

Appendix A-GSM

Test Information:

Sample No.:	3ABO-4	Test Date:	2025/07/29~2025/10/30
Test Site:	RF	Test Mode:	Transmitting
Tester:	Benny Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.5~25.9	Relative Humidity: (%)	42~48	ATM Pressure: (kPa)	99.3~100.7
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RF Output Power

FCC Part 22H

GSM 850, Normal

Mode	Average Conducted Power(dBm)	ERP (dBm)	Limit (dBm)	Verdict
GSM_Low	32.70	24.89	38.45	Pass
GSM_Middle	32.69	24.88	38.45	Pass
GSM_High	32.64	24.83	38.45	Pass
GPRS_Low_Slot1	32.70	24.89	38.45	Pass
GPRS_Low_Slot2	31.98	24.17	38.45	Pass
GPRS_Low_Slot3	30.26	22.45	38.45	Pass
GPRS_Low_Slot4	29.18	21.37	38.45	Pass
GPRS_Middle_Slot1	32.69	24.88	38.45	Pass
GPRS_Middle_Slot2	31.98	24.17	38.45	Pass
GPRS_Middle_Slot3	30.25	22.44	38.45	Pass
GPRS_Middle_Slot4	29.16	21.35	38.45	Pass
GPRS_High_Slot1	32.64	24.83	38.45	Pass
GPRS_High_Slot2	31.93	24.12	38.45	Pass
GPRS_High_Slot3	30.22	22.41	38.45	Pass
GPRS_High_Slot4	29.11	21.30	38.45	Pass
EDGE_Low_Slot1	26.76	18.95	38.45	Pass
EDGE_Low_Slot2	25.68	17.87	38.45	Pass
EDGE_Low_Slot3	23.54	15.73	38.45	Pass
EDGE_Low_Slot4	22.51	14.70	38.45	Pass
EDGE_Middle_Slot1	26.68	18.87	38.45	Pass
EDGE_Middle_Slot2	25.62	17.81	38.45	Pass
EDGE_Middle_Slot3	23.49	15.68	38.45	Pass
EDGE_Middle_Slot4	22.49	14.68	38.45	Pass
EDGE_High_Slot1	26.54	18.73	38.45	Pass
EDGE_High_Slot2	25.45	17.64	38.45	Pass
EDGE_High_Slot3	23.37	15.56	38.45	Pass
EDGE_High_Slot4	22.36	14.55	38.45	Pass

Note:

ERP = Average Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)

Antenna Gain(dBd) = Antenna Gain(dBi) - 2.15

GSM 850:

1.Antenna Gain = -5.16dBi;

2.Cable Loss = 0.5dB.

FCC Part 24E

GSM 1900, Normal

Mode	Average Conducted Power(dBm)	EIRP (dBm)	Limit (dBm)	Verdict
GSM_Low	29.17	29.71	33	Pass
GSM_Middle	29.46	30.00	33	Pass
GSM_High	29.53	30.07	33	Pass
GPRS_Low_Slot1	29.18	29.72	33	Pass
GPRS_Low_Slot2	28.34	28.88	33	Pass
GPRS_Low_Slot3	26.50	27.04	33	Pass
GPRS_Low_Slot4	25.46	26.00	33	Pass
GPRS_Middle_Slot1	29.46	30.00	33	Pass
GPRS_Middle_Slot2	28.62	29.16	33	Pass
GPRS_Middle_Slot3	26.78	27.32	33	Pass
GPRS_Middle_Slot4	25.74	26.28	33	Pass
GPRS_High_Slot1	29.53	30.07	33	Pass
GPRS_High_Slot2	28.70	29.24	33	Pass
GPRS_High_Slot3	26.86	27.40	33	Pass
GPRS_High_Slot4	25.83	26.37	33	Pass
EDGE_Low_Slot1	25.23	25.77	33	Pass
EDGE_Low_Slot2	24.27	24.81	33	Pass
EDGE_Low_Slot3	22.50	23.04	33	Pass
EDGE_Low_Slot4	21.50	22.04	33	Pass
EDGE_Middle_Slot1	25.43	25.97	33	Pass
EDGE_Middle_Slot2	24.54	25.08	33	Pass
EDGE_Middle_Slot3	22.71	23.25	33	Pass
EDGE_Middle_Slot4	21.69	22.23	33	Pass
EDGE_High_Slot1	25.53	26.07	33	Pass
EDGE_High_Slot2	24.54	25.08	33	Pass
EDGE_High_Slot3	22.68	23.22	33	Pass
EDGE_High_Slot4	21.67	22.21	33	Pass

Note:

EIRP = Average Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)

GSM 1900:

- 1.Antenna Gain = 1.04dBi;
- 2.Cable Loss = 0.5dB.

Peak-to-average Ratio(PAR)

FCC Part 22H

GSM 850, Normal

Mode	Result (dB)	Limit (dB)
GSM_Low	0.26	13
GSM_Middle	0.29	13
GSM_High	0.26	13
GPRS_Low_GMSK	0.26	13
GPRS_Middle_GMSK	0.26	13
GPRS_High_GMSK	0.26	13
EDGE_Low_8PSK	3.45	13
EDGE_Middle_8PSK	3.42	13
EDGE_High_8PSK	4.09	13

FCC Part 24E

GSM 1900, Normal

Mode	Result (dB)	Limit (dB)
GSM_Low	0.26	13
GSM_Middle	0.29	13
GSM_High	0.29	13
GPRS_Low_GMSK	0.29	13
GPRS_Middle_GMSK	0.29	13
GPRS_High_GMSK	0.29	13
EDGE_Low_8PSK	3.62	13
EDGE_Middle_8PSK	3.30	13
EDGE_High_8PSK	3.42	13

Occupied Bandwidth

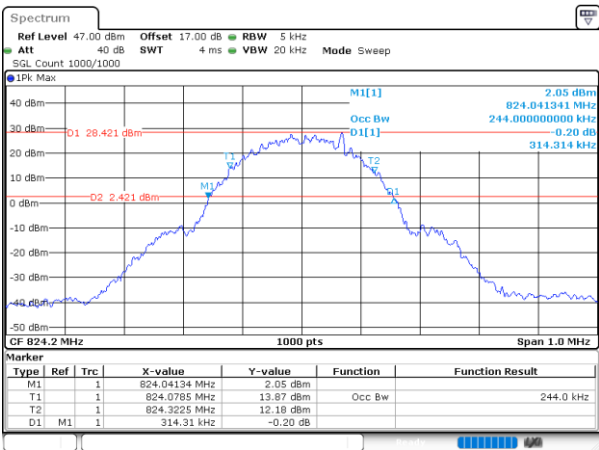
FCC Part 22H

GSM 850, Normal

Mode	99% OBW (MHz)	26dB BW (MHz)
GSM_Low	0.244	0.314
GSM_Middle	0.244	0.317
GSM_High	0.245	0.322
GPRS_Low_GMSK	0.245	0.318
GPRS_Middle_GMSK	0.246	0.320
GPRS_High_GMSK	0.242	0.319
EDGE_Low_8PSK	0.248	0.318
EDGE_Middle_8PSK	0.247	0.309
EDGE_High_8PSK	0.245	0.316

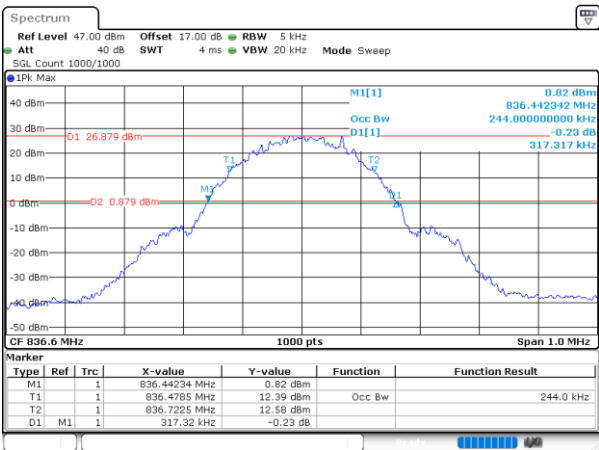
GSM 850, Normal

GSM_Low



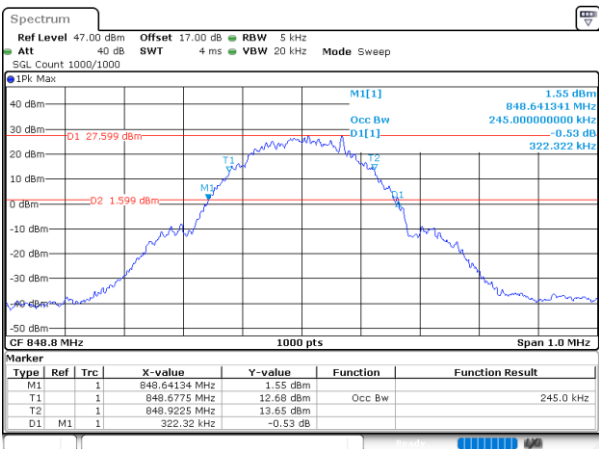
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Date: 30.JUL.2025 09:17:31

GSM_Middle



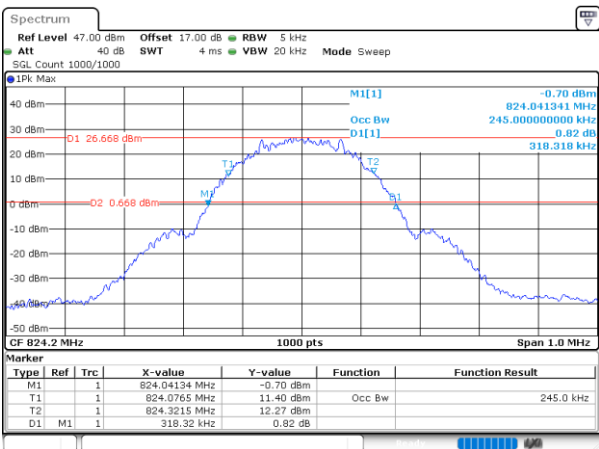
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GSM_High



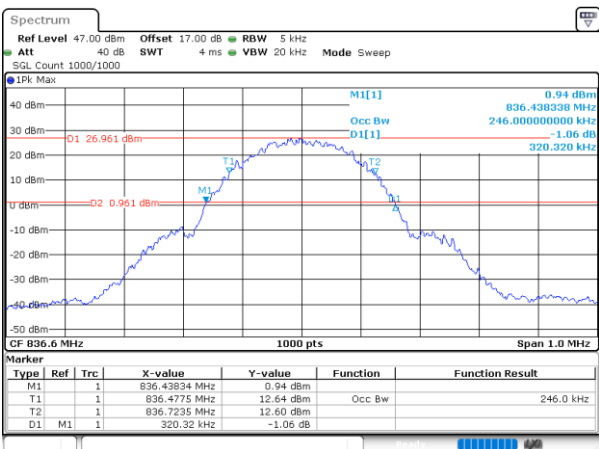
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GPRS_Low_GMSK



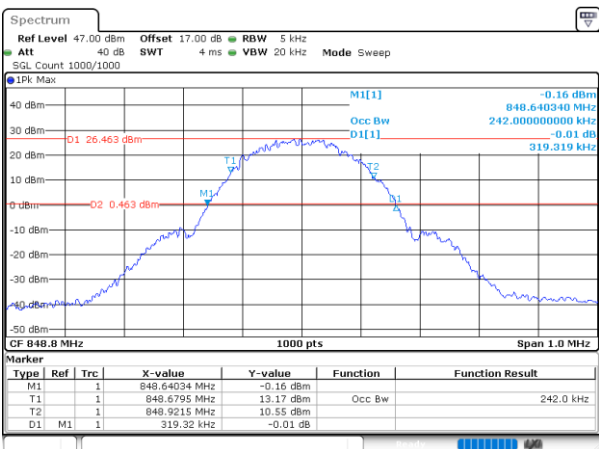
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GPRS_Middle_GMSK



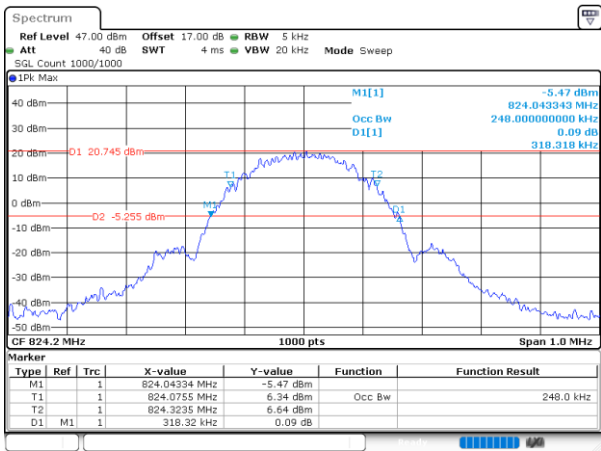
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GPRS_High_GMSK



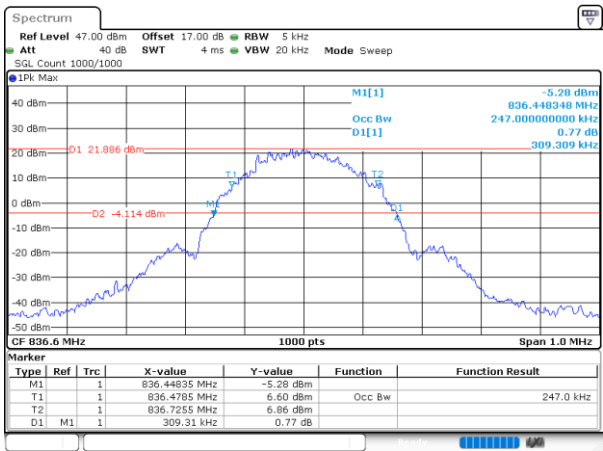
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Date: 30.JUL.2025 09:20:27

EDGE_Low_8PSK



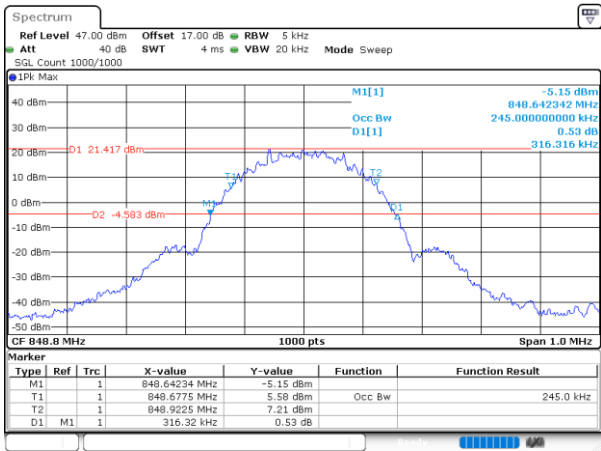
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Date: 30.JUL.2025 09:20:59

EDGE_Middle_8PSK



ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 30.JUL.2025 09:21:24

EDGE_High_8PSK



ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 30.JUL.2025 09:21:50

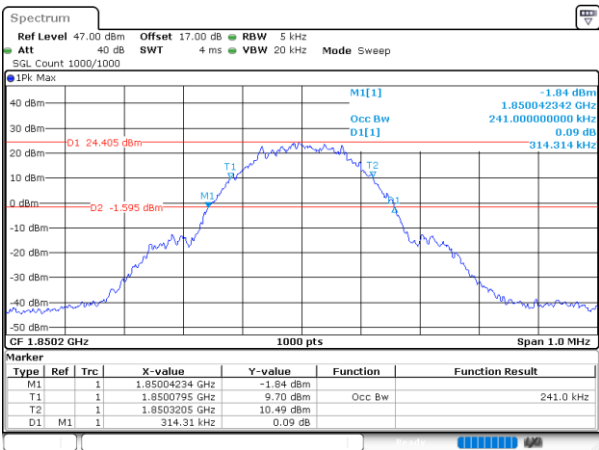
FCC Part 24E

GSM 1900, Normal

Mode	99% OBW (MHz)	26dB BW (MHz)
GSM_Low	0.241	0.314
GSM_Middle	0.243	0.313
GSM_High	0.244	0.317
GPRS_Low_GMSK	0.243	0.320
GPRS_Middle_GMSK	0.245	0.313
GPRS_High_GMSK	0.242	0.313
EDGE_Low_8PSK	0.249	0.320
EDGE_Middle_8PSK	0.251	0.322
EDGE_High_8PSK	0.249	0.316

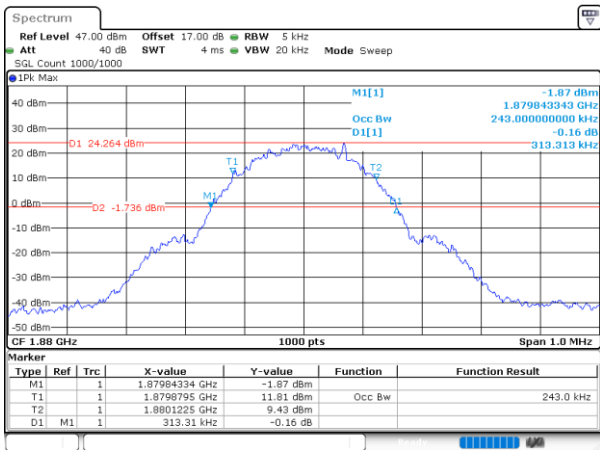
GSM 1900, Normal

GSM_Low



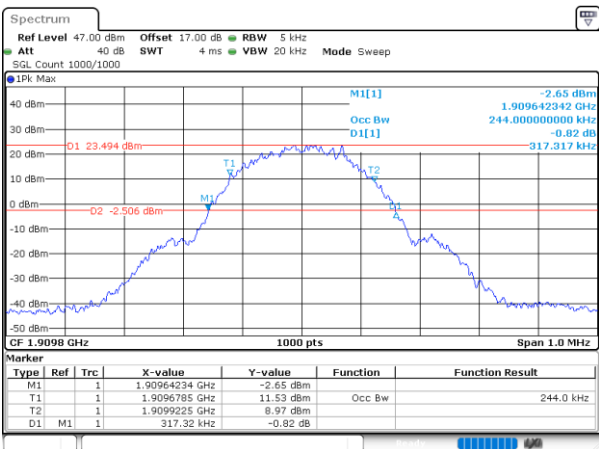
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GSM_Middle



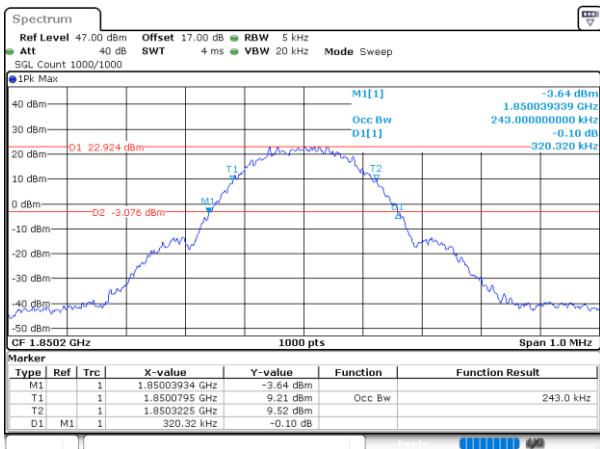
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GSM_High



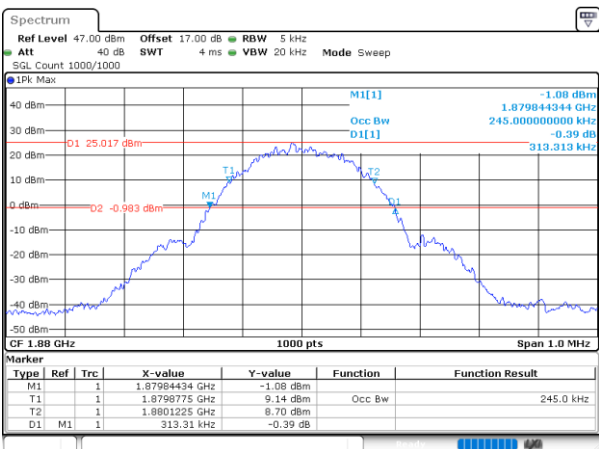
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Date: 30.JUL.2025 09:58:13

GPRS_Low_GMSK



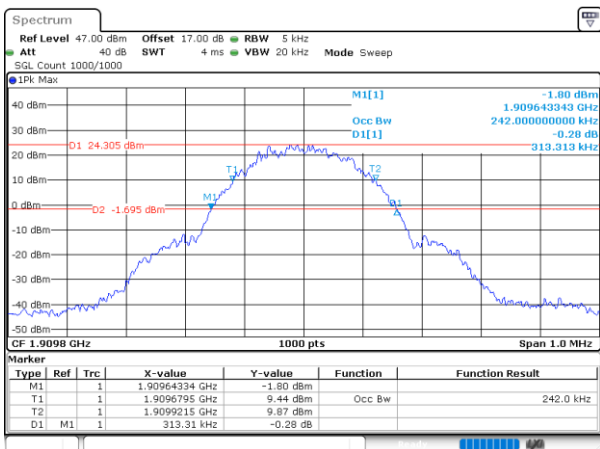
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GPRS_Middle_GMSK



ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 30.JUL.2025 09:59:18

GPRS_High_GMSK



ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 30.JUL.2025 09:59:48

EDGE_Middle_8PSK



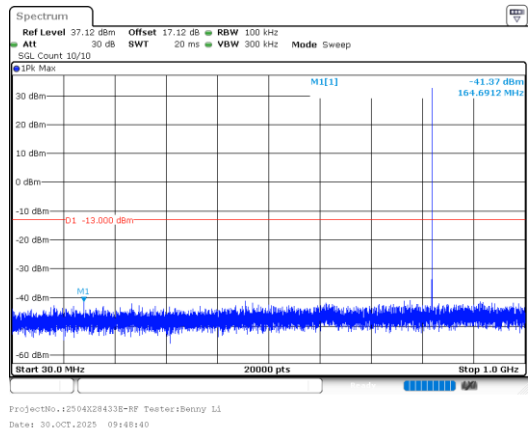
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Spurious Emissions at Antenna Terminal

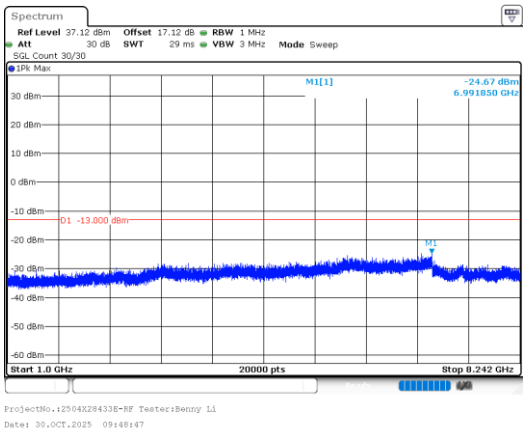
FCC Part 22H
GSM 850, Normal

GSM_Low

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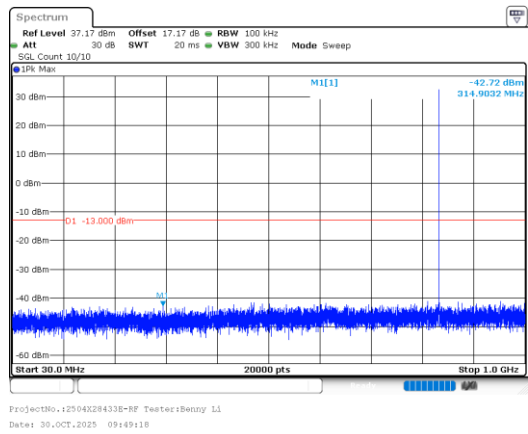


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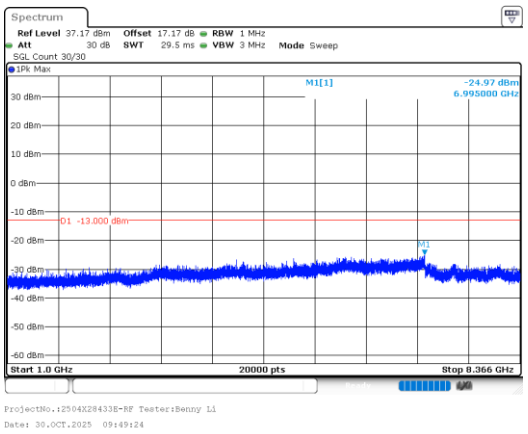


GSM_Middle

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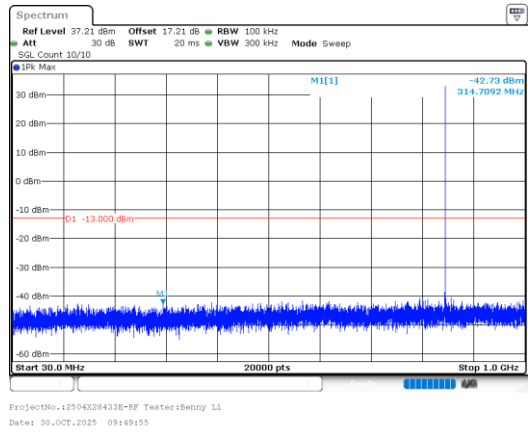


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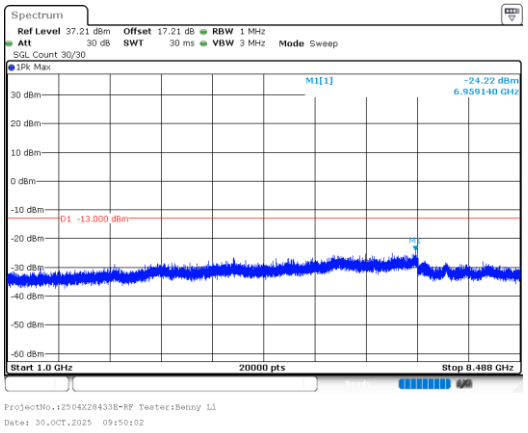


GSM_High

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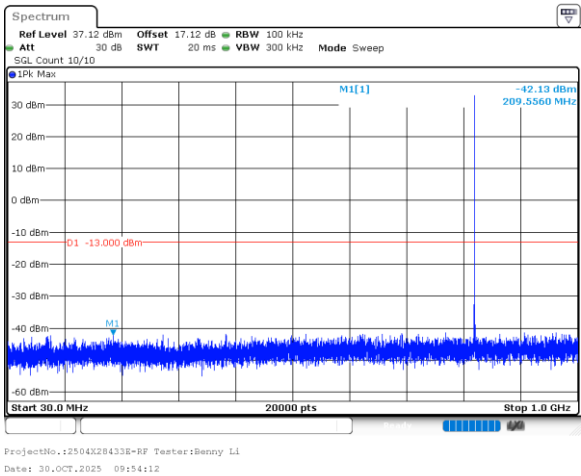


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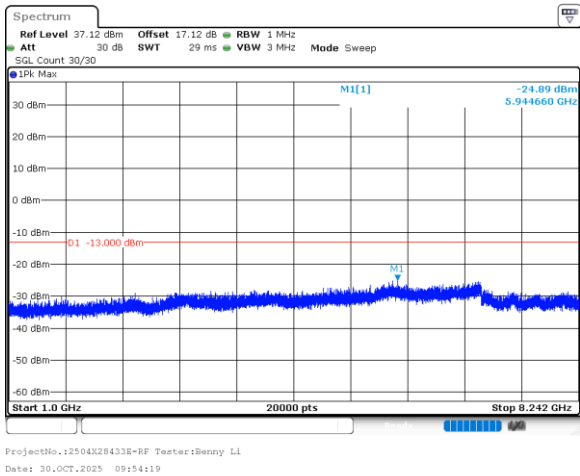


GPRS_Low_GMSK

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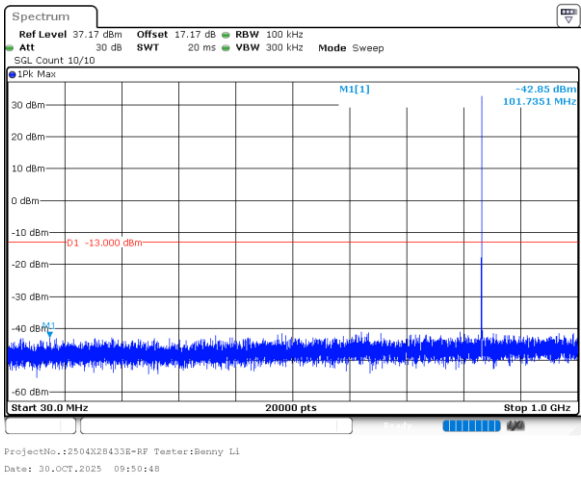


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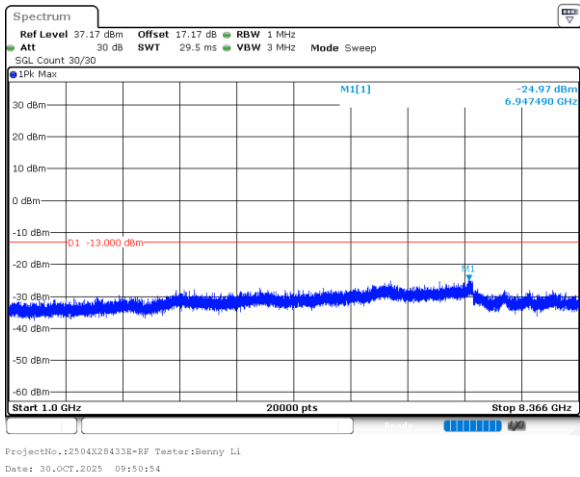


GPRS_Middle_GMSK

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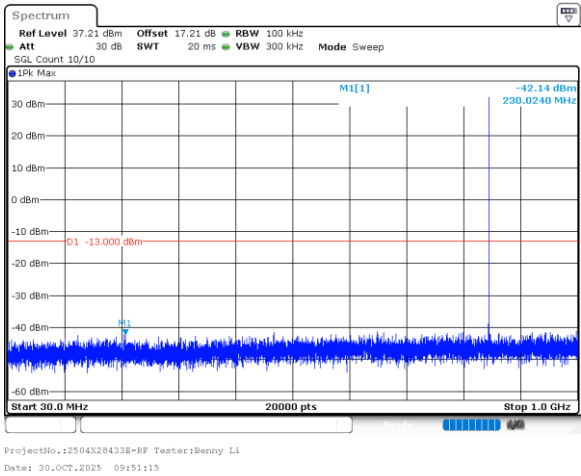


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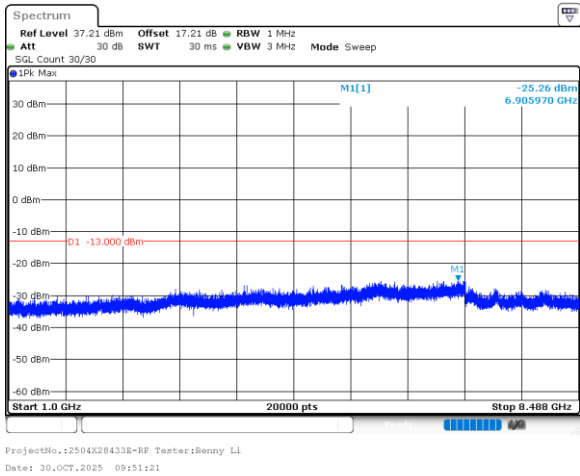


GPRS_High_GMSK

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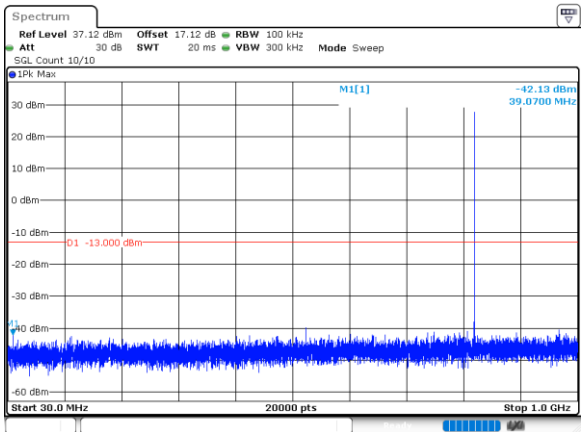


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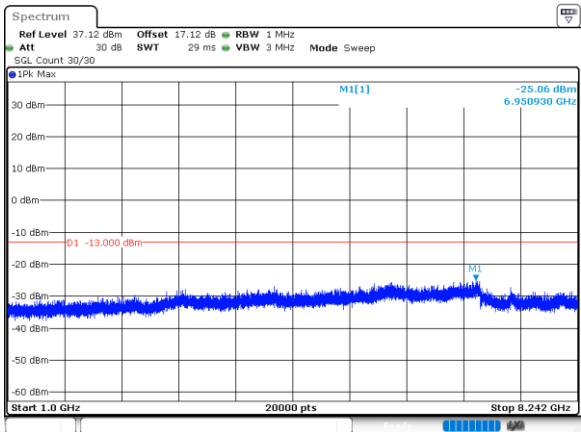
EDGE_Low_8PSK

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Date: 30.OCT.2025 09:51:44

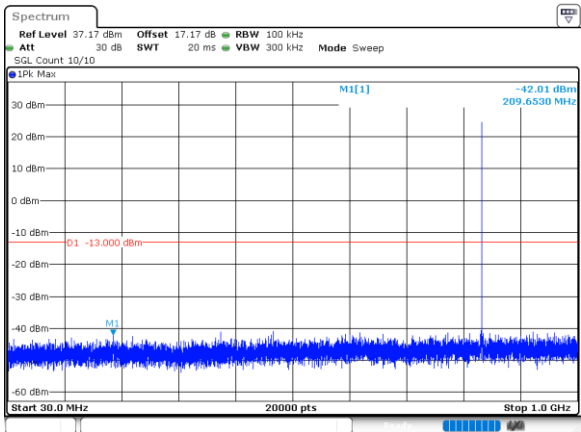
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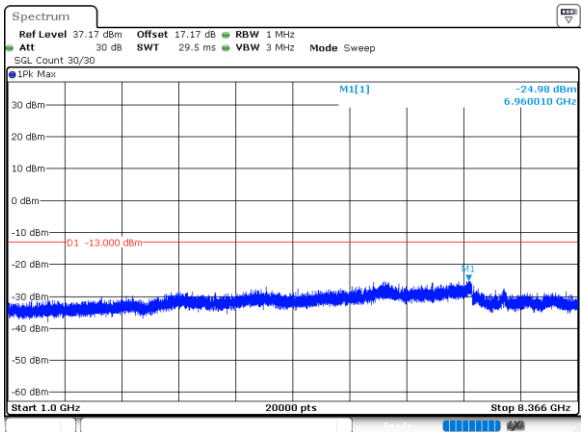
EDGE_Middle_8PSK

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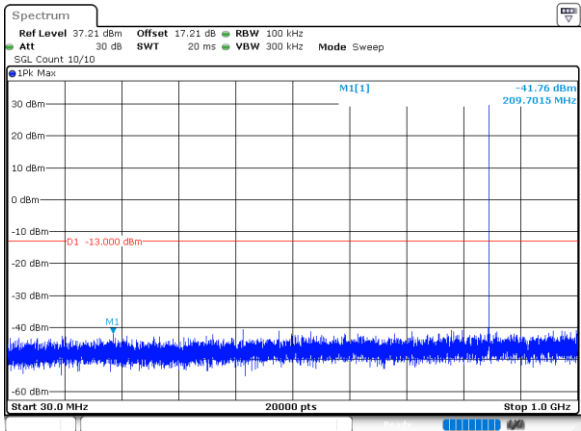
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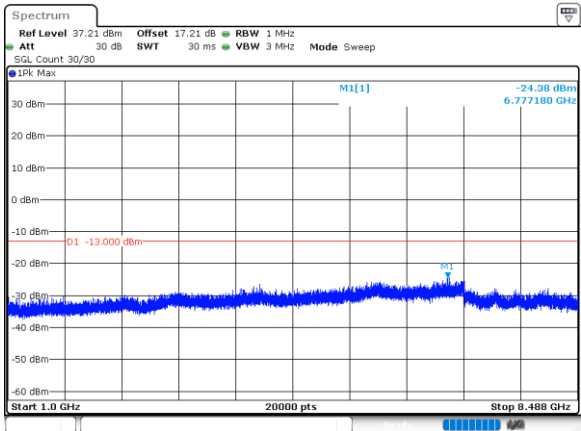
EDGE_High_8PSK

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Date: 30.OCT.2025 09:52:39

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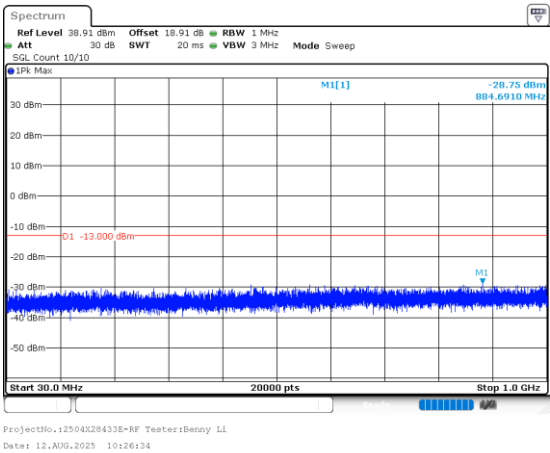
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FCC Part 24E

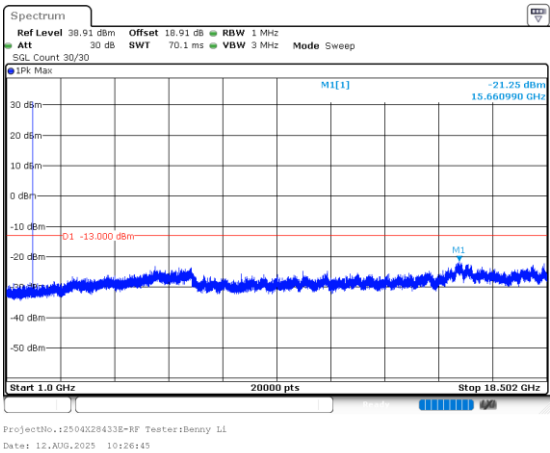
GSM 1900, Normal

GSM_Low

Below 1G

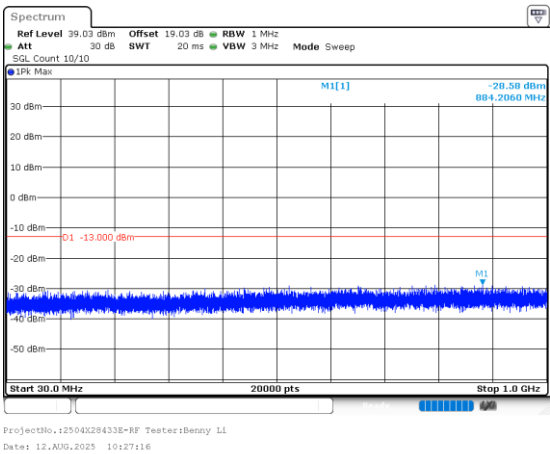


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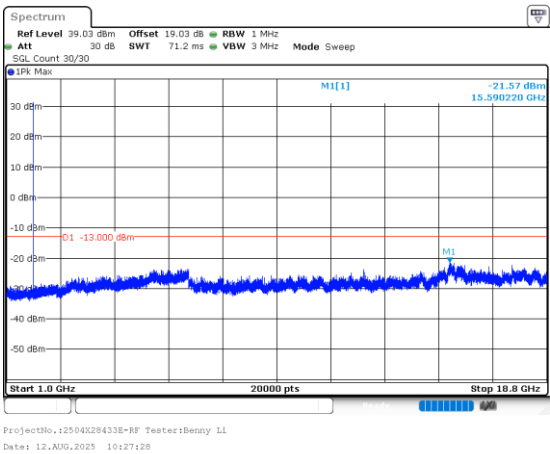


GSM_Middle

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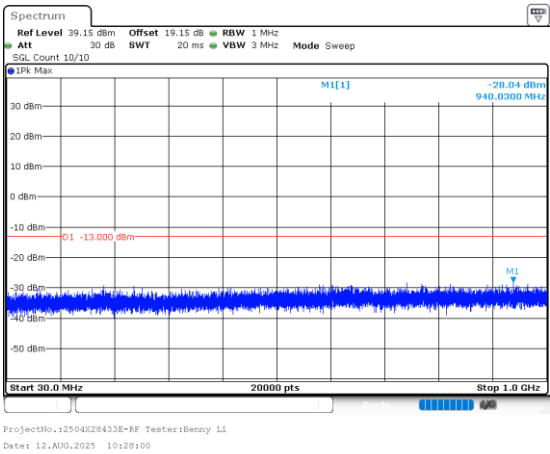


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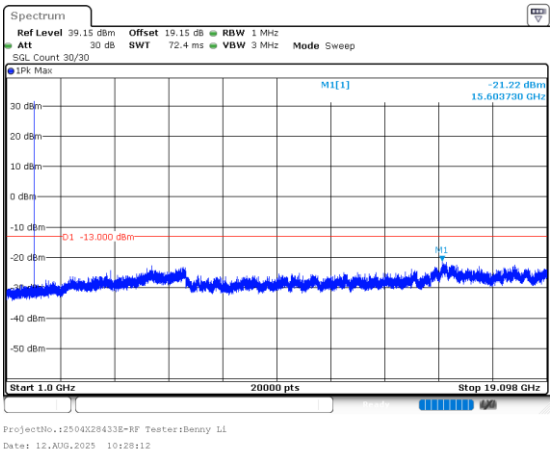


GSM_High

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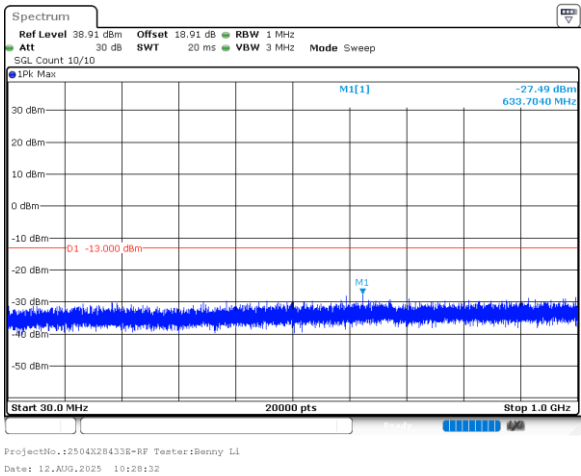


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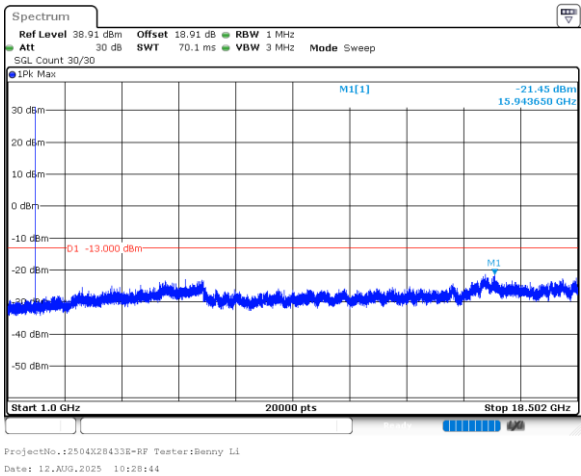


GPRS_Low_GMSK

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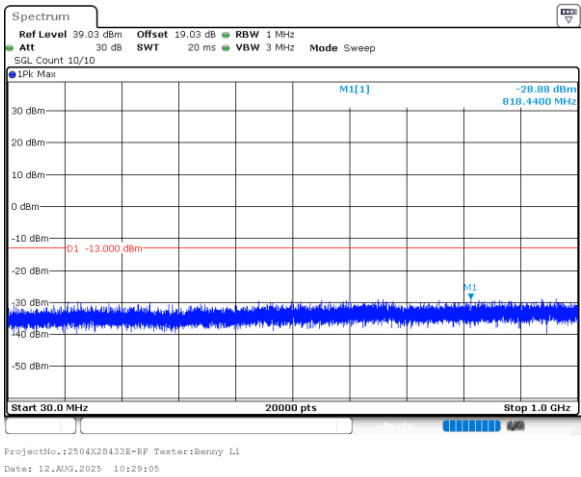


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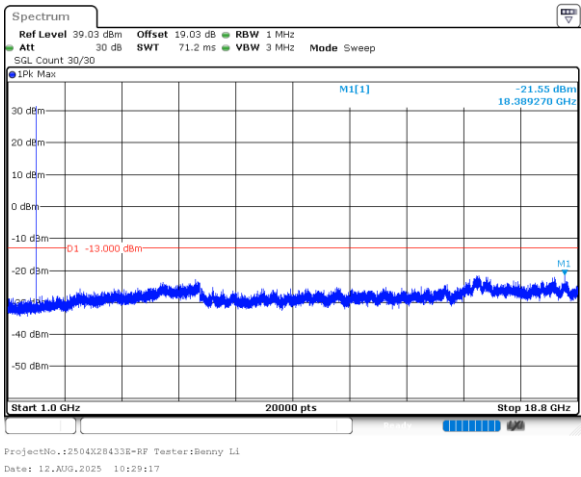


GPRS_Middle_GMSK

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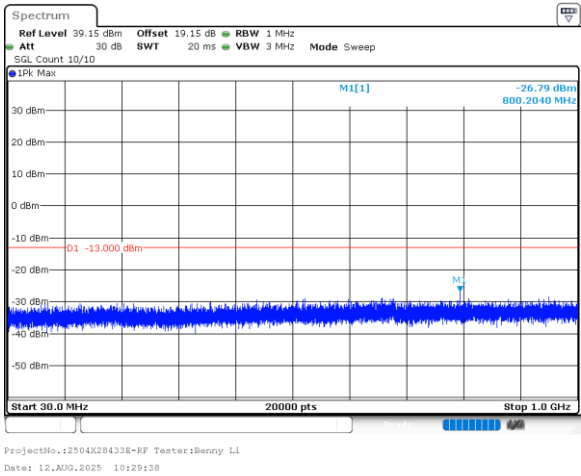


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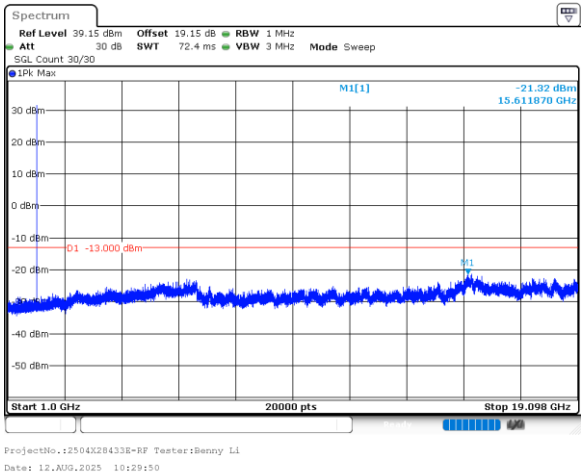


GPRS_High_GMSK

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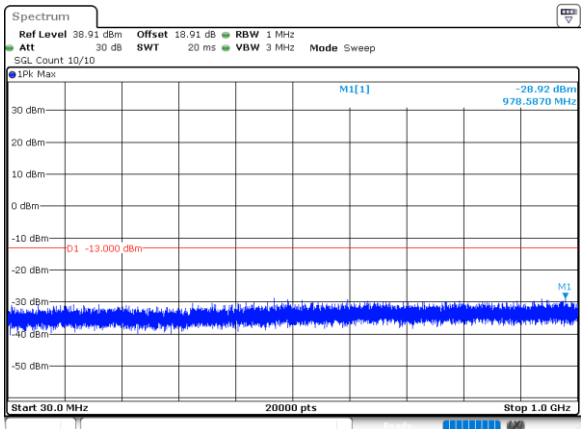


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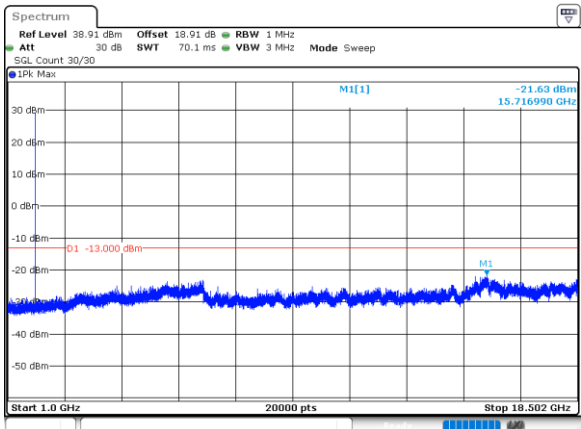
EDGE_Low_8PSK

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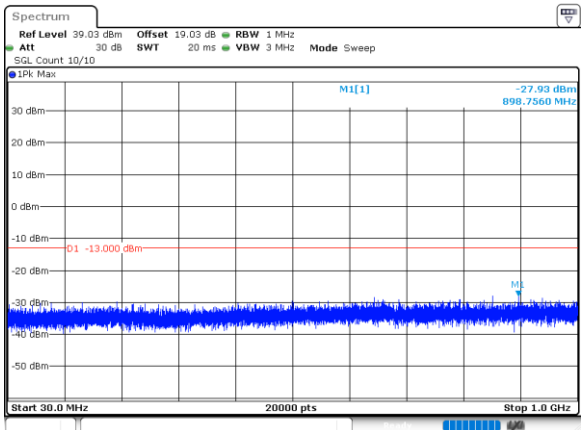
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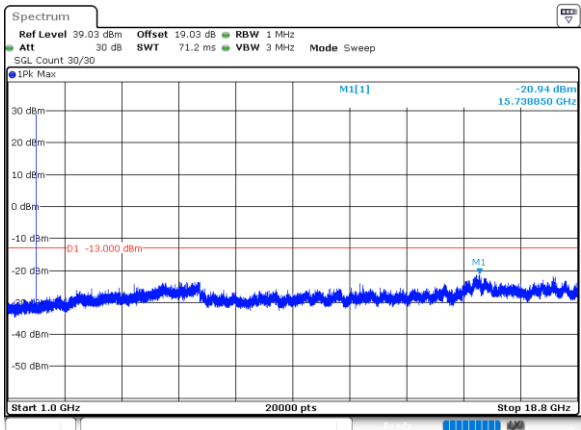
EDGE_Middle_8PSK

Below 1G



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Date: 12.AUG.2025 10:30:46

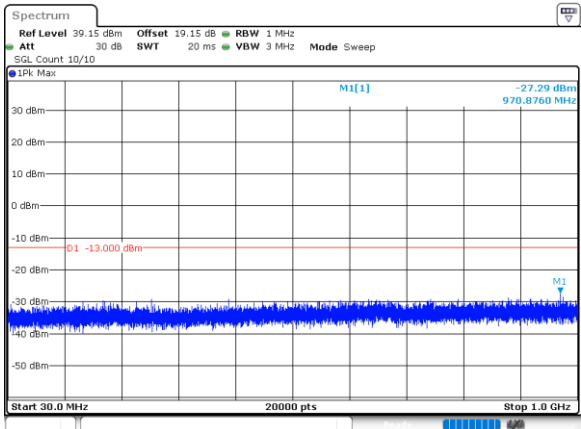
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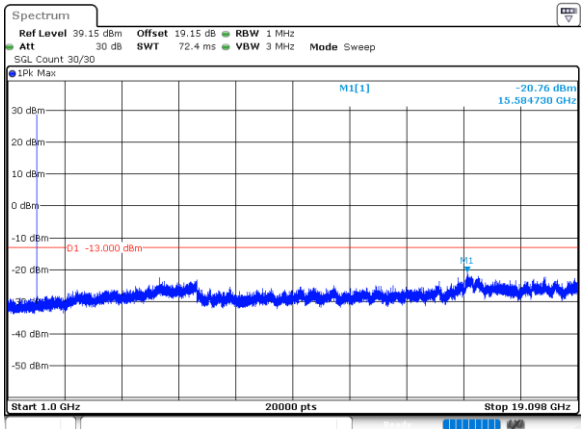
EDGE_High_8PSK

Below 1G



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Date: 12.AUG.2025 10:31:20

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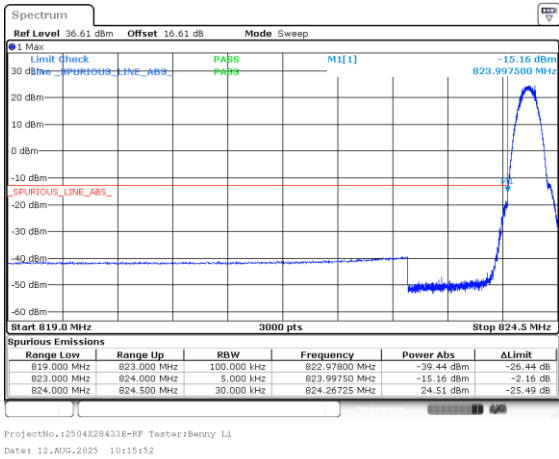
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Date: 12.AUG.2025 10:31:32

Out of band emission,Band Edge

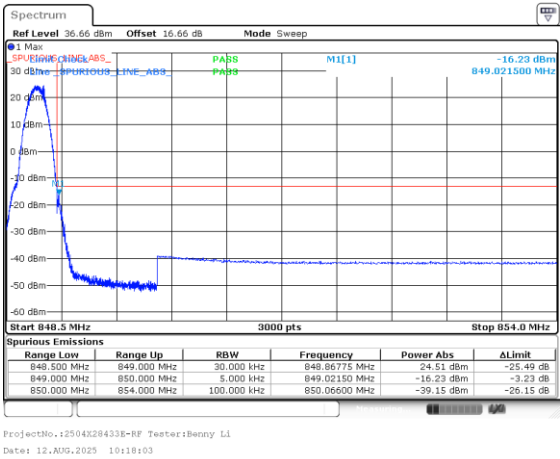
FCC Part 22H

GSM 850, Normal

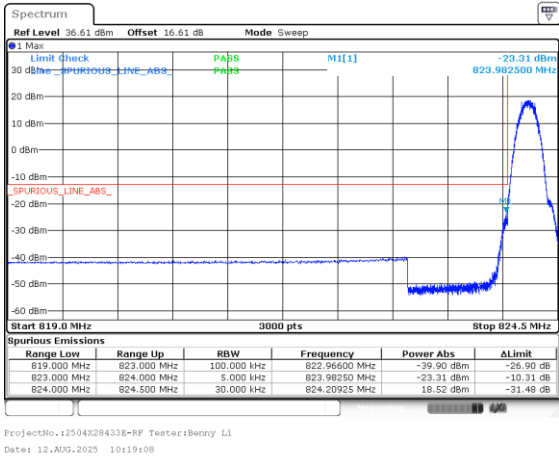
GSM_Low



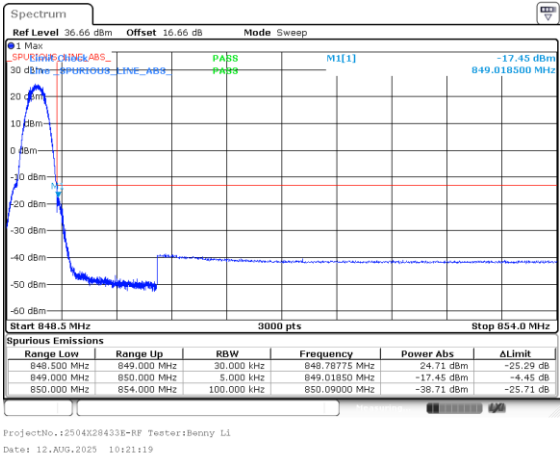
GSM_High



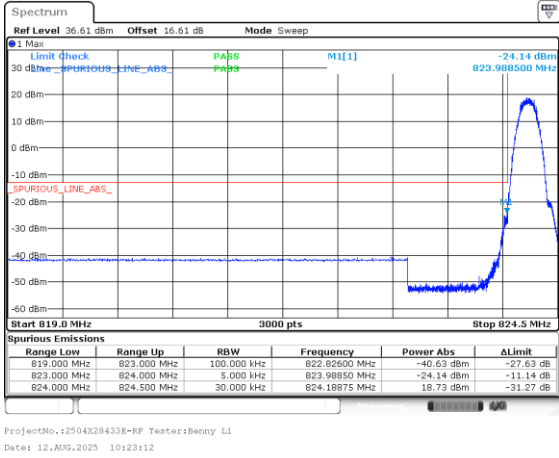
GPRS_Low_GMSK



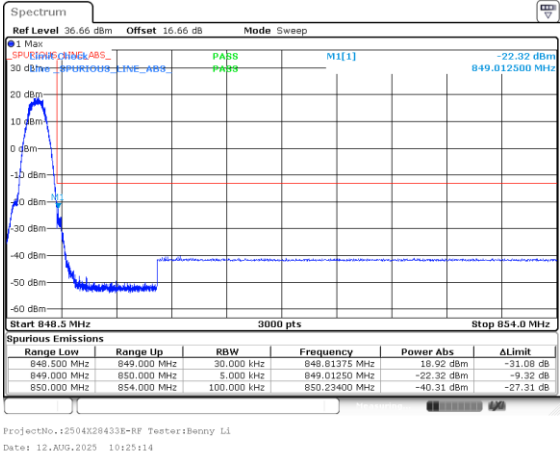
GPRS_High_GMSK



EDGE_Low_8PSK



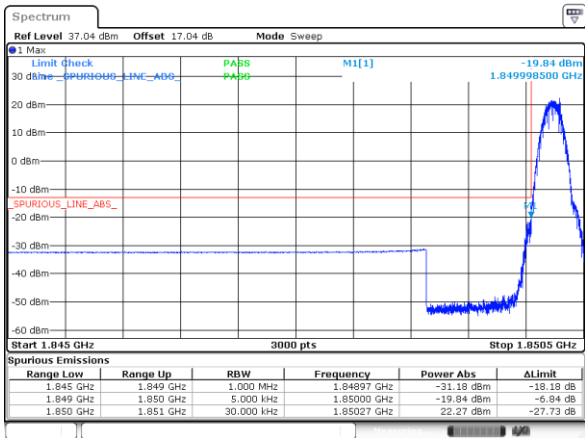
EDGE_High_8PSK



FCC Part 24E

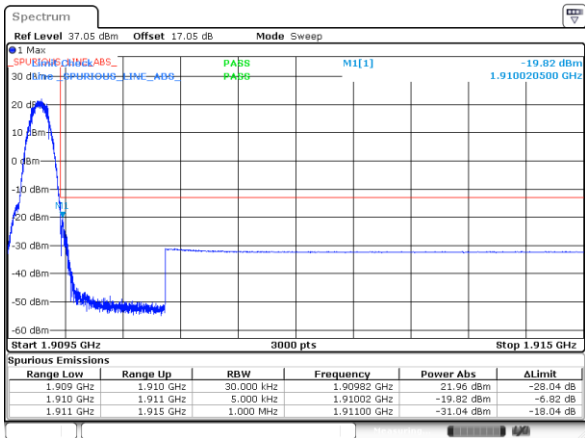
GSM 1900, Normal

GSM_Low



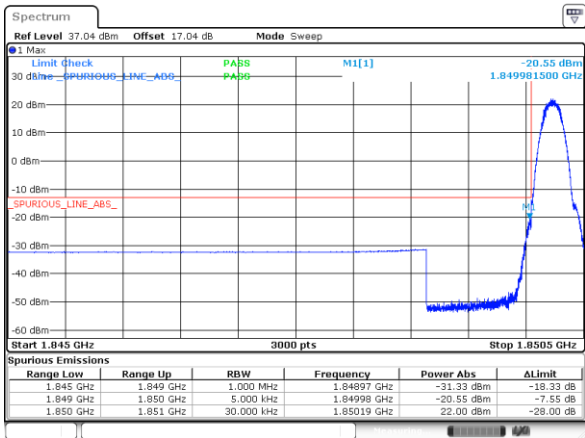
ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 12.AUG.2025 10:33:54

GSM_High



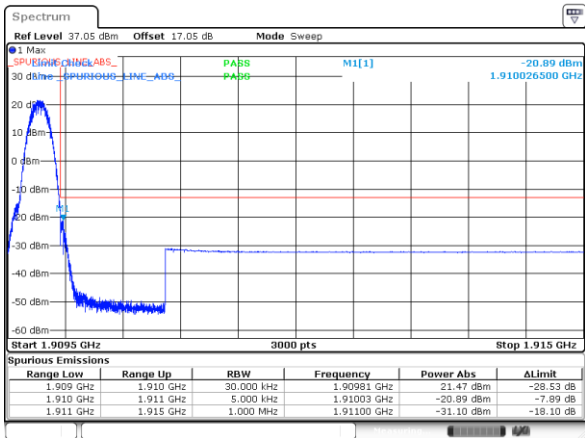
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Date: 12.AUG.2025 10:34:59

GPRS_Low_GMSK



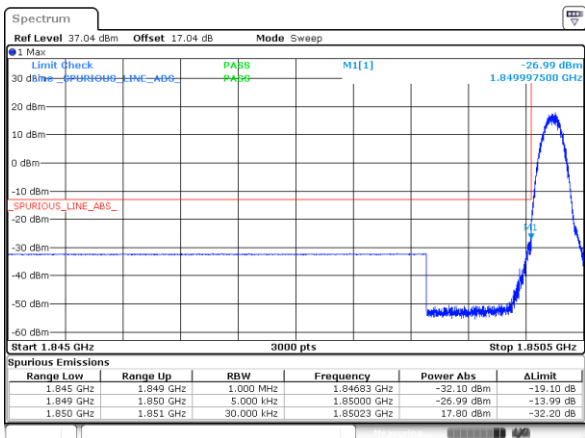
ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 12.AUG.2025 10:36:37

GPRS_High_GMSK



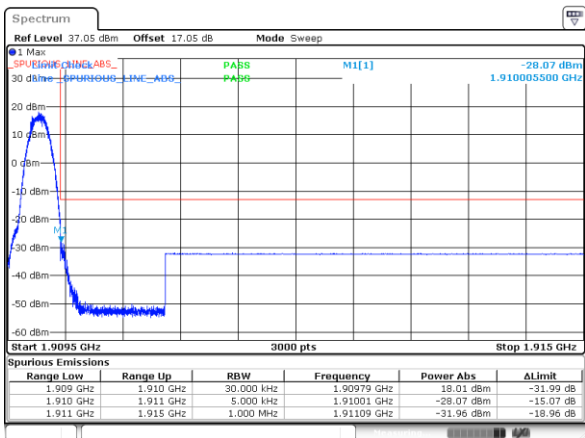
ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 12.AUG.2025 10:37:32

EDGE_Low_8PSK



ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 12.AUG.2025 10:38:26

EDGE_High_8PSK



ProjectNo.:2504X28433E-RF Tester:Benny Li
Date: 12.AUG.2025 10:39:26

Frequency stability vs. temperature & Frequency stability vs. voltage Compliance

FCC Part 22H

GSM 850

Mode	Test Channel (MHz)	Frequency Error		Limit (ppm)	Verdict
		(Hz)	(ppm)		
GSM_Middle_TN/VN	836.6	-11.14	-0.0133	±2.5	Pass
GSM_Middle_T1/VN	836.6	-9.98	-0.0119	±2.5	Pass
GSM_Middle_T2/VN	836.6	-10.82	-0.0129	±2.5	Pass
GSM_Middle_T3/VN	836.6	-10.53	-0.0126	±2.5	Pass
GSM_Middle_T4/VN	836.6	-8.14	-0.0097	±2.5	Pass
GSM_Middle_T5/VN	836.6	-9.17	-0.0110	±2.5	Pass
GSM_Middle_T6/VN	836.6	-8.68	-0.0104	±2.5	Pass
GSM_Middle_T7/VN	836.6	-7.30	-0.0087	±2.5	Pass
GSM_Middle_T8/VN	836.6	-10.11	-0.0121	±2.5	Pass
GSM_Middle_TN/VH	836.6	-9.59	-0.0115	±2.5	Pass
GSM_Middle_TN/VL	836.6	-10.14	-0.0121	±2.5	Pass
GPRS_Middle_GMSK_TN/VN	836.6	-10.30	-0.0123	±2.5	Pass
GPRS_Middle_GMSK_T1/VN	836.6	-12.49	-0.0149	±2.5	Pass
GPRS_Middle_GMSK_T2/VN	836.6	-13.59	-0.0162	±2.5	Pass
GPRS_Middle_GMSK_T3/VN	836.6	-8.94	-0.0107	±2.5	Pass
GPRS_Middle_GMSK_T4/VN	836.6	-7.85	-0.0094	±2.5	Pass
GPRS_Middle_GMSK_T5/VN	836.6	-10.14	-0.0121	±2.5	Pass
GPRS_Middle_GMSK_T6/VN	836.6	-10.27	-0.0123	±2.5	Pass
GPRS_Middle_GMSK_T7/VN	836.6	-12.59	-0.0150	±2.5	Pass
GPRS_Middle_GMSK_T8/VN	836.6	-9.43	-0.0113	±2.5	Pass
GPRS_Middle_GMSK_TN/VH	836.6	-13.20	-0.0158	±2.5	Pass
GPRS_Middle_GMSK_TN/VL	836.6	-11.88	-0.0142	±2.5	Pass
EDGE_Middle_8PSK_TN/VN	836.6	-8.65	-0.0103	±2.5	Pass
EDGE_Middle_8PSK_T1/VN	836.6	-7.94	-0.0095	±2.5	Pass
EDGE_Middle_8PSK_T2/VN	836.6	-8.23	-0.0098	±2.5	Pass
EDGE_Middle_8PSK_T3/VN	836.6	-8.27	-0.0099	±2.5	Pass
EDGE_Middle_8PSK_T4/VN	836.6	-9.75	-0.0117	±2.5	Pass
EDGE_Middle_8PSK_T5/VN	836.6	-9.30	-0.0111	±2.5	Pass
EDGE_Middle_8PSK_T6/VN	836.6	-8.65	-0.0103	±2.5	Pass
EDGE_Middle_8PSK_T7/VN	836.6	-6.04	-0.0072	±2.5	Pass
EDGE_Middle_8PSK_T8/VN	836.6	-4.52	-0.0054	±2.5	Pass

Mode	Test Channel (MHz)	Frequency Error		Limit (ppm)	Verdict
		(Hz)	(ppm)		
EDGE_Middle_8PSK_TN/VH	836.6	-9.65	-0.0115	±2.5	Pass
EDGE_Middle_8PSK_TN/VL	836.6	-9.46	-0.0113	±2.5	Pass

Note:

Frequency Error (ppm)=Frequency Error (MHz)/Test Channel(MHz)*10⁶

TN: 20°C; T1: -30°C; T2: -20°C; T3: -10°C; T4: 0°C; T5: 10°C; T6: 30°C; T7: 40°C; T8: 50°C.

VN: Normal Voltage; VL: Low Voltage; VH: High Voltage.

FCC Part 24E

GSM 1900

Mode	Result (MHz)	Limit (MHz)	Verdict
GSM_Low_TN/VN	1850.075	1850	Pass
GSM_Low_T1/VN	1850.079	1850	Pass
GSM_Low_T2/VN	1850.079	1850	Pass
GSM_Low_T3/VN	1850.079	1850	Pass
GSM_Low_T4/VN	1850.080	1850	Pass
GSM_Low_T5/VN	1850.079	1850	Pass
GSM_Low_T6/VN	1850.075	1850	Pass
GSM_Low_T7/VN	1850.079	1850	Pass
GSM_Low_T8/VN	1850.078	1850	Pass
GSM_Low_TN/VH	1850.079	1850	Pass
GSM_Low_TN/VL	1850.082	1850	Pass
GSM_High_TN/VN	1909.926	1910	Pass
GSM_High_T1/VN	1909.923	1910	Pass
GSM_High_T2/VN	1909.920	1910	Pass
GSM_High_T3/VN	1909.923	1910	Pass
GSM_High_T4/VN	1909.922	1910	Pass
GSM_High_T5/VN	1909.922	1910	Pass
GSM_High_T6/VN	1909.925	1910	Pass
GSM_High_T7/VN	1909.922	1910	Pass
GSM_High_T8/VN	1909.924	1910	Pass
GSM_High_TN/VH	1909.925	1910	Pass
GSM_High_TN/VL	1909.922	1910	Pass
GPRS_Low_GMSK_TN/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T1/VN	1850.075	1850	Pass
GPRS_Low_GMSK_T2/VN	1850.077	1850	Pass
GPRS_Low_GMSK_T3/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T4/VN	1850.078	1850	Pass
GPRS_Low_GMSK_T5/VN	1850.081	1850	Pass
GPRS_Low_GMSK_T6/VN	1850.083	1850	Pass
GPRS_Low_GMSK_T7/VN	1850.079	1850	Pass

Mode	Result (MHz)	Limit (MHz)	Verdict
GPRS_Low_GMSK_T8/VN	1850.074	1850	Pass
GPRS_Low_GMSK_TN/VH	1850.081	1850	Pass
GPRS_Low_GMSK_TN/VL	1850.076	1850	Pass
GPRS_High_GMSK_TN/VN	1909.928	1910	Pass
GPRS_High_GMSK_T1/VN	1909.923	1910	Pass
GPRS_High_GMSK_T2/VN	1909.926	1910	Pass
GPRS_High_GMSK_T3/VN	1909.921	1910	Pass
GPRS_High_GMSK_T4/VN	1909.925	1910	Pass
GPRS_High_GMSK_T5/VN	1909.922	1910	Pass
GPRS_High_GMSK_T6/VN	1909.924	1910	Pass
GPRS_High_GMSK_T7/VN	1909.926	1910	Pass
GPRS_High_GMSK_T8/VN	1909.924	1910	Pass
GPRS_High_GMSK_TN/VH	1909.921	1910	Pass
GPRS_High_GMSK_TN/VL	1909.924	1910	Pass
EDGE_Low_8PSK_TN/VN	1850.072	1850	Pass
EDGE_Low_8PSK_T1/VN	1850.077	1850	Pass
EDGE_Low_8PSK_T2/VN	1850.075	1850	Pass
EDGE_Low_8PSK_T3/VN	1850.078	1850	Pass
EDGE_Low_8PSK_T4/VN	1850.075	1850	Pass
EDGE_Low_8PSK_T5/VN	1850.073	1850	Pass
EDGE_Low_8PSK_T6/VN	1850.076	1850	Pass
EDGE_Low_8PSK_T7/VN	1850.075	1850	Pass
EDGE_Low_8PSK_T8/VN	1850.073	1850	Pass
EDGE_Low_8PSK_TN/VH	1850.075	1850	Pass
EDGE_Low_8PSK_TN/VL	1850.076	1850	Pass
EDGE_High_8PSK_TN/VN	1909.926	1910	Pass
EDGE_High_8PSK_T1/VN	1909.923	1910	Pass
EDGE_High_8PSK_T2/VN	1909.928	1910	Pass
EDGE_High_8PSK_T3/VN	1909.925	1910	Pass
EDGE_High_8PSK_T4/VN	1909.920	1910	Pass
EDGE_High_8PSK_T5/VN	1909.927	1910	Pass
EDGE_High_8PSK_T6/VN	1909.929	1910	Pass
EDGE_High_8PSK_T7/VN	1909.926	1910	Pass
EDGE_High_8PSK_T8/VN	1909.925	1910	Pass

Mode	Result (MHz)	Limit (MHz)	Verdict
EDGE_High_8PSK_TN/VH	1909.920	1910	Pass
EDGE_High_8PSK_TN/VL	1909.923	1910	Pass

Note:
TN: 20°C; T1: -30°C; T2: -20°C; T3: -10°C; T4: 0°C; T5: 10°C; T6: 30°C; T7: 40°C; T8: 50°C.
VN: Normal Voltage; VL: Low Voltage; VH: High Voltage.

***** END *****