

Appendix A

Test Information:

Serial No.:	2PWI-1	Test Date:	2024/08/24~2024/08/28
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long	Test Result:	Pass

Environmental Conditions:

Temperature: (°C):	26.6~27.6	Relative Humidity: (%)	53~62	ATM Pressure: (kPa)	99.8~100.9
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
Micro-Coax	Coaxial Cable	UFB205A	323308-012	2024/01/02	2025/01/01
Minl-Clruits	Coaxial Power Splitters & Combiner	ZFRSC-183-S+	SF448201614	2024/02/25	2025/02/24
R&S	Wideband Radio Communication Tester	CMW500	144976	2023/10/18	2024/10/17
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30173	2023/10/18	2024/10/17
All-sun	Clamp Meter	EM305A	8348897	2024/08/03	2025/08/02
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

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

IC RSS 132

GSM 850

Mode	Value (MHz)	Limit (MHz)	Result
GSM_Low_TN/VN	824.017	824	Pass
GSM_Low_T1/VN	824.017	824	Pass
GSM_Low_T2/VN	824.026	824	Pass
GSM_Low_T3/VN	824.011	824	Pass
GSM_Low_T4/VN	824.020	824	Pass
GSM_Low_T5/VN	824.029	824	Pass
GSM_Low_T6/VN	824.032	824	Pass
GSM_Low_T7/VN	824.044	824	Pass
GSM_Low_T8/VN	824.035	824	Pass
GSM_Low_TN/VH	824.044	824	Pass
GSM_Low_TN/VL	824.044	824	Pass
GSM_High_TN/VN	848.904	849	Pass
GSM_High_T1/VN	848.922	849	Pass
GSM_High_T2/VN	848.901	849	Pass
GSM_High_T3/VN	848.919	849	Pass
GSM_High_T4/VN	848.916	849	Pass
GSM_High_T5/VN	848.925	849	Pass
GSM_High_T6/VN	848.949	849	Pass
GSM_High_T7/VN	848.937	849	Pass
GSM_High_T8/VN	848.952	849	Pass
GSM_High_TN/VH	848.928	849	Pass
GSM_High_TN/VL	848.934	849	Pass
EDGE_Low_Solt1_TN/VN	824.034	824	Pass
EDGE_Low_Solt1_T1/VN	824.043	824	Pass
EDGE_Low_Solt1_T2/VN	824.043	824	Pass
EDGE_Low_Solt1_T3/VN	824.052	824	Pass
EDGE_Low_Solt1_T4/VN	824.034	824	Pass
EDGE_Low_Solt1_T5/VN	824.058	824	Pass
EDGE_Low_Solt1_T6/VN	824.073	824	Pass
EDGE_Low_Solt1_T7/VN	824.067	824	Pass

Mode	Value (MHz)	Limit (MHz)	Result
EDGE_Low_Solt1_T8/VN	824.067	824	Pass
EDGE_Low_Solt1_TN/VH	824.061	824	Pass
EDGE_Low_Solt1_TN/VL	824.082	824	Pass
EDGE_High_Solt1_TN/VN	848.918	849	Pass
EDGE_High_Solt1_T1/VN	848.936	849	Pass
EDGE_High_Solt1_T2/VN	848.927	849	Pass
EDGE_High_Solt1_T3/VN	848.918	849	Pass
EDGE_High_Solt1_T4/VN	848.924	849	Pass
EDGE_High_Solt1_T5/VN	848.942	849	Pass
EDGE_High_Solt1_T6/VN	848.966	849	Pass
EDGE_High_Solt1_T7/VN	848.954	849	Pass
EDGE_High_Solt1_T8/VN	848.945	849	Pass
EDGE_High_Solt1_TN/VH	848.951	849	Pass
EDGE_High_Solt1_TN/VL	848.960	849	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.

IC RSS 133

GSM 1900

Mode	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
GSM_Middle_TN/VN	-9.84	-0.005	±2.5	Pass
GSM_Middle_T1/VN	3.94	0.002	±2.5	Pass
GSM_Middle_T2/VN	-6.41	-0.003	±2.5	Pass
GSM_Middle_T3/VN	-8.15	-0.004	±2.5	Pass
GSM_Middle_T4/VN	-4.24	-0.002	±2.5	Pass
GSM_Middle_T5/VN	5.42	0.003	±2.5	Pass
GSM_Middle_T6/VN	-8.41	-0.004	±2.5	Pass
GSM_Middle_T7/VN	-2.30	-0.001	±2.5	Pass
GSM_Middle_T8/VN	-5.09	-0.003	±2.5	Pass
GSM_Middle_TN/VH	8.61	0.005	±2.5	Pass
GSM_Middle_TN/VL	-4.94	-0.003	±2.5	Pass
EDGE_Middle_Solt1_TN/VN	9.83	0.005	±2.5	Pass
EDGE_Middle_Solt1_T1/VN	-6.63	-0.004	±2.5	Pass
EDGE_Middle_Solt1_T2/VN	2.29	0.001	±2.5	Pass
EDGE_Middle_Solt1_T3/VN	-3.17	-0.002	±2.5	Pass
EDGE_Middle_Solt1_T4/VN	-4.21	-0.002	±2.5	Pass
EDGE_Middle_Solt1_T5/VN	3.42	0.002	±2.5	Pass
EDGE_Middle_Solt1_T6/VN	-5.14	-0.003	±2.5	Pass
EDGE_Middle_Solt1_T7/VN	-9.07	-0.005	±2.5	Pass
EDGE_Middle_Solt1_T8/VN	1.68	0.001	±2.5	Pass
EDGE_Middle_Solt1_TN/VH	-6.54	-0.003	±2.5	Pass
EDGE_Middle_Solt1_TN/VL	-6.08	-0.003	±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 22H

GSM 850

Mode	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
GSM_Middle_TN/VN	5.3	0.006	±2.5	Pass
GSM_Middle_T1/VN	2.4	0.003	±2.5	Pass
GSM_Middle_T2/VN	5.5	0.007	±2.5	Pass
GSM_Middle_T3/VN	9.6	0.011	±2.5	Pass
GSM_Middle_T4/VN	5.9	0.007	±2.5	Pass
GSM_Middle_T5/VN	5.7	0.007	±2.5	Pass
GSM_Middle_T6/VN	7.8	0.009	±2.5	Pass
GSM_Middle_T7/VN	8.4	0.010	±2.5	Pass
GSM_Middle_T8/VN	7.2	0.009	±2.5	Pass
GSM_Middle_TN/VH	3.7	0.004	±2.5	Pass
GSM_Middle_TN/VL	6.4	0.008	±2.5	Pass
EDGE_Middle_Solt1_TN/VN	6.7	0.008	±2.5	Pass
EDGE_Middle_Solt1_T1/VN	5.7	0.007	±2.5	Pass
EDGE_Middle_Solt1_T2/VN	5.5	0.007	±2.5	Pass
EDGE_Middle_Solt1_T3/VN	10.1	0.012	±2.5	Pass
EDGE_Middle_Solt1_T4/VN	7.0	0.008	±2.5	Pass
EDGE_Middle_Solt1_T5/VN	16.2	0.019	±2.5	Pass
EDGE_Middle_Solt1_T6/VN	16.1	0.019	±2.5	Pass
EDGE_Middle_Solt1_T7/VN	8.5	0.010	±2.5	Pass
EDGE_Middle_Solt1_T8/VN	6.5	0.008	±2.5	Pass
EDGE_Middle_Solt1_TN/VH	13.7	0.016	±2.5	Pass
EDGE_Middle_Solt1_TN/VL	11.7	0.014	±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	Value (MHz)	Limit (MHz)	Result
GSM_Low_TN/VN	1850.080	1850	Pass
GSM_Low_T1/VN	1850.081	1850	Pass
GSM_Low_T2/VN	1850.079	1850	Pass
GSM_Low_T3/VN	1850.078	1850	Pass
GSM_Low_T4/VN	1850.081	1850	Pass
GSM_Low_T5/VN	1850.080	1850	Pass
GSM_Low_T6/VN	1850.080	1850	Pass
GSM_Low_T7/VN	1850.078	1850	Pass
GSM_Low_T8/VN	1850.079	1850	Pass
GSM_Low_TN/VH	1850.079	1850	Pass
GSM_Low_TN/VL	1850.078	1850	Pass
GSM_High_TN/VN	1909.925	1910	Pass
GSM_High_T1/VN	1909.927	1910	Pass
GSM_High_T2/VN	1909.933	1910	Pass
GSM_High_T3/VN	1909.922	1910	Pass
GSM_High_T4/VN	1909.926	1910	Pass
GSM_High_T5/VN	1909.926	1910	Pass
GSM_High_T6/VN	1909.921	1910	Pass
GSM_High_T7/VN	1909.925	1910	Pass
GSM_High_T8/VN	1909.925	1910	Pass
GSM_High_TN/VH	1909.926	1910	Pass
GSM_High_TN/VL	1909.928	1910	Pass
EDGE_Low_Solt1_TN/VN	1850.081	1850	Pass
EDGE_Low_Solt1_T1/VN	1850.082	1850	Pass
EDGE_Low_Solt1_T2/VN	1850.079	1850	Pass
EDGE_Low_Solt1_T3/VN	1850.072	1850	Pass
EDGE_Low_Solt1_T4/VN	1850.077	1850	Pass
EDGE_Low_Solt1_T5/VN	1850.079	1850	Pass
EDGE_Low_Solt1_T6/VN	1850.082	1850	Pass
EDGE_Low_Solt1_T7/VN	1850.077	1850	Pass
EDGE_Low_Solt1_T8/VN	1850.079	1850	Pass

Mode	Value (MHz)	Limit (MHz)	Result
EDGE_Low_Solt1_TN/VH	1850.080	1850	Pass
EDGE_Low_Solt1_TN/VL	1850.082	1850	Pass
EDGE_High_Solt1_TN/VN	1909.924	1910	Pass
EDGE_High_Solt1_T1/VN	1909.923	1910	Pass
EDGE_High_Solt1_T2/VN	1909.927	1910	Pass
EDGE_High_Solt1_T3/VN	1909.922	1910	Pass
EDGE_High_Solt1_T4/VN	1909.925	1910	Pass
EDGE_High_Solt1_T5/VN	1909.925	1910	Pass
EDGE_High_Solt1_T6/VN	1909.924	1910	Pass
EDGE_High_Solt1_T7/VN	1909.920	1910	Pass
EDGE_High_Solt1_T8/VN	1909.925	1910	Pass
EDGE_High_Solt1_TN/VH	1909.923	1910	Pass
EDGE_High_Solt1_TN/VL	1909.924	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.

Occupied Bandwidth

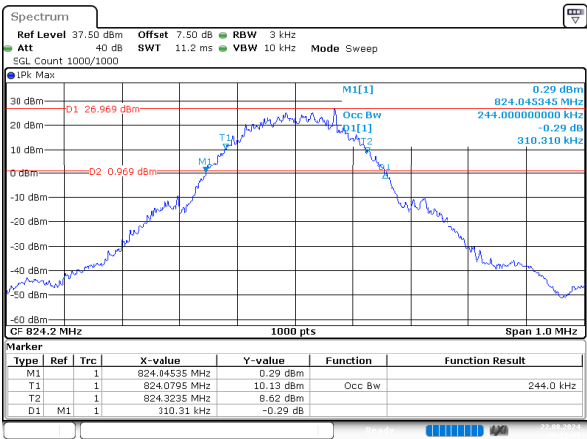
FCC Part 22H & IC RSS 132

GSM 850 , Normal

Mode	99% OBW (MHz)	EBW (MHz)
GSM_Low	0.244	0.310
GSM_Middle	0.247	0.316
GSM_High	0.246	0.315
EDGE_Low_Solt1	0.241	0.311
EDGE_Middle_Solt1	0.242	0.311
EDGE_High_Solt1	0.240	0.310

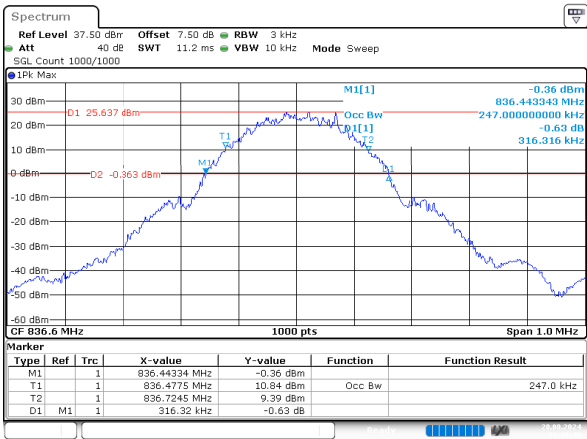
GSM 850 , Normal

GSM_Low 0.244MHz



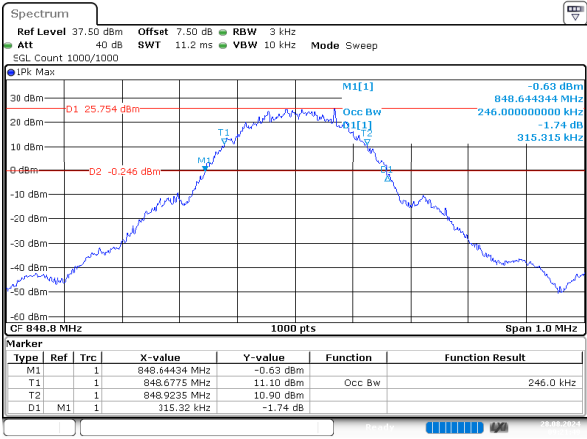
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GSM_Middle 0.247MHz



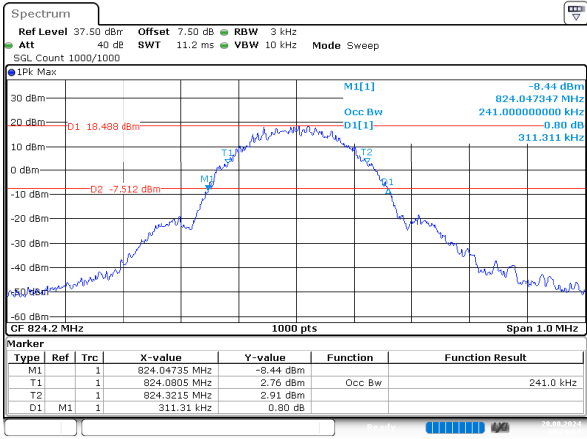
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GSM_High 0.246MHz



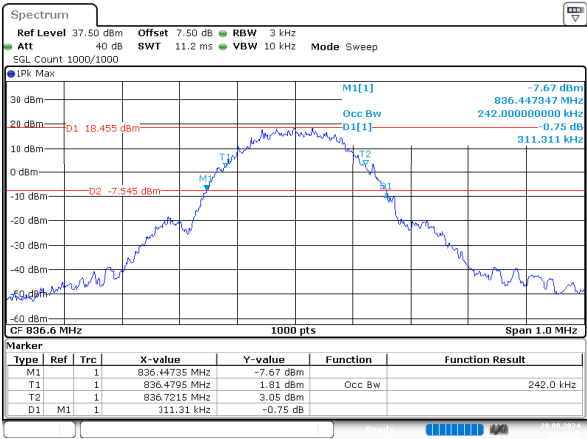
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EDGE_Low_Solt1 0.241MHz



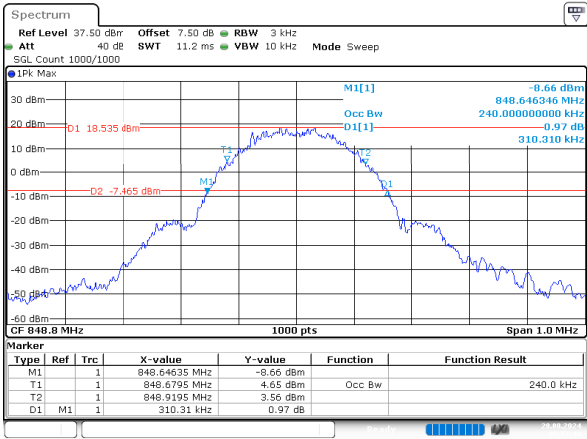
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EDGE_Middle_Solt1 0.242MHz



ProjectNo.:2402W51421E-RF Testers:Loge Long
Date: 28.AUG.2024 09:35:10

EDGE_High_Solt1 0.240MHz



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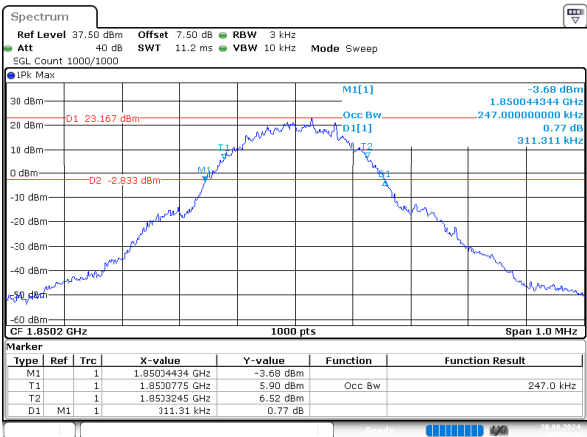
FCC Part 24E & IC RSS 133

GSM 1900 , Normal

Mode	99% OBW (MHz)	EBW (MHz)
GSM_Low	0.247	0.311
GSM_Middle	0.248	0.319
GSM_High	0.245	0.303
EDGE_Low_Solt1	0.241	0.314
EDGE_Middle_Solt1	0.240	0.300
EDGE_High_Solt1	0.240	0.311

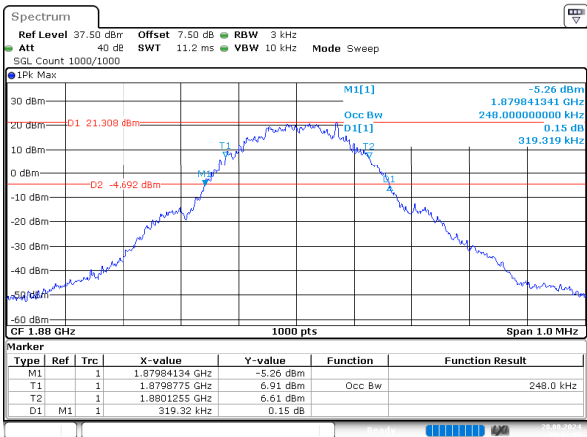
GSM 1900 , Normal

GSM_Low 0.247MHz



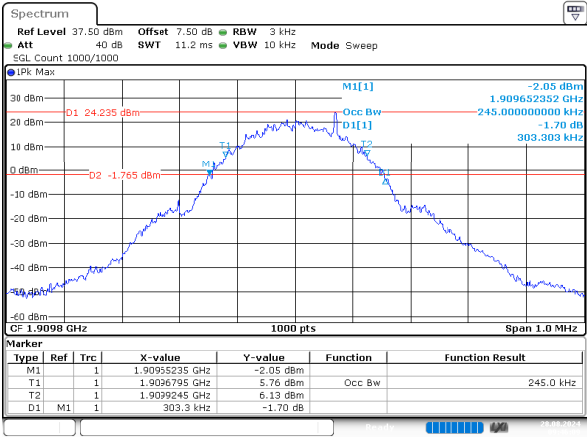
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GSM_Middle 0.248MHz



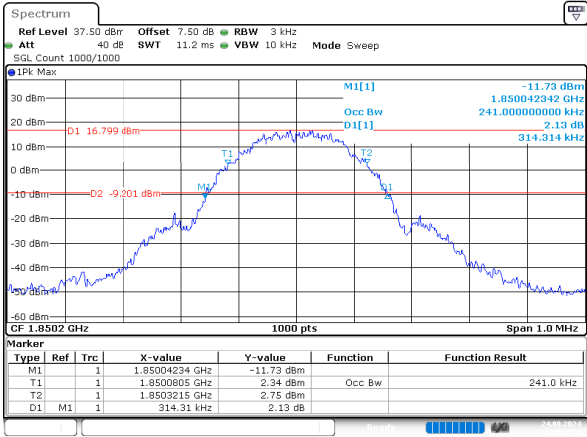
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GSM_High 0.245MHz



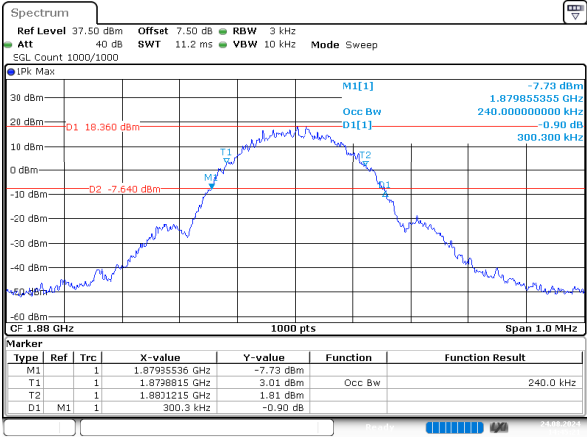
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EDGE_Low_Solt1 0.241MHz



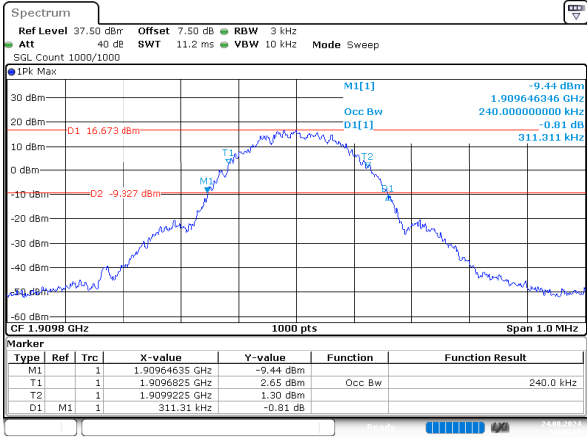
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EDGE_Middle_Solt1 0.240MHz



ProjectNo.:2402W51421E-RF Tester:Loge Long
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EDGE_High_Solt1 0.240MHz



ProjectNo.:2402W51421E-RF Tester:Loge Long
 Date: 24.AUG.2024 11:46:16

RF Output Power

FCC Part 22H & IC RSS 132

GSM 850 , Normal

Mode	Peak Conducted Power(dBm)	ERP (dBm)	Limit(dBm)	Result
GSM_Low	32.68	29.43	38.45	Pass
GSM_Middle	32.64	29.39	38.45	Pass
GSM_High	32.55	29.30	38.45	Pass
GPRS_Low_Solt1	32.80	29.55	38.45	Pass
GPRS_Low_Solt2	30.79	27.54	38.45	Pass
GPRS_Low_Solt3	28.79	25.54	38.45	Pass
GPRS_Low_Solt4	26.83	23.58	38.45	Pass
GPRS_Middle_Solt1	32.64	29.39	38.45	Pass
GPRS_Middle_Solt2	30.52	27.27	38.45	Pass
GPRS_Middle_Solt3	28.47	25.22	38.45	Pass
GPRS_Middle_Solt4	26.54	23.29	38.45	Pass
GPRS_High_Solt1	32.52	29.27	38.45	Pass
GPRS_High_Solt2	30.26	27.01	38.45	Pass
GPRS_High_Solt3	28.14	24.89	38.45	Pass
GPRS_High_Solt4	26.19	22.94	38.45	Pass
EDGE_Low_Solt1	25.83	22.58	38.45	Pass
EDGE_Low_Solt2	24.54	21.29	38.45	Pass
EDGE_Low_Solt3	21.68	18.43	38.45	Pass
EDGE_Low_Solt4	19.93	16.68	38.45	Pass
EDGE_Middle_Solt1	25.63	22.38	38.45	Pass
EDGE_Middle_Solt2	24.52	21.27	38.45	Pass
EDGE_Middle_Solt3	21.70	18.45	38.45	Pass
EDGE_Middle_Solt4	19.98	16.73	38.45	Pass
EDGE_High_Solt1	25.77	22.52	38.45	Pass
EDGE_High_Solt2	24.44	21.19	38.45	Pass
EDGE_High_Solt3	21.78	18.53	38.45	Pass
EDGE_High_Solt4	20.01	16.76	38.45	Pass

Note:

ERP = Conducted Power(dBm) - L_c(dB) + G_T(dBd)

G_T(dBd) = G_T(dBi) - 2.15

1.Ant Gain = -1dBi;

2.C_L = signal attenuation in the connecting cable between the transmitter and antenna in 0.1dB

FCC Part 24E & IC RSS 133

GSM 1900 , Normal

Mode	Peak Conducted Power(dBm)	EIRP (dBm)	Limit(dBm)	Result
GSM_Low	29.65	29.95	33	Pass
GSM_Middle	29.42	29.72	33	Pass
GSM_High	29.15	29.45	33	Pass
GPRS_Low_Solt1	29.68	29.98	33	Pass
GPRS_Low_Solt2	27.50	27.80	33	Pass
GPRS_Low_Solt3	25.84	26.14	33	Pass
GPRS_Low_Solt4	23.78	24.08	33	Pass
GPRS_Middle_Solt1	29.43	29.73	33	Pass
GPRS_Middle_Solt2	27.13	27.43	33	Pass
GPRS_Middle_Solt3	25.55	25.85	33	Pass
GPRS_Middle_Solt4	23.47	23.77	33	Pass
GPRS_High_Solt1	29.18	29.48	33	Pass
GPRS_High_Solt2	26.63	26.93	33	Pass
GPRS_High_Solt3	25.03	25.33	33	Pass
GPRS_High_Solt4	22.96	23.26	33	Pass
EDGE_Low_Solt1	25.40	25.70	33	Pass
EDGE_Low_Solt2	23.75	24.05	33	Pass
EDGE_Low_Solt3	21.13	21.43	33	Pass
EDGE_Low_Solt4	18.36	18.66	33	Pass
EDGE_Middle_Solt1	25.32	25.62	33	Pass
EDGE_Middle_Solt2	23.61	23.91	33	Pass
EDGE_Middle_Solt3	21.07	21.37	33	Pass
EDGE_Middle_Solt4	18.23	18.53	33	Pass
EDGE_High_Solt1	25.42	25.72	33	Pass
EDGE_High_Solt2	23.67	23.97	33	Pass
EDGE_High_Solt3	21.11	21.41	33	Pass
EDGE_High_Solt4	18.36	18.66	33	Pass

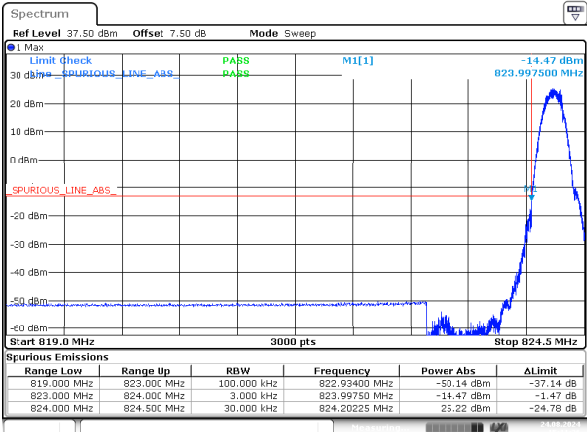
Note:
EIRP = Conducted Power(dBm) - L_C(dB) + G_T(dBi)
1.Ant Gain = 0.5dBi;
2.C_L = signal attenuation in the connecting cable between the transmitter and antenna in 0.2dB

Out of band emission,Band Edge

FCC Part 22H & IC RSS 132

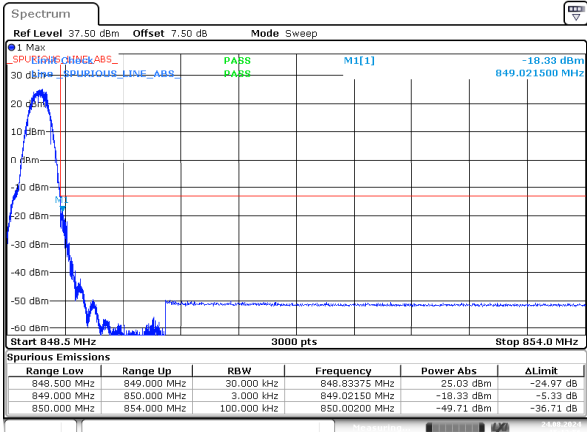
GSM 850 , Normal

GSM_Low -14.47dBm



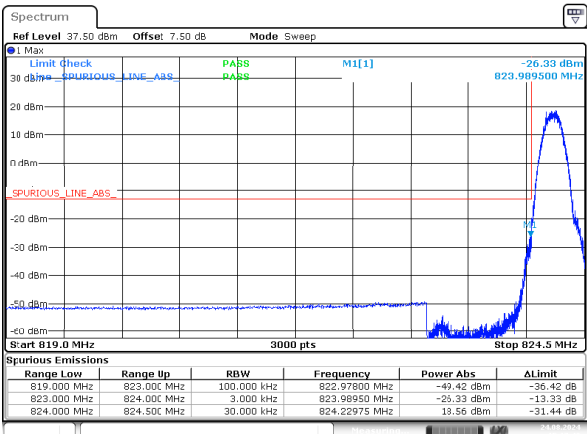
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Date: 24.AUG.2024 15:11:26

GSM_High -18.33dBm



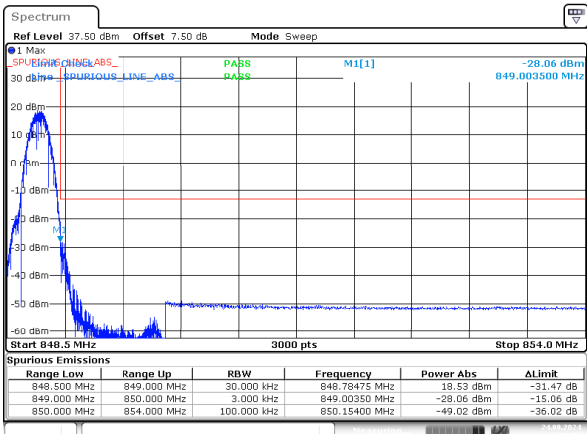
ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 15:12:56

EDGE_Low_Solt1 -26.33dBm



ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 15:17:40

EDGE_High_Solt1 -28.06dBm

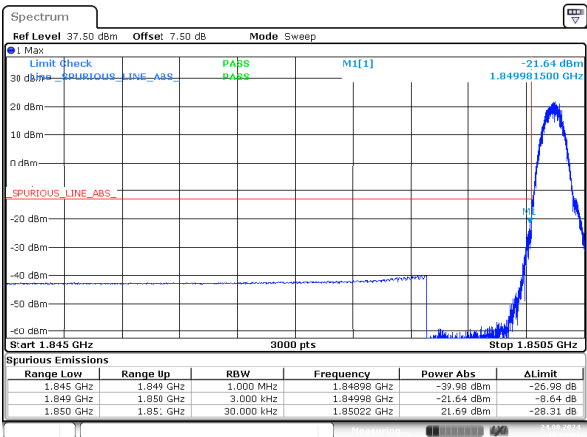


ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 15:18:59

FCC Part 24E & IC RSS 133

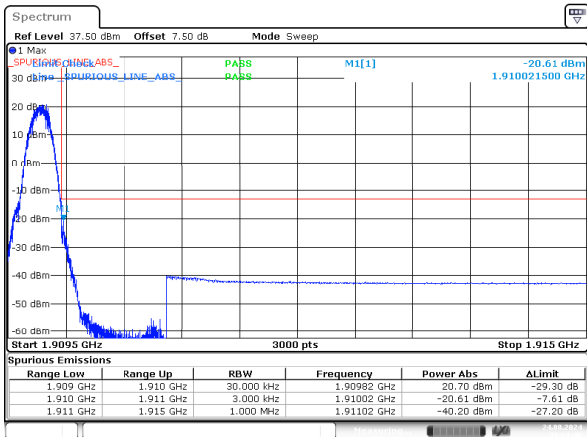
GSM 1900 , Normal

GSM_Low -21.64dBm



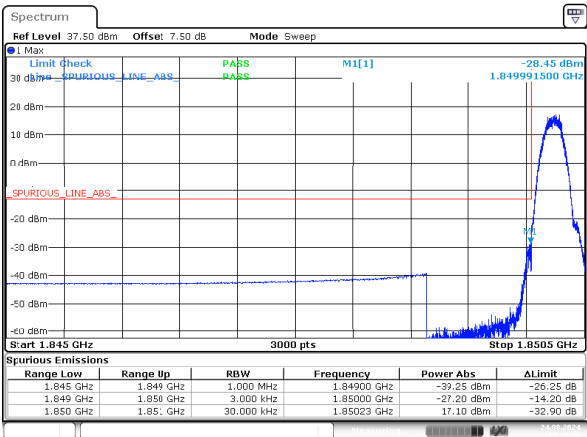
ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 15:55:01

GSM_High -20.61dBm



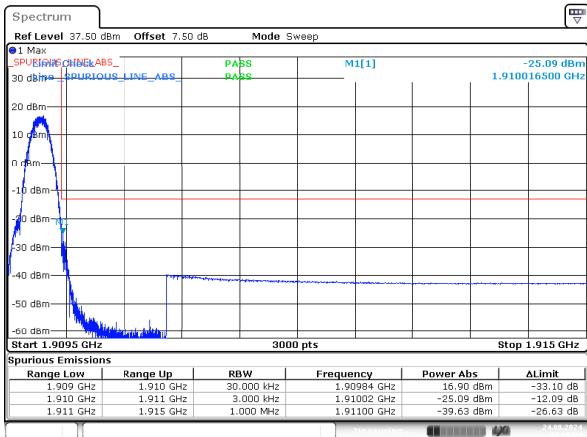
ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 15:21:48

EDGE_Low_Solt1 -28.45dBm



ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 15:26:50

EDGE_High_Solt1 -25.09dBm



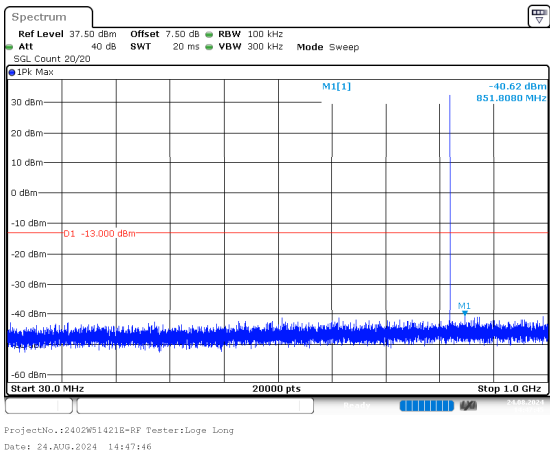
ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 15:28:09

Spurious Emissions at Antenna Terminal

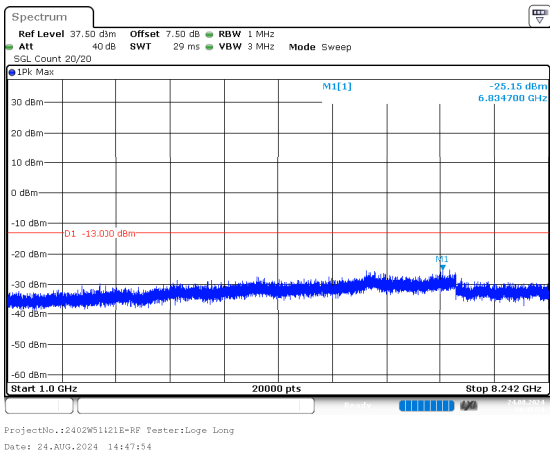
FCC Part 22H & IC RSS 132
GSM 850 , Normal

GSM_Low

Below 1G

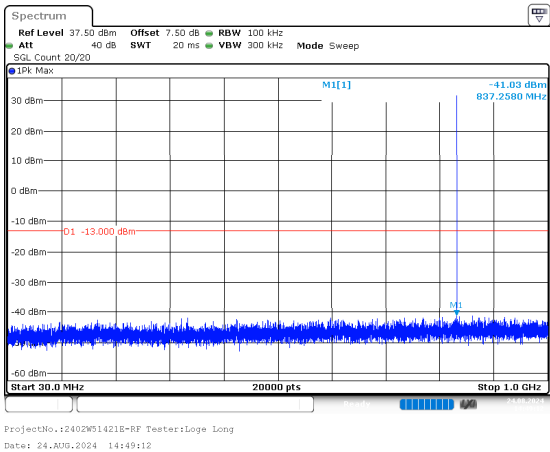


Above 1G

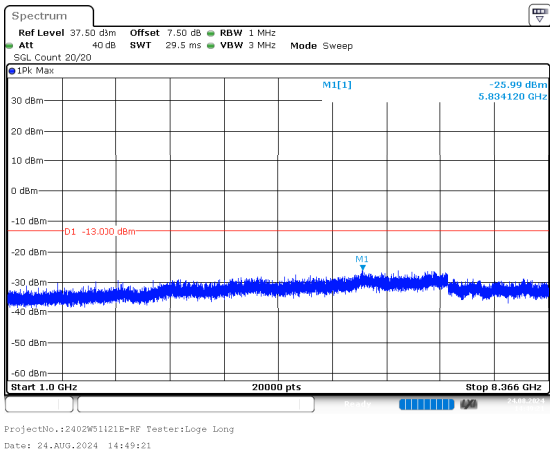


GSM_Middle

Below 1G

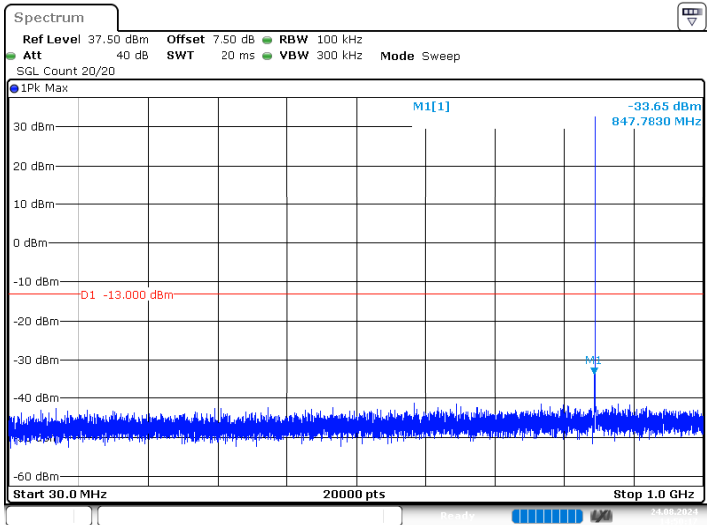


Above 1G



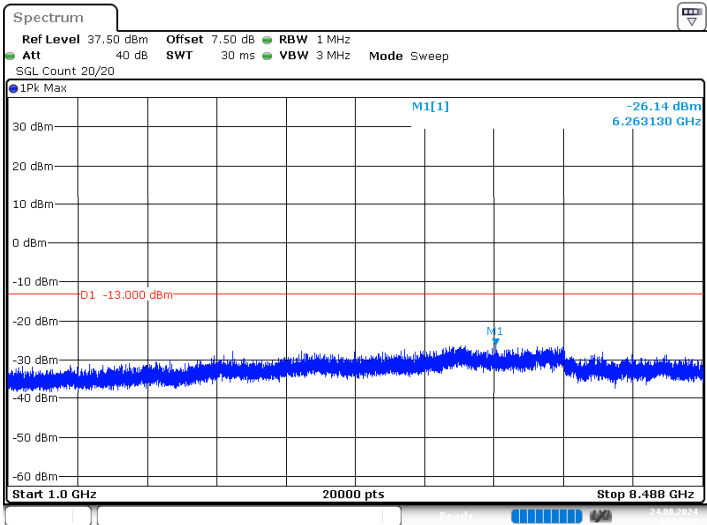
GSM_High

Below 1G



ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 14:50:17

Above 1G



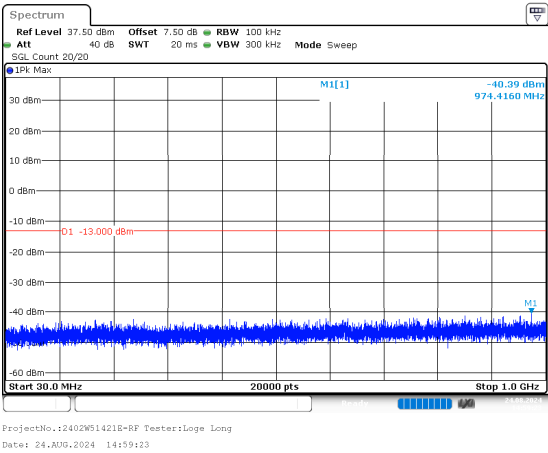
ProjectNo.:2402W51421E-RF Tester:Loge Long
Date: 24.AUG.2024 14:50:25

FCC Part 24E & IC RSS 133

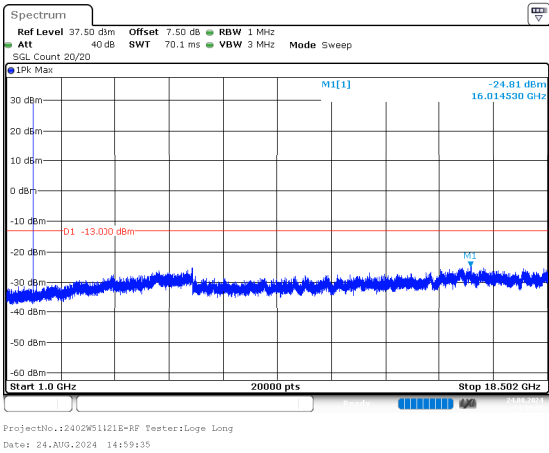
GSM 1900 , Normal

GSM_Low

Below 1G

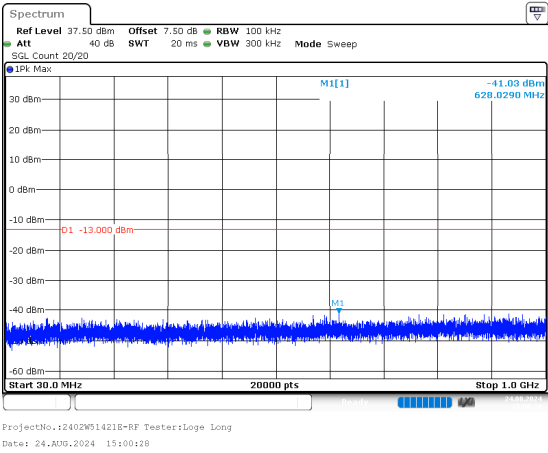


Above 1G

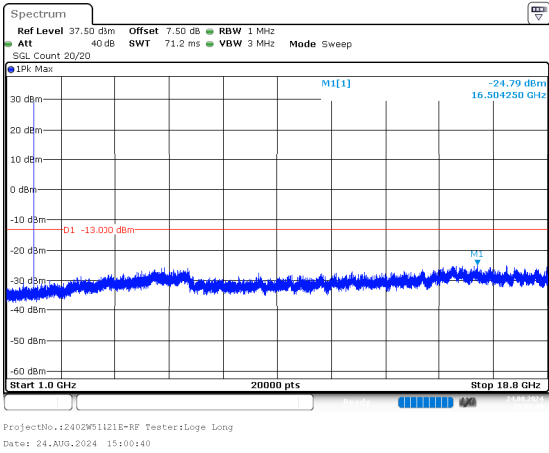


GSM_Middle

Below 1G

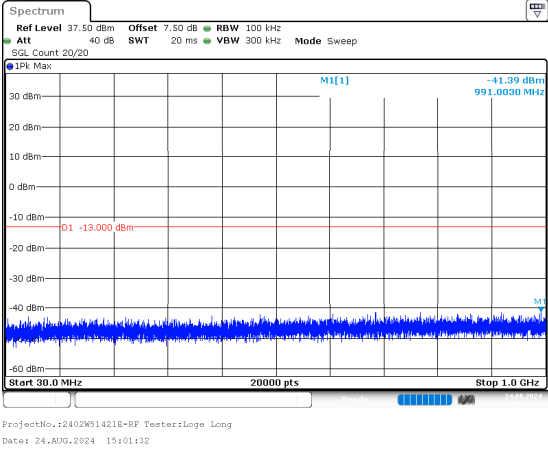


Above 1G



GSM_High

Below 1G



Above 1G

