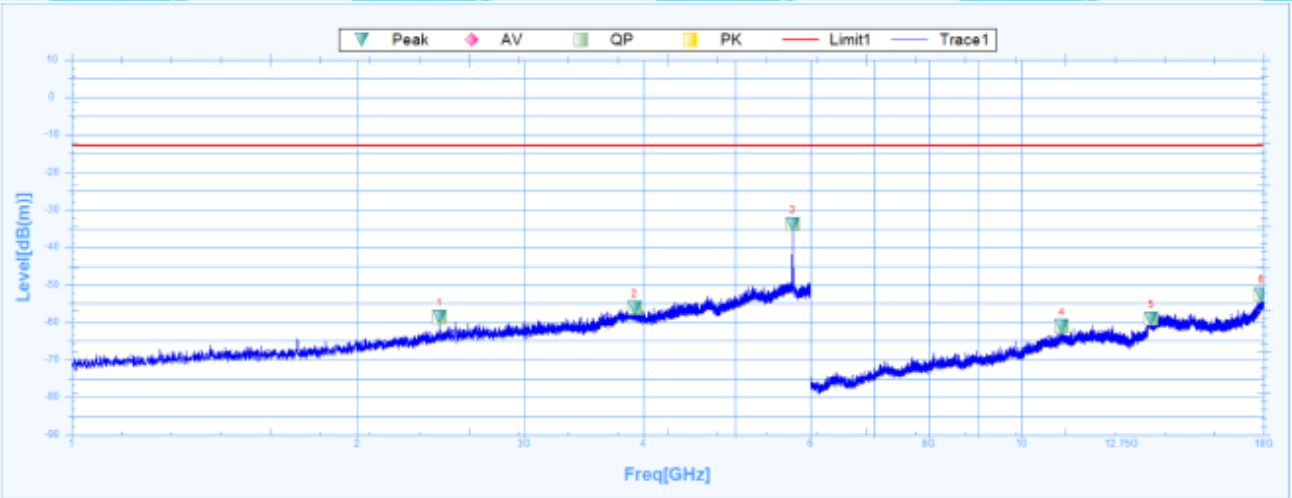
Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1441.8750	-69.36	25.06	-94.42	-13	-56.36	151.4	Vertical	PK	Pass
1	1441.8750		25.06		54		151.4	Vertical	AV	Pass
2	2441.2500	-64.75	27.4	-92.15	-13	-51.75	71.4	Vertical	PK	Pass
2	2441.2500		27.4		54		71.4	Vertical	AV	Pass
3	3429.3750	-54.65	28.46	-83.11	-13	-41.65	132.3	Vertical	PK	Pass
3	3429.3750		28.46		54		132.3	Vertical	AV	Pass
4	10327.5000	-64.07	13.37	-77.44	-13	-51.07	3.4	Vertical	PK	Pass
4	10327.5000		13.37		54		3.4	Vertical	AV	Pass
5	13636.5000	-58.18	18.07	-76.25	-13	-45.18	360.1	Vertical	PK	Pass
5	13636.5000		18.07		54		360.1	Vertical	AV	Pass
6	17973.0000	-53.59	23.74	-77.33	-13	-40.59	244.4	Vertical	PK	Pass
6	17973.0000		23.74		54		244.4	Vertical	AV	Pass

Report No.: WSCT-ANAB-R&E240900047A-RF

Band 7:

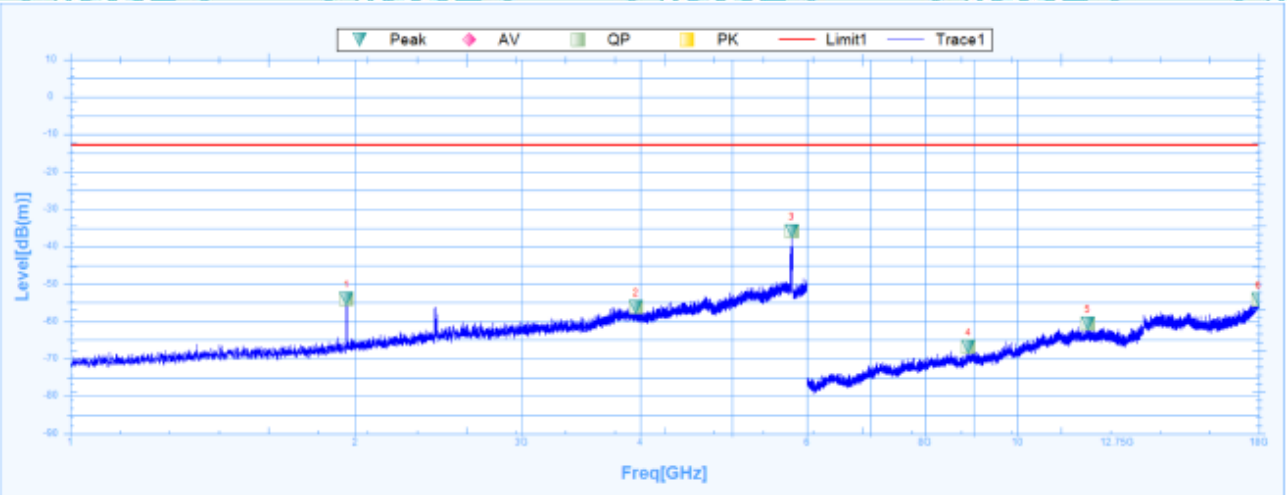
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2440.6250	-58.54	27.4	-85.94	-13	-45.54	15.3	Horizontal	PK	Pass
1	2440.6250		27.4		54		15.3	Horizontal	AV	Pass
2	3916.8750	-56.11	29.5	-85.61	-13	-43.11	-0.1	Horizontal	PK	Pass
2	3916.8750		29.5		54		-0.1	Horizontal	AV	Pass
3	5747.5000	-33.95	32.4	-66.35	-13	-20.95	-0.1	Horizontal	PK	Pass
3	5747.5000		32.4		54		-0.1	Horizontal	AV	Pass
4	11035.5000	-61.01	15.73	-76.74	-13	-48.01	360.1	Horizontal	PK	Pass
4	11035.5000		15.73		54		360.1	Horizontal	AV	Pass
5	13704.0000	-58.97	18.27	-77.24	-13	-45.97	0.5	Horizontal	PK	Pass
5	13704.0000		18.27		54		0.5	Horizontal	AV	Pass
6	17886.0000	-52.55	23.17	-75.72	-13	-39.55	318.5	Horizontal	PK	Pass
6	17886.0000		23.17		54		318.5	Horizontal	AV	Pass

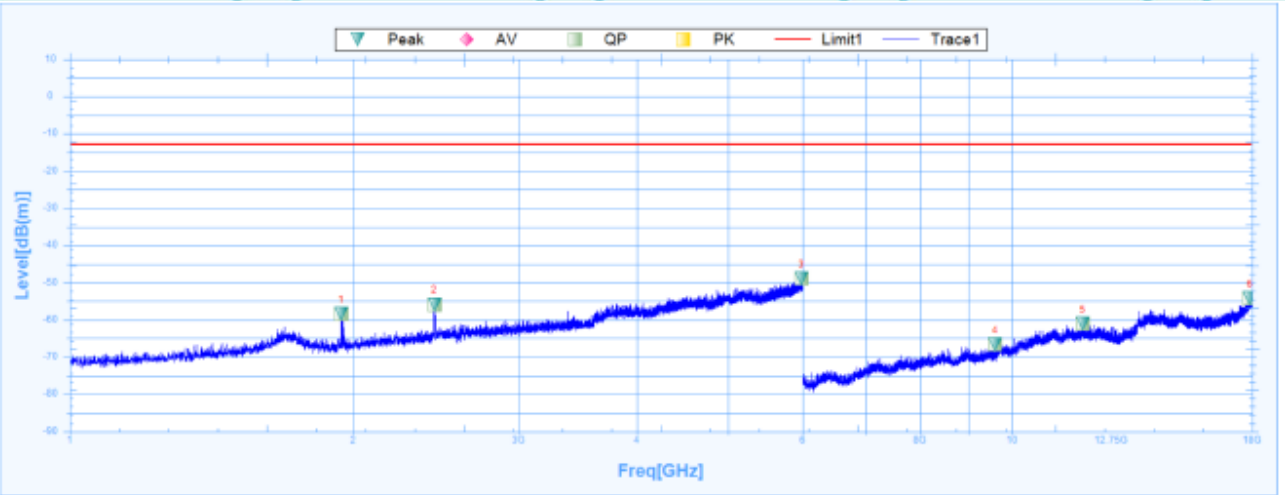
Vertical:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1958.7500	-54	25.71	-79.71	-13	-41	75	Vertical	PK	Pass
1	1958.7500		25.71		54		75	Vertical	AV	Pass
2	3958.1250	-56.13	29.6	-85.73	-13	-43.13	358.9	Vertical	PK	Pass
2	3958.1250		29.6		54		358.9	Vertical	AV	Pass
3	5780.0000	-35.84	32.45	-68.29	-13	-22.84	358.5	Vertical	PK	Pass
3	5780.0000		32.45		54		358.5	Vertical	AV	Pass
4	8884.5000	-66.81	9.71	-76.52	-13	-53.81	355.9	Vertical	PK	Pass
4	8884.5000		9.71		54		355.9	Vertical	AV	Pass
5	11874.0000	-60.57	16.44	-77.01	-13	-47.57	360.1	Vertical	PK	Pass
5	11874.0000		16.44		54		360.1	Vertical	AV	Pass
6	17992.5000	-54.11	23.88	-77.99	-13	-41.11	80.6	Vertical	PK	Pass
6	17992.5000		23.88		54		80.6	Vertical	AV	Pass

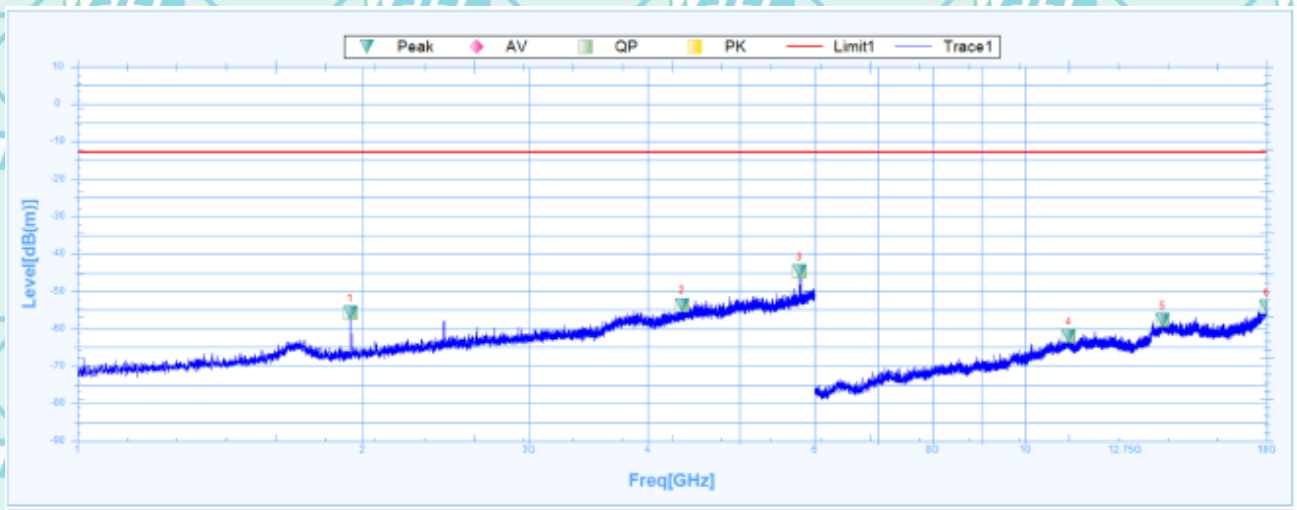
Band 38:
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1941.8750	-58.34	25.64	-83.98	-13	-45.34	45	Horizontal	PK	Pass
1	1941.8750		25.64		54		45	Horizontal	AV	Pass
2	2438.1250	-55.86	27.39	-83.25	-13	-42.86	-0.1	Horizontal	PK	Pass
2	2438.1250		27.39		54		-0.1	Horizontal	AV	Pass
3	5983.7500	-48.96	32.77	-81.73	-13	-35.96	-0.1	Horizontal	PK	Pass
3	5983.7500		32.77		54		-0.1	Horizontal	AV	Pass
4	9604.5000	-66.52	11.38	-77.9	-13	-53.52	293.2	Horizontal	PK	Pass
4	9604.5000		11.38		54		293.2	Horizontal	AV	Pass
5	11899.5000	-61.01	16.52	-77.53	-13	-48.01	335	Horizontal	PK	Pass
5	11899.5000		16.52		54		335	Horizontal	AV	Pass
6	17899.5000	-54.15	23.26	-77.41	-13	-41.15	250.2	Horizontal	PK	Pass
6	17899.5000		23.26		54		250.2	Horizontal	AV	Pass

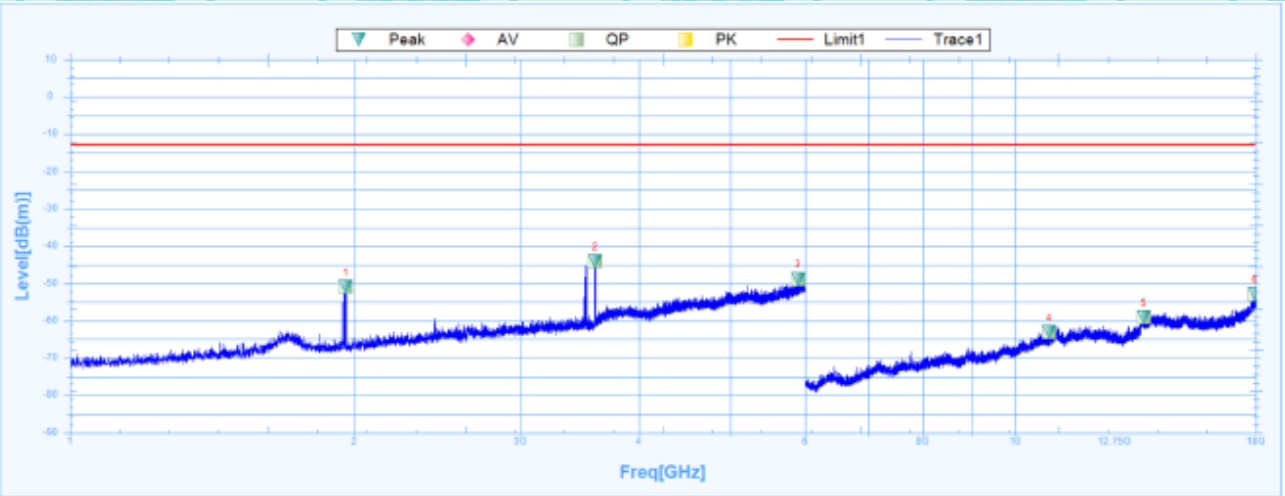
Vertical:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1941.2500	-55.7	25.64	-81.34	-13	-42.7	359.6	Vertical	PK	Pass
1	1941.2500		25.64		54		359.6	Vertical	AV	Pass
2	4347.5000	-53.66	30.33	-83.99	-13	-40.66	186.2	Vertical	PK	Pass
2	4347.5000		30.33		54		186.2	Vertical	AV	Pass
3	5783.1250	-44.71	32.45	-77.16	-13	-31.71	202.9	Vertical	PK	Pass
3	5783.1250		32.45		54		202.9	Vertical	AV	Pass
4	11119.5000	-62.03	15.84	-77.87	-13	-49.03	51.8	Vertical	PK	Pass
4	11119.5000		15.84		54		51.8	Vertical	AV	Pass
5	13972.5000	-57.72	19.04	-76.76	-13	-44.72	163	Vertical	PK	Pass
5	13972.5000		19.04		54		163	Vertical	AV	Pass
6	17997.0000	-54.19	23.91	-78.1	-13	-41.19	2.6	Vertical	PK	Pass
6	17997.0000		23.91		54		2.6	Vertical	AV	Pass

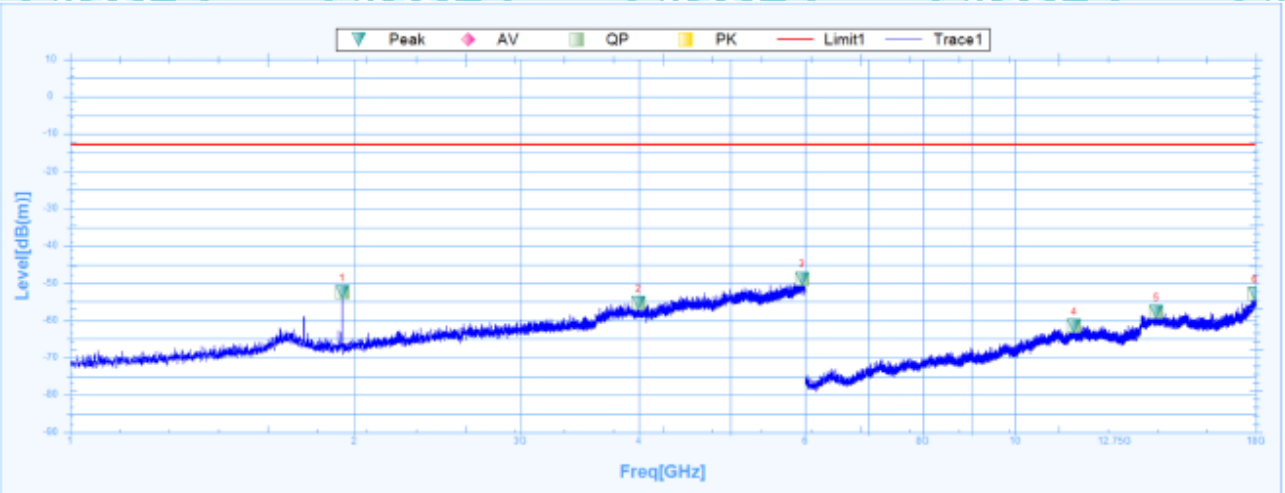
Band 41:
Horizontal:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1958.7500	-50.91	25.71	-76.62	-13	-37.91	132.4	Horizontal	PK	Pass
1	1958.7500		25.71		54		132.4	Horizontal	AV	Pass
2	3597.5000	-44.02	28.73	-72.75	-13	-31.02	358.8	Horizontal	PK	Pass
2	3597.5000		28.73		54		358.8	Horizontal	AV	Pass
3	5898.1250	-48.8	32.64	-81.44	-13	-35.8	22.4	Horizontal	PK	Pass
3	5898.1250		32.64		54		22.4	Horizontal	AV	Pass
4	10878.0000	-63.13	14.94	-78.07	-13	-50.13	344.7	Horizontal	PK	Pass
4	10878.0000		14.94		54		344.7	Horizontal	AV	Pass
5	13690.5000	-59.07	18.24	-77.31	-13	-46.07	1	Horizontal	PK	Pass
5	13690.5000		18.24		54		1	Horizontal	AV	Pass
6	17958.0000	-52.97	23.63	-76.6	-13	-39.97	360.1	Horizontal	PK	Pass
6	17958.0000		23.63		54		360.1	Horizontal	AV	Pass

Vertical:



Susputed Data List

NO.	Freq. [MHz]	Reading [dB(m)]	Factor [dB]	Level [dB(m)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1941.2500	-52.46	25.64	-78.1	-13	-39.46	0	Vertical	PK	Pass
1	1941.2500		25.64		54		0	Vertical	AV	Pass
2	4000.0000	-55.23	29.7	-84.93	-13	-42.23	192.2	Vertical	PK	Pass
2	4000.0000		29.7		54		192.2	Vertical	AV	Pass
3	5956.8750	-48.8	32.73	-81.53	-13	-35.8	112.1	Vertical	PK	Pass
3	5956.8750		32.73		54		112.1	Vertical	AV	Pass
4	11556.0000	-61.45	16.21	-77.66	-13	-48.45	360.1	Vertical	PK	Pass
4	11556.0000		16.21		54		360.1	Vertical	AV	Pass
5	14121.0000	-57.68	19	-76.68	-13	-44.68	92.6	Vertical	PK	Pass
5	14121.0000		19		54		92.6	Vertical	AV	Pass
6	17953.5000	-52.92	23.6	-76.52	-13	-39.92	148.7	Vertical	PK	Pass
6	17953.5000		23.6		54		148.7	Vertical	AV	Pass

9. OCCUPIED BANDWIDTH& EMISSION BANDWIDTH

Test limit:

The occupied bandwidth (OBW), that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission, shall be measured when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user. [¡ì2.1049(h)]

Many of the individual rule parts specify a relative OBW in lieu of the 99% OBW. In such cases, the OBW is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated by at least X dB below the transmitter power, where the value of X is typically specified as 26.

The relative OBW must be measured and reported when it is specified in the applicable rule part; otherwise, the 99% OBW shall be measured and reported. The test report shall specify which OBW is reported.

A spectrum/signal analyzer or other instrument providing a spectral display is recommended for these measurements and the video bandwidth shall be set to a value at least three times greater than the IF/resolution bandwidth to avoid any amplitude smoothing. Video filtering shall not be used during occupied bandwidth tests.

The OBW shall be measured for all operating conditions that will affect the bandwidth results (e.g. variable modulations, coding, or channel bandwidth settings). See section 4.

Test procedure:

Occupied bandwidth – relative measurement procedure

The reference value is the highest level of the spectral envelope of the modulated signal.

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.

b) The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

c) Set the reference level of the instrument as required to prevent the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.

d) NOTE—Steps a) through c) may require iteration to adjust within the specified tolerances.

e) The dynamic range of the spectrum analyzer at the selected RBW shall be at least 10 dB below the target “-X dB down” requirement (i.e., if the requirement calls for measuring the –26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference value).

f) Set the detection mode to peak, and the trace mode to max hold.

g) Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).

h) Determine the “-X dB down amplitude” as equal to (Reference Value – X). Alternatively, this calculation can be performed by the analyzer by using the marker-delta function.

i) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "–X dB down amplitude" determined in step g). If a marker is below this "-X dB down amplitude" value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.

j) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display. The frequency and amplitude axes and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Occupied bandwidth – power bandwidth (99%) measurement procedure

The following procedure shall be used for measuring (99 %) power bandwidth

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the OBW).

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.

c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least 10log (OBW / RBW) below the reference level.

d) NOTE—Steps a) through c) may require iteration to adjust within the specified tolerances.

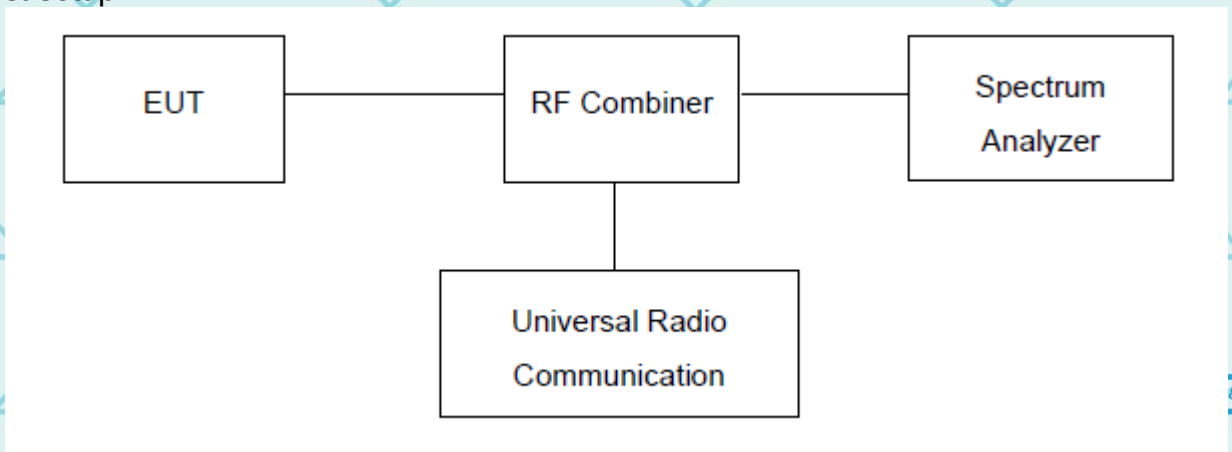
e) Set the detection mode to peak, and the trace mode to max hold..

f) Use the 99 % power bandwidth function of the spectrum analyzer (if available) and report the measured bandwidth.

g) If the instrument does not have a 99 % power bandwidth function, the trace data points are to be recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % power bandwidth is the difference between these two frequencies.

h) The OBW shall be reported by providing plot(s) of the measuring instrument display. The frequency and amplitude axes and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Test setup:



9.1. Measurement Result

GSM850:

Frequency	OBW(99%)	26dB BW
824.2	246.79KHz	314.10KHz
836.6	245.19KHz	309.29KHz
848.8	240.38KHz	298.08KHz

PCS1900:

Frequency	OBW(99%)	26dB BW
1850.2	243.59KHz	256.41KHz
1880	241.99KHz	250.00KHz
1909.8	243.59KHz	266.03KHz

GPRS850:

Frequency	OBW(99%)	26dB BW
824.2	246.79KHz	317.31KHz
836.6	246.79KHz	299.68KHz
848.8	245.19KHz	312.50KHz

GPRS 1900:

Frequency	OBW(99%)	26dB BW
1850.2	248.40KHz	266.03KHz
1880	246.79KHz	269.23KHz
1909.8	248.40KHz	291.67KHz

EGPRS 850:

Frequency	OBW(99%)	26dB BW
824.2	246.79KHz	314.10KHz
836.6	245.19KHz	312.50KHz
848.8	243.49KHz	314.10KHz

EGPRS 1900:

Frequency	OBW(99%)	26dB BW
1850.2	245.19KHz	258.01KHz
1880	246.79KHz	267.63KHz
1909.8	246.79KHz	296.47KHz

UTRA BANDS

Band 2:

Frequency	OBW(99%)	26dB BW
1852.4	4.167MHz	4.696MHz
1880	4.167MHz	4.679MHz
1907.6	4.167MHz	4.679MHz

Band 4:

Frequency	OBW(99%)	26dB BW
1712.4	4.167MHz	4.679MHz
1732.6	4.167MHz	4.696MHz
1752.6	4.167MHz	4.679MHz

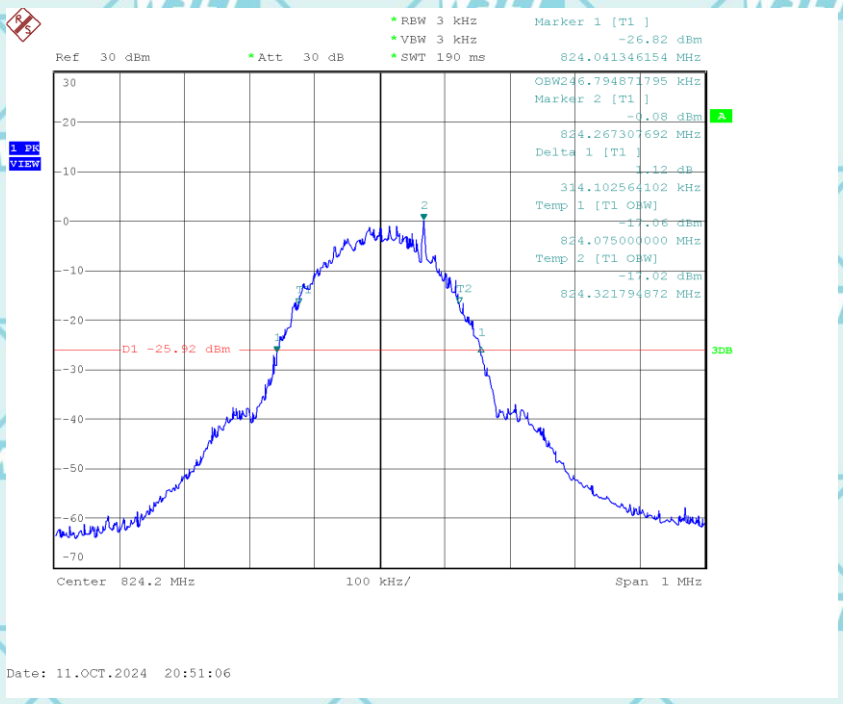
Band 5:

Frequency	OBW(99%)	26dB BW
826.4	4.167MHz	4.679MHz
836.4	4.167MHz	4.696MHz
846.6	4.183MHz	4.663MHz

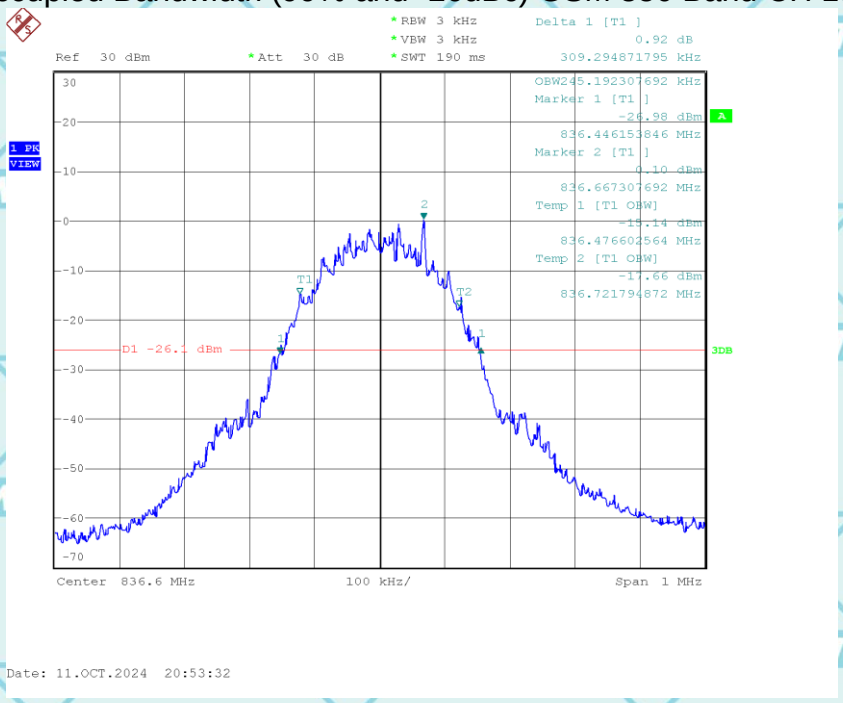
Report No.: WSCT-ANAB-R&E240900047A-RF

Test Plot(s)

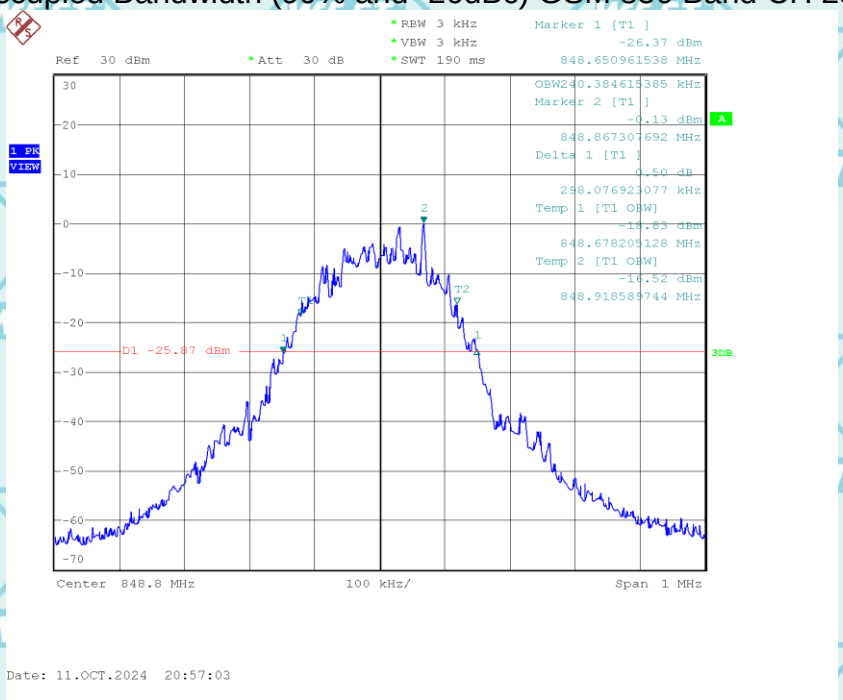
Occupied Bandwidth (99% and -26dBc) GSM 850 Band CH 128



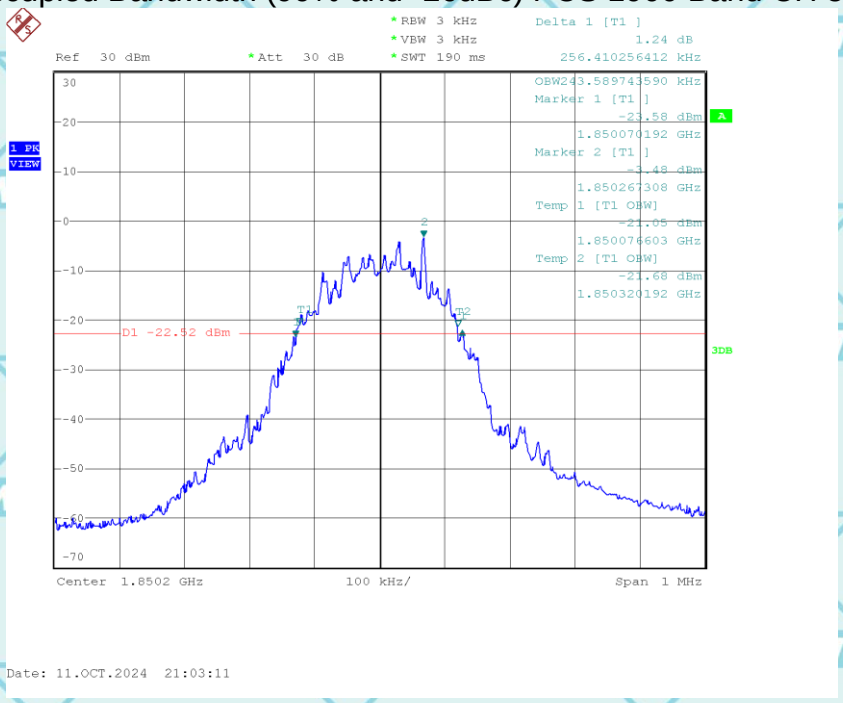
Occupied Bandwidth (99% and -26dBc) GSM 850 Band CH 190



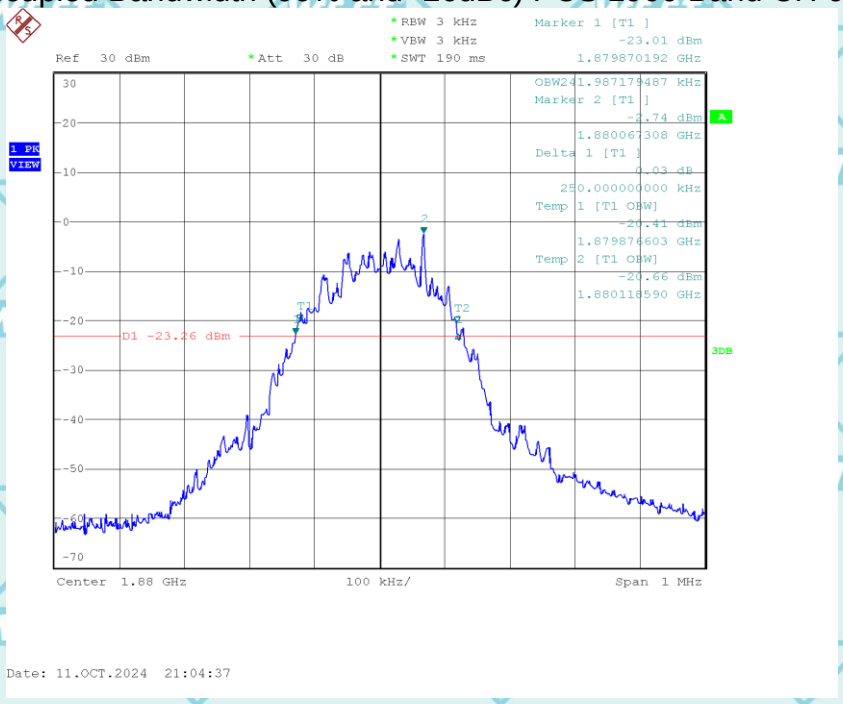
Occupied Bandwidth (99% and -26dBc) GSM 850 Band CH 251



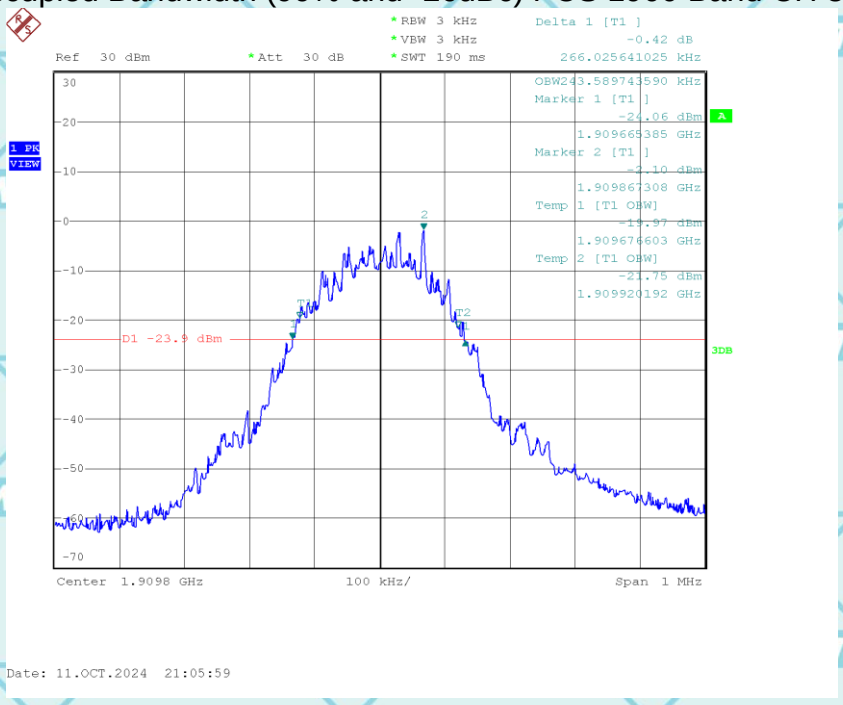
Occupied Bandwidth (99% and -26dBc) PCS 1900 Band CH 512



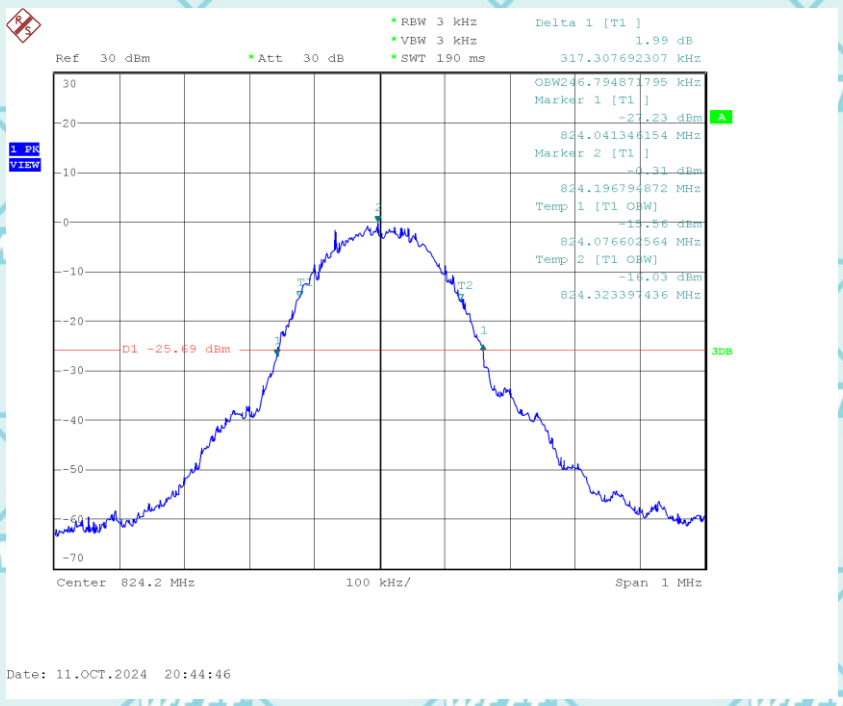
Occupied Bandwidth (99% and -26dBc) PCS 1900 Band CH 661



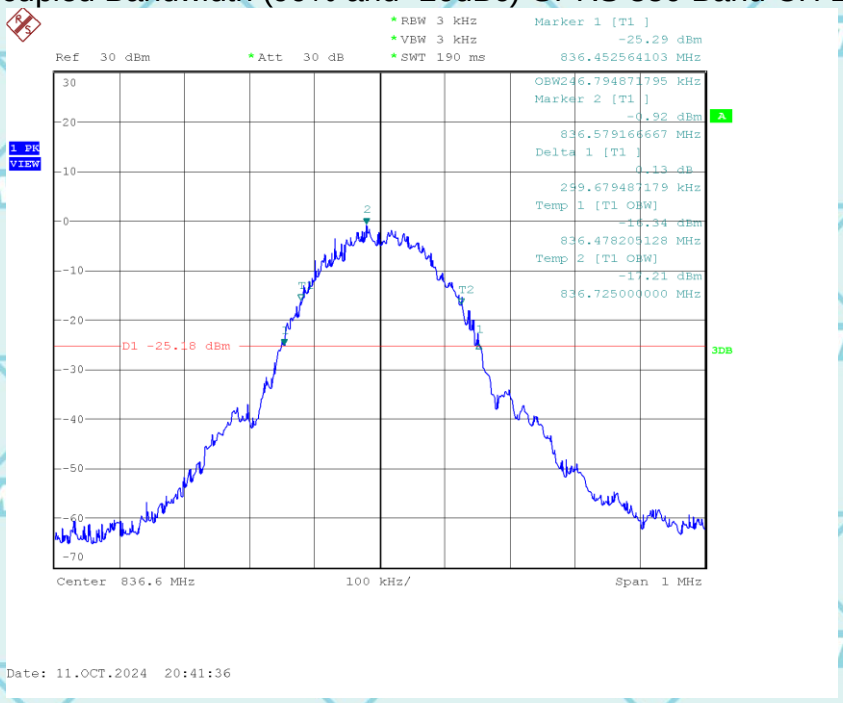
Occupied Bandwidth (99% and -26dBc) PCS 1900 Band CH 810



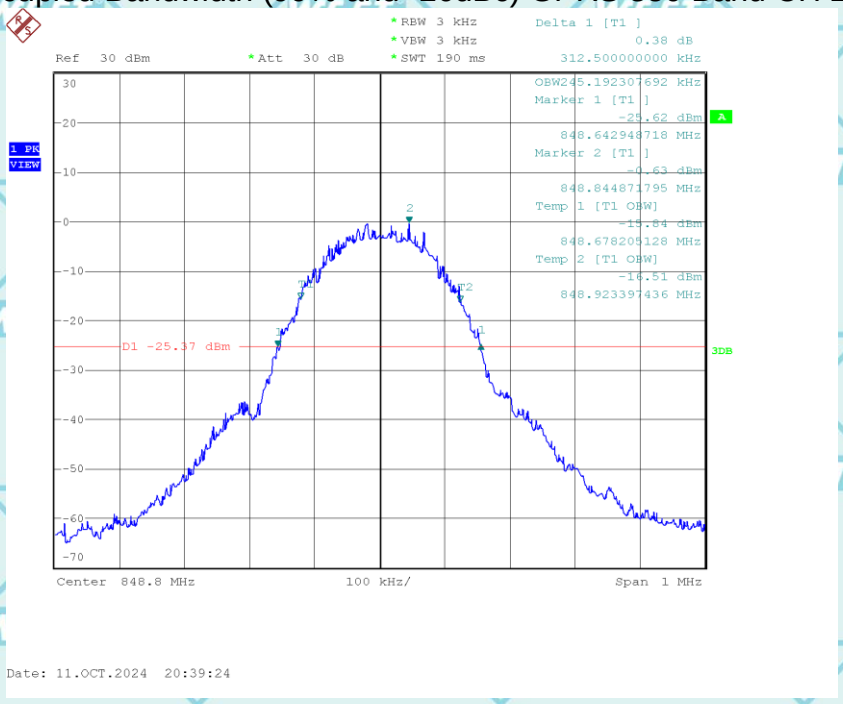
Occupied Bandwidth (99% and -26dBc) GPRS 850 Band CH 128



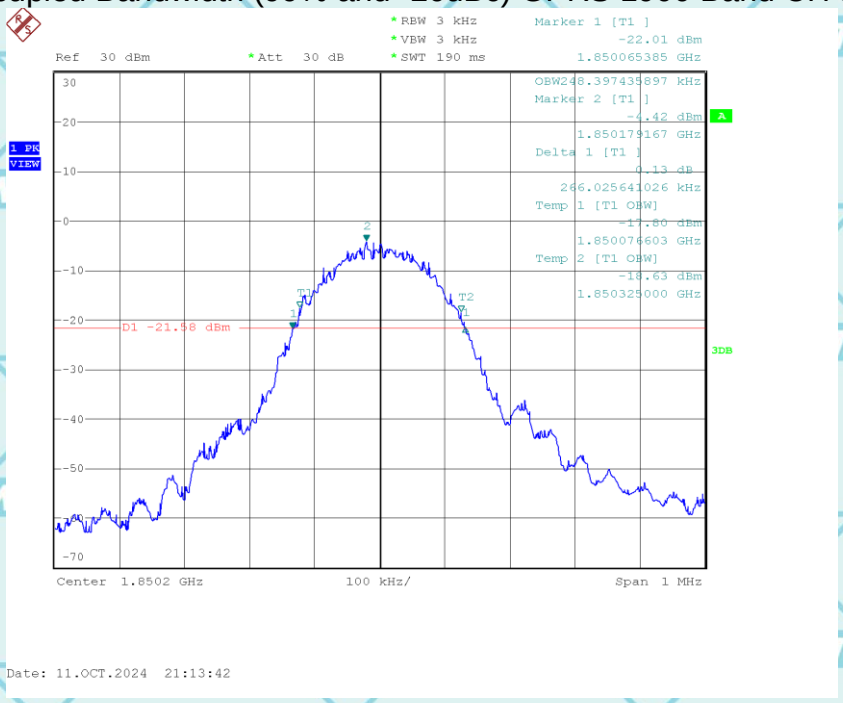
Occupied Bandwidth (99% and -26dBc) GPRS 850 Band CH 190



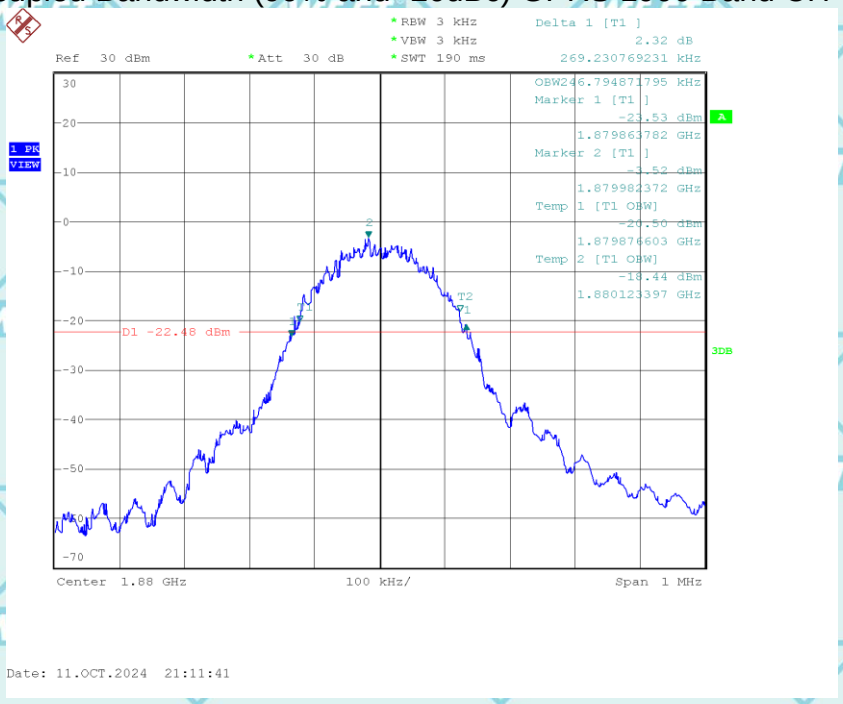
Occupied Bandwidth (99% and -26dBc) GPRS 850 Band CH 251



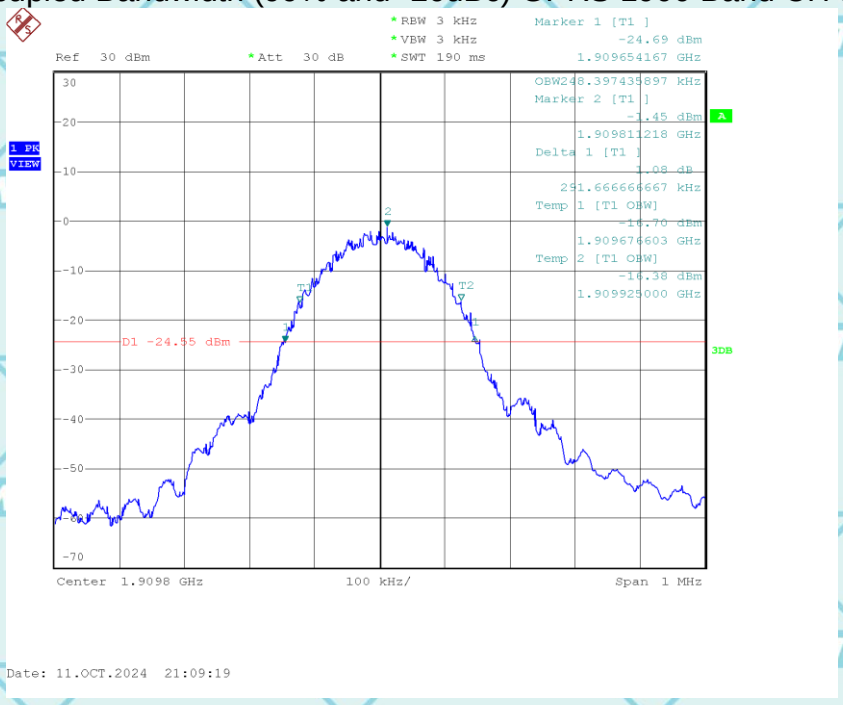
Occupied Bandwidth (99% and -26dBc) GPRS 1900 Band CH 512



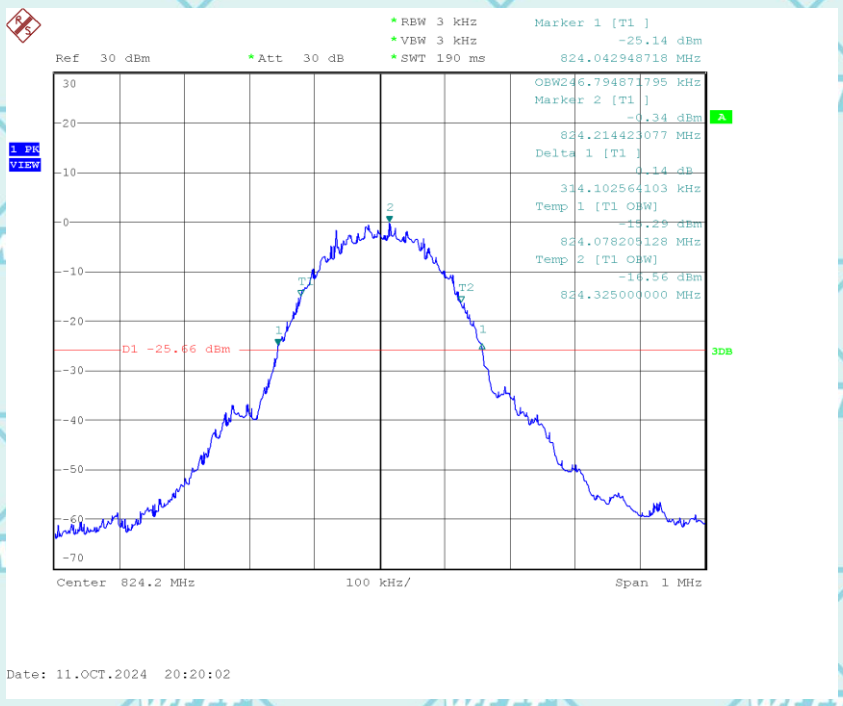
Occupied Bandwidth (99% and -26dBc) GPRS 1900 Band CH 661



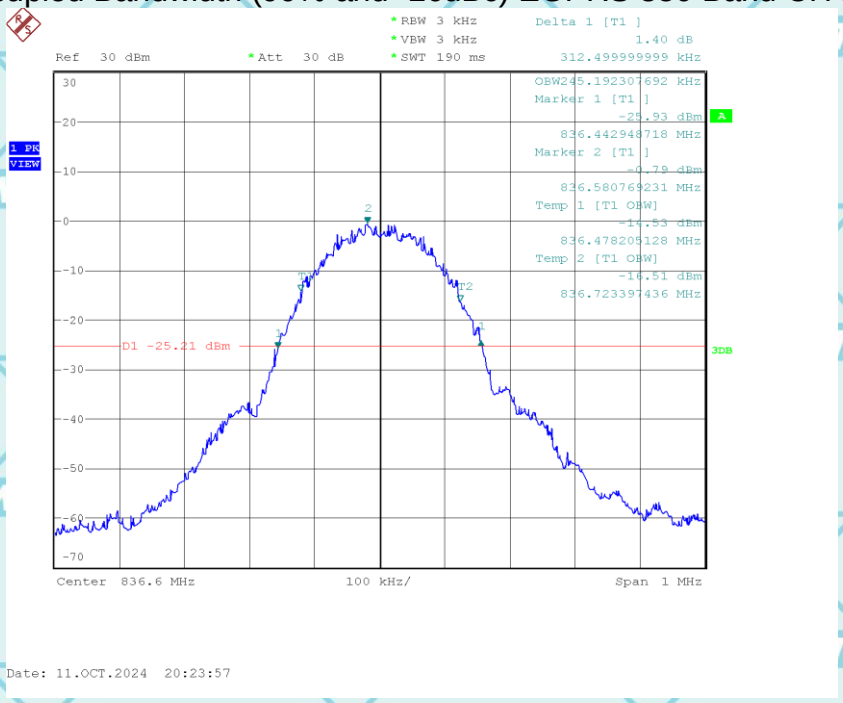
Occupied Bandwidth (99% and -26dBc) GPRS 1900 Band CH 810



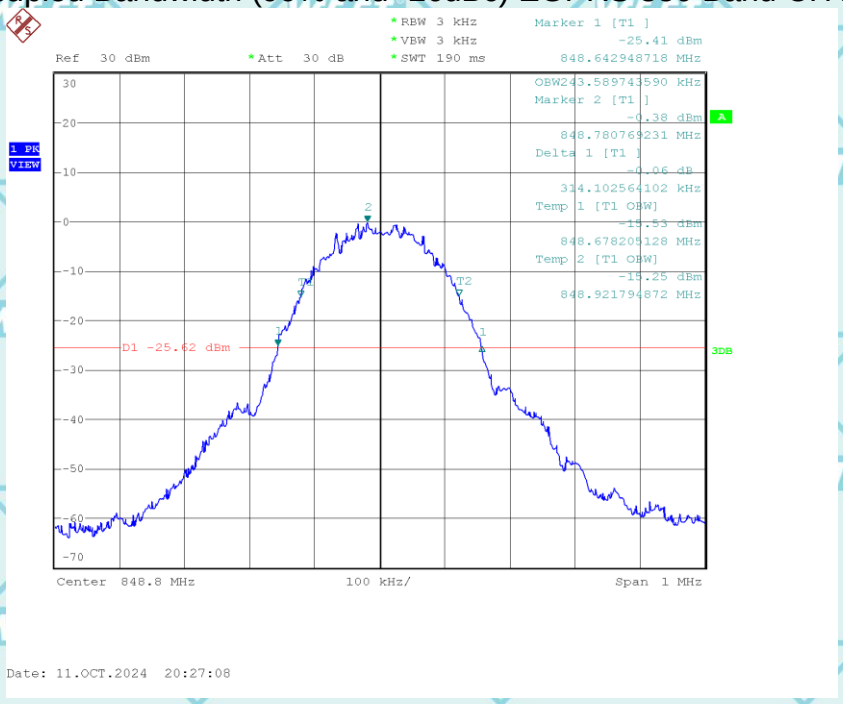
Occupied Bandwidth (99% and -26dBc) EGPRS 850 Band CH 128



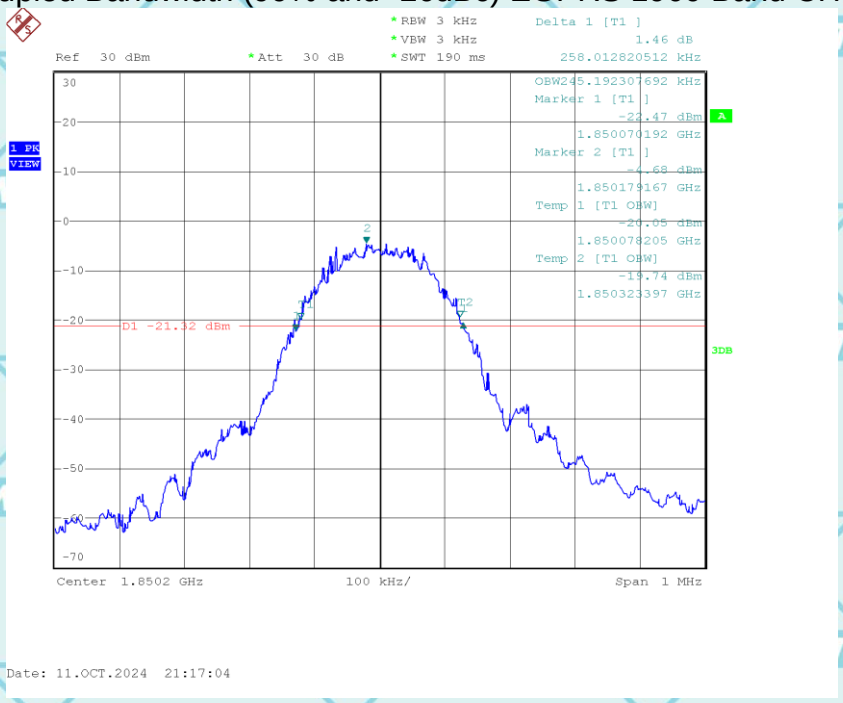
Occupied Bandwidth (99% and -26dBc) EGPRS 850 Band CH 190



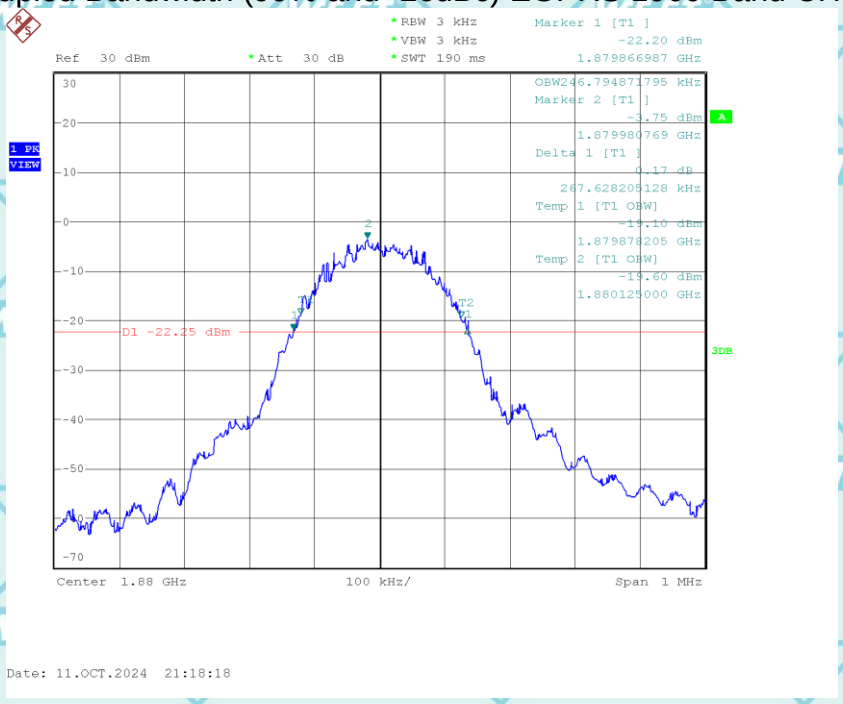
Occupied Bandwidth (99% and -26dBc) EGPRS 850 Band CH 251



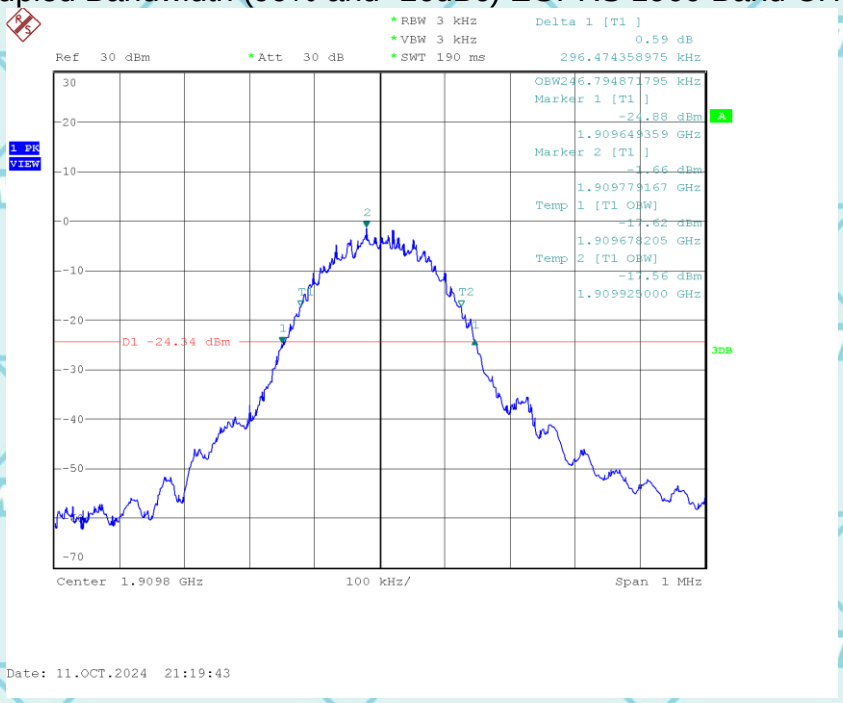
Occupied Bandwidth (99% and -26dBc) EGPRS 1900 Band CH 512



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

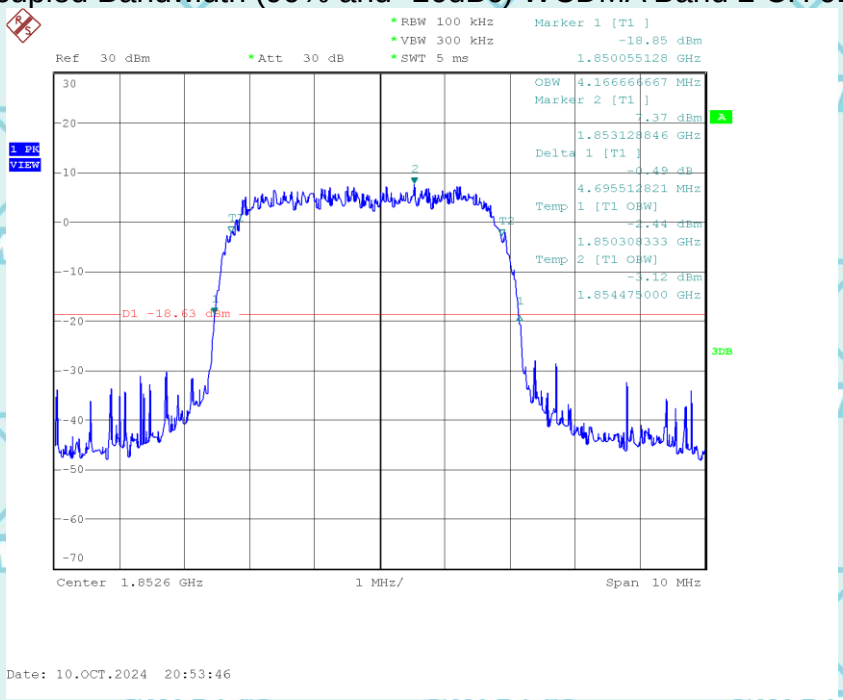


Occupied Bandwidth (99% and -26dBc) EGPRS 1900 Band CH 810

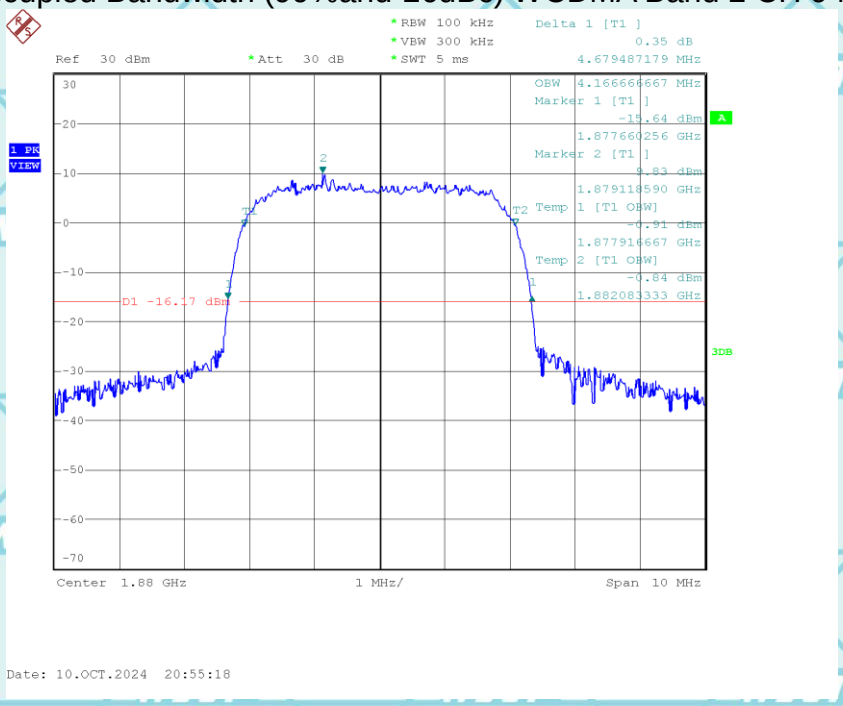


UTRA BANDS

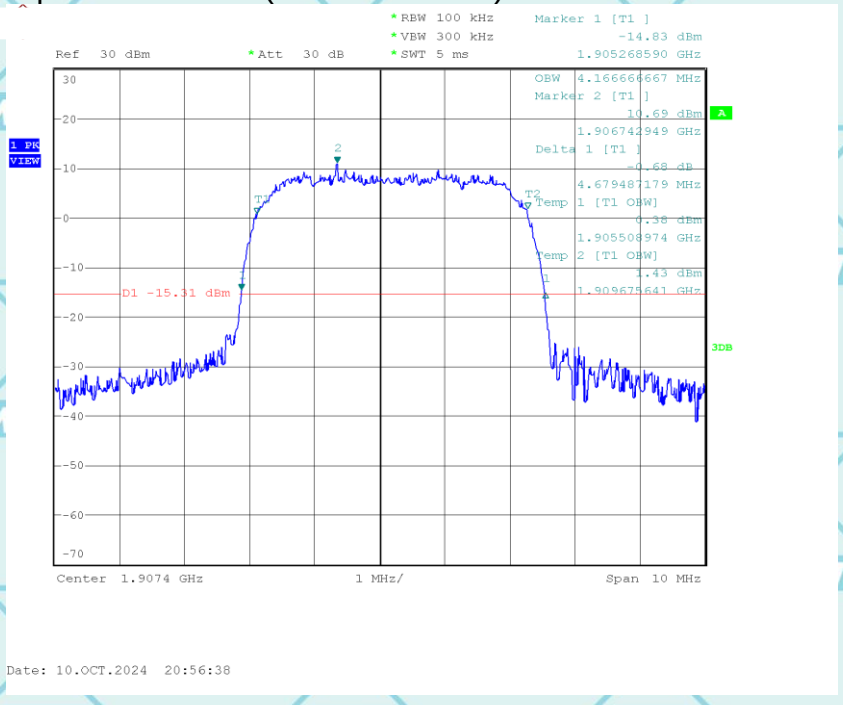
Occupied Bandwidth (99% and -26dBc) WCDMA Band 2 CH 9262



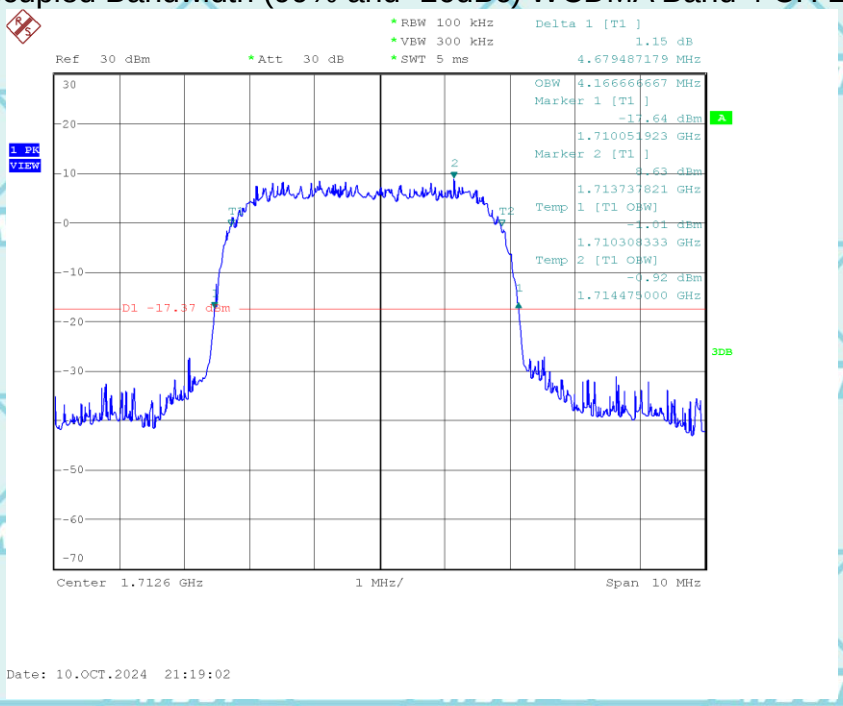
Occupied Bandwidth (99%and-26dBc) WCDMA Band 2 CH 9400



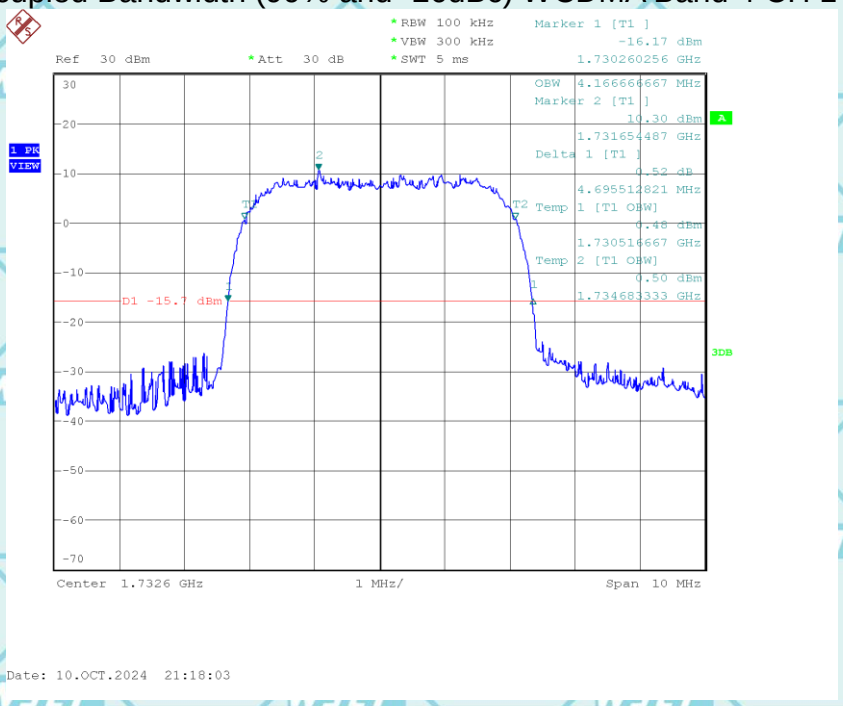
Occupied Bandwidth (99%and-26dBc) WCDMA Band 2 CH 9538



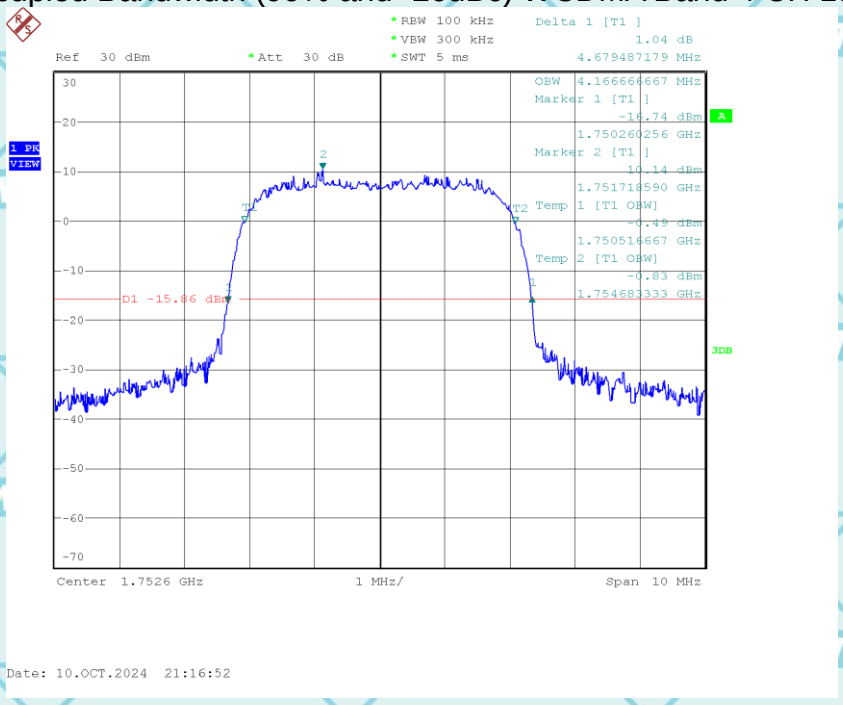
Occupied Bandwidth (99% and -26dBc) WCDMA Band 4 CH 1312



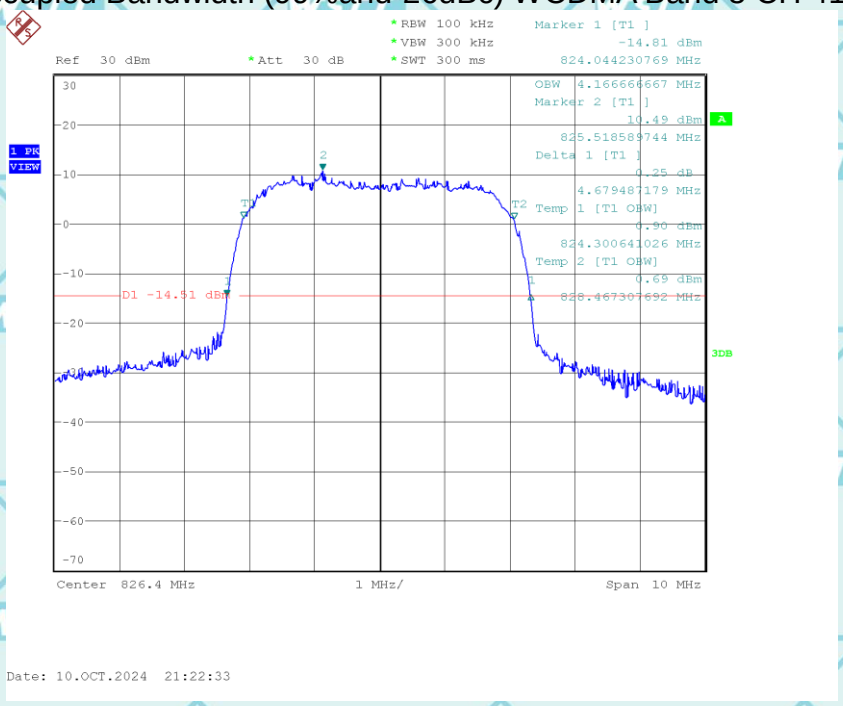
Occupied Bandwidth (99% and -26dBc) WCDMA Band 4 CH 1413



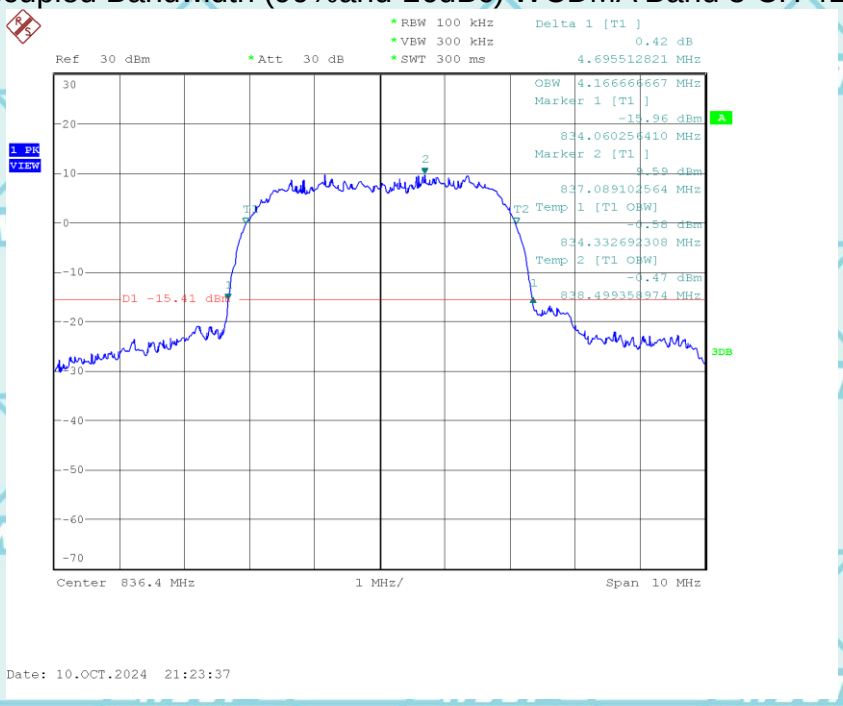
Occupied Bandwidth (99% and -26dBc) WCDMA Band 4 CH 1513



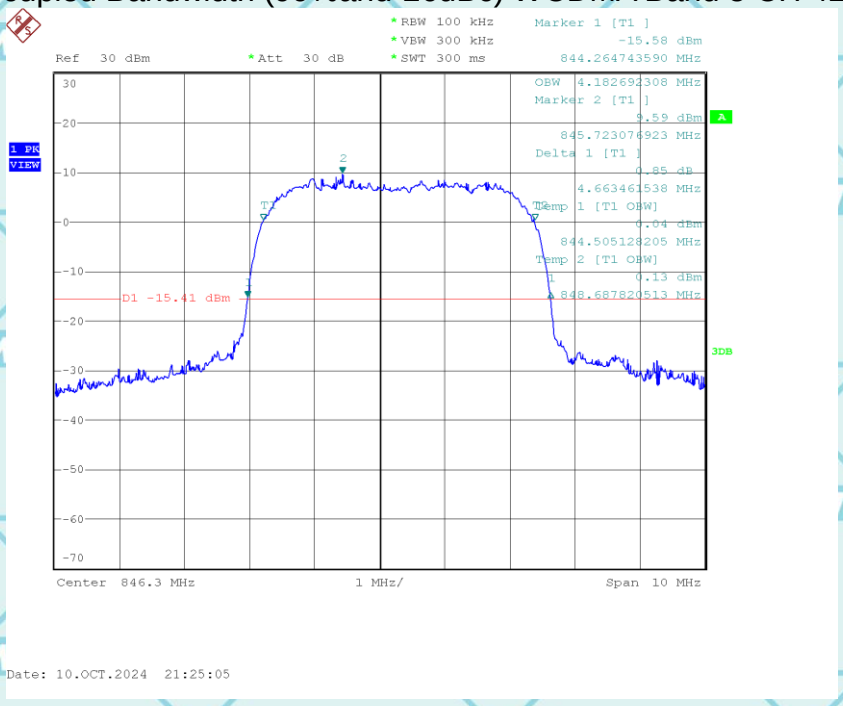
Occupied Bandwidth (99%and-26dBc) WCDMA Band 5 CH 4132



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



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



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

10. BAND EDGE

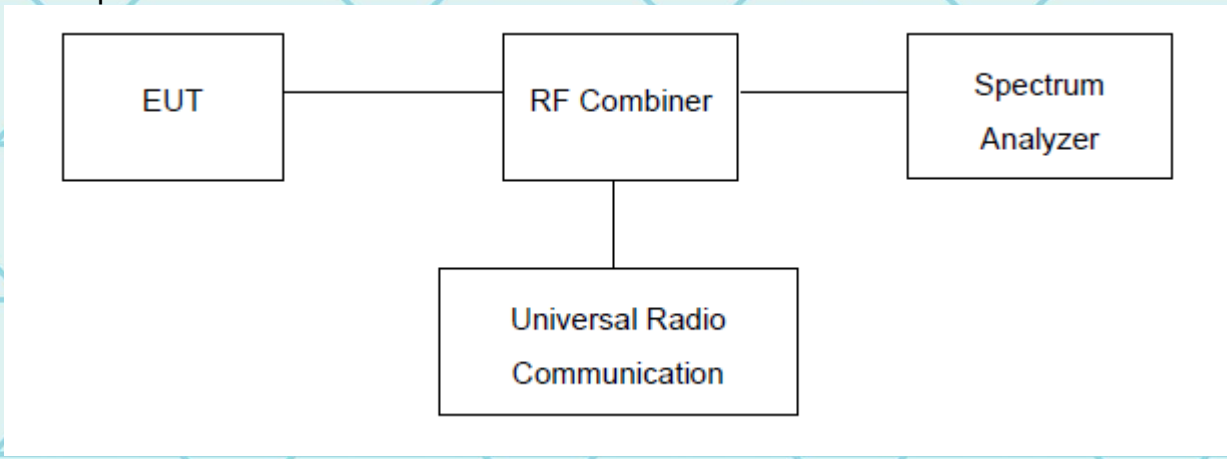
Test Limit:

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.

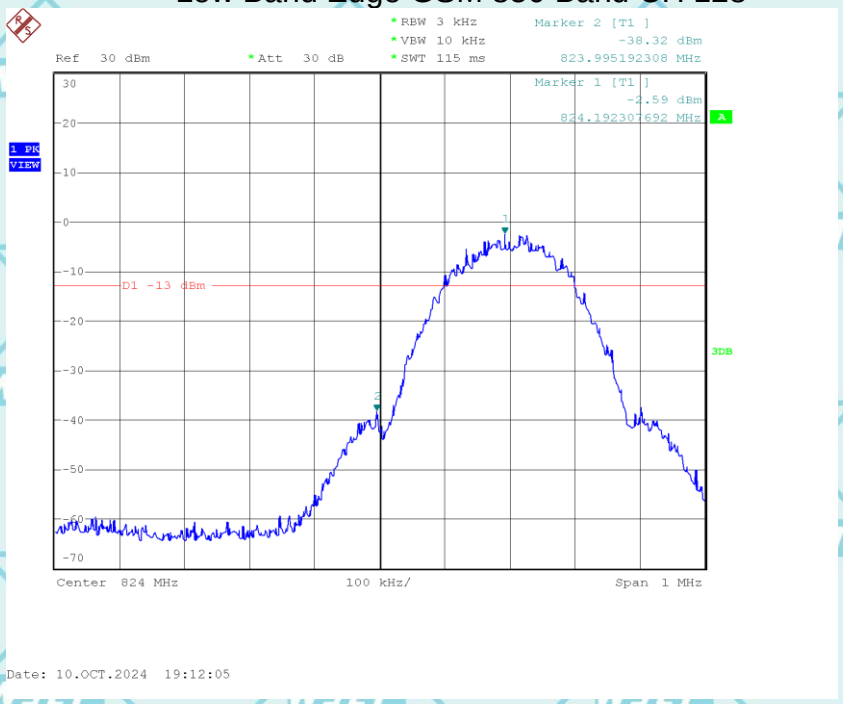
Test setup:



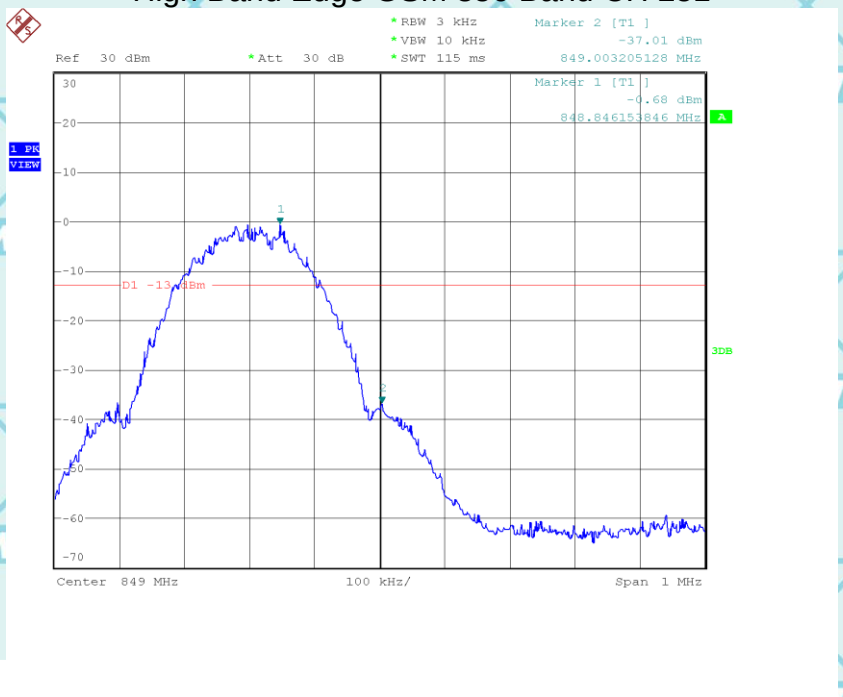
10.1. Measurement Result

Test Plot(s)

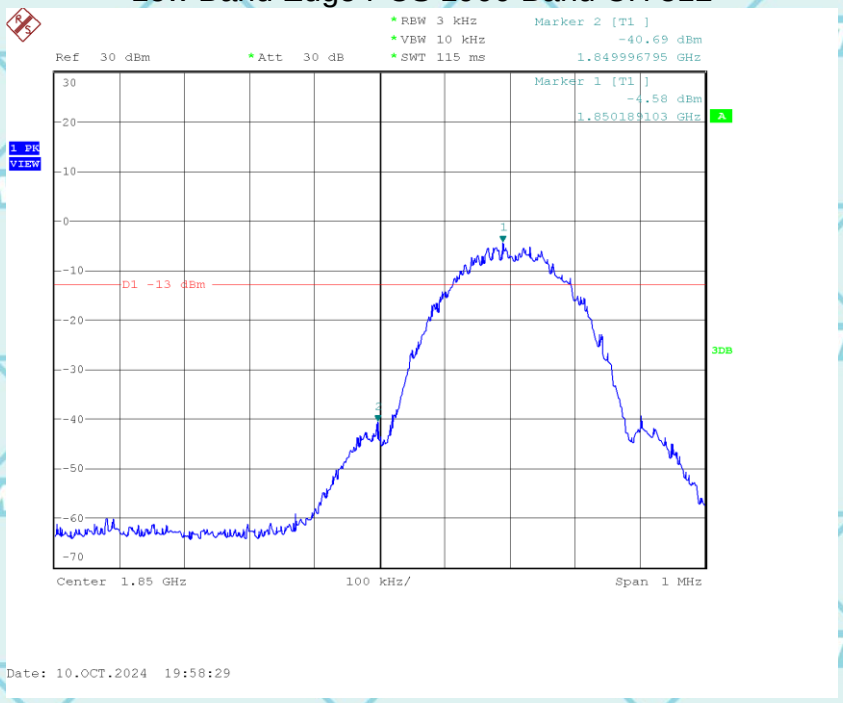
Low Band Edge GSM 850 Band CH 128



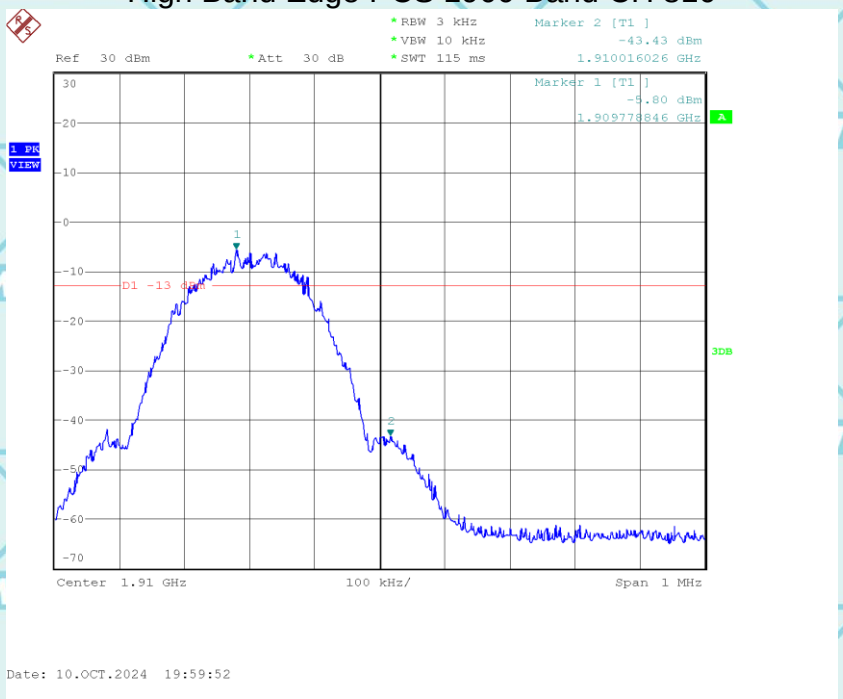
High Band Edge GSM 850 Band CH 251



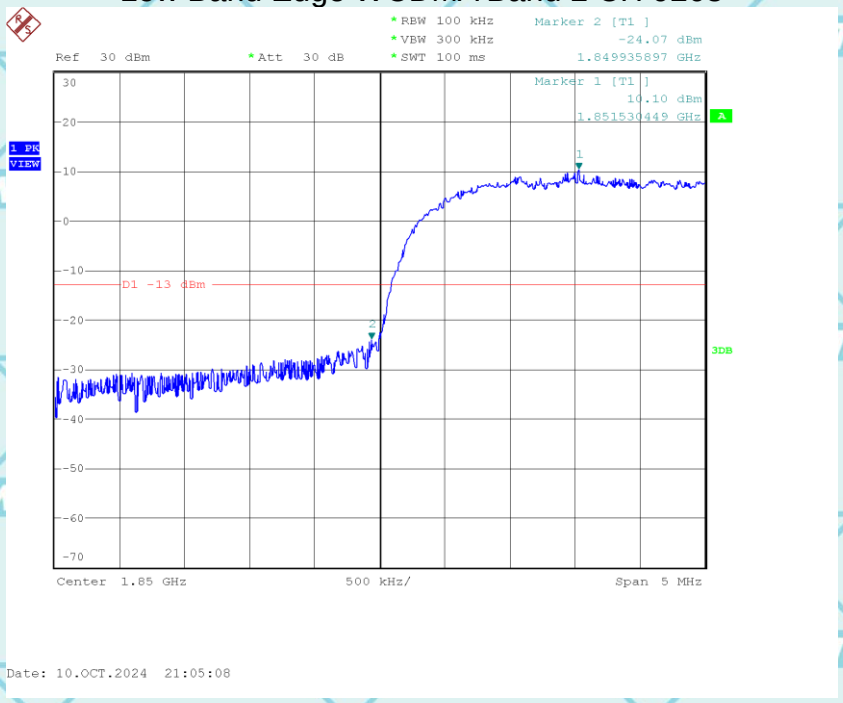
Low Band Edge PCS 1900 Band CH 512



High Band Edge PCS 1900 Band CH 810



Low Band Edge WCDMA Band 2 CH 9263



High Band Edge WCDMA Band 2 CH 9537