

Appendix A

Test Information:

Sample No.:	2QAQ-5	Test Date:	2024/08/29
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long	Test Result:	Pass

Environmental Conditions:

Temperature: (°C):	27.7	Relative Humidity: (%)	55	ATM Pressure: (kPa)	99.9
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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-Clruiets	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

FCC Part 22H

GSM 850

Mode	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
GPRS_Middle_Solt1_TN/VN	13.4	0.016	±2.5	Pass
GPRS_Middle_Solt1_T1/VN	11.5	0.014	±2.5	Pass
GPRS_Middle_Solt1_T2/VN	13.0	0.016	±2.5	Pass
GPRS_Middle_Solt1_T3/VN	13.8	0.017	±2.5	Pass
GPRS_Middle_Solt1_T4/VN	13.0	0.015	±2.5	Pass
GPRS_Middle_Solt1_T5/VN	12.4	0.015	±2.5	Pass
GPRS_Middle_Solt1_T6/VN	12.4	0.015	±2.5	Pass
GPRS_Middle_Solt1_T7/VN	12.7	0.015	±2.5	Pass
GPRS_Middle_Solt1_T8/VN	13.0	0.016	±2.5	Pass
GPRS_Middle_Solt1_TN/VH	13.2	0.016	±2.5	Pass
GPRS_Middle_Solt1_TN/VL	12.6	0.015	±2.5	Pass
EDGE_Middle_Solt1_TN/VN	19.2	0.023	±2.5	Pass
EDGE_Middle_Solt1_T1/VN	21.6	0.026	±2.5	Pass
EDGE_Middle_Solt1_T2/VN	19.5	0.023	±2.5	Pass
EDGE_Middle_Solt1_T3/VN	19.9	0.024	±2.5	Pass
EDGE_Middle_Solt1_T4/VN	19.7	0.024	±2.5	Pass
EDGE_Middle_Solt1_T5/VN	20.4	0.024	±2.5	Pass
EDGE_Middle_Solt1_T6/VN	19.8	0.024	±2.5	Pass
EDGE_Middle_Solt1_T7/VN	19.3	0.023	±2.5	Pass
EDGE_Middle_Solt1_T8/VN	18.6	0.022	±2.5	Pass
EDGE_Middle_Solt1_TN/VH	18.0	0.022	±2.5	Pass
EDGE_Middle_Solt1_TN/VL	20.1	0.024	±2.5	Pass

Note:

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

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
GPRS_Low_Solt1_TN/VN	1850.079	1850	Pass
GPRS_Low_Solt1_T1/VN	1850.079	1850	Pass
GPRS_Low_Solt1_T2/VN	1850.081	1850	Pass
GPRS_Low_Solt1_T3/VN	1850.082	1850	Pass
GPRS_Low_Solt1_T4/VN	1850.080	1850	Pass
GPRS_Low_Solt1_T5/VN	1850.082	1850	Pass
GPRS_Low_Solt1_T6/VN	1850.076	1850	Pass
GPRS_Low_Solt1_T7/VN	1850.078	1850	Pass
GPRS_Low_Solt1_T8/VN	1850.084	1850	Pass
GPRS_Low_Solt1_TN/VH	1850.080	1850	Pass
GPRS_Low_Solt1_TN/VL	1850.083	1850	Pass
GPRS_High_Solt1_TN/VN	1909.925	1910	Pass
GPRS_High_Solt1_T1/VN	1909.923	1910	Pass
GPRS_High_Solt1_T2/VN	1909.924	1910	Pass
GPRS_High_Solt1_T3/VN	1909.926	1910	Pass
GPRS_High_Solt1_T4/VN	1909.923	1910	Pass
GPRS_High_Solt1_T5/VN	1909.922	1910	Pass
GPRS_High_Solt1_T6/VN	1909.927	1910	Pass
GPRS_High_Solt1_T7/VN	1909.926	1910	Pass
GPRS_High_Solt1_T8/VN	1909.924	1910	Pass
GPRS_High_Solt1_TN/VH	1909.926	1910	Pass
GPRS_High_Solt1_TN/VL	1909.924	1910	Pass
EDGE_Low_Solt1_TN/VN	1850.076	1850	Pass
EDGE_Low_Solt1_T1/VN	1850.081	1850	Pass
EDGE_Low_Solt1_T2/VN	1850.076	1850	Pass
EDGE_Low_Solt1_T3/VN	1850.081	1850	Pass
EDGE_Low_Solt1_T4/VN	1850.078	1850	Pass
EDGE_Low_Solt1_T5/VN	1850.082	1850	Pass
EDGE_Low_Solt1_T6/VN	1850.078	1850	Pass
EDGE_Low_Solt1_T7/VN	1850.080	1850	Pass
EDGE_Low_Solt1_T8/VN	1850.079	1850	Pass

Mode	Value (MHz)	Limit (MHz)	Result
EDGE_Low_Solt1_TN/VH	1850.078	1850	Pass
EDGE_Low_Solt1_TN/VL	1850.078	1850	Pass
EDGE_High_Solt1_TN/VN	1909.923	1910	Pass
EDGE_High_Solt1_T1/VN	1909.930	1910	Pass
EDGE_High_Solt1_T2/VN	1909.924	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	1909.922	1910	Pass
EDGE_High_Solt1_T6/VN	1909.925	1910	Pass
EDGE_High_Solt1_T7/VN	1909.927	1910	Pass
EDGE_High_Solt1_T8/VN	1909.921	1910	Pass
EDGE_High_Solt1_TN/VH	1909.922	1910	Pass
EDGE_High_Solt1_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.

Occupied Bandwidth

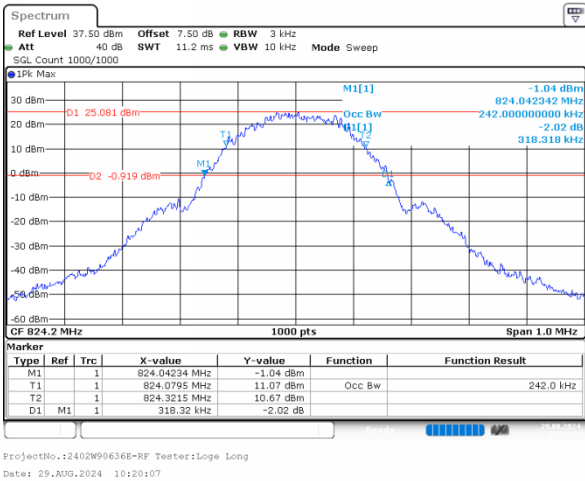
FCC Part 22H

GSM 850 , Normal

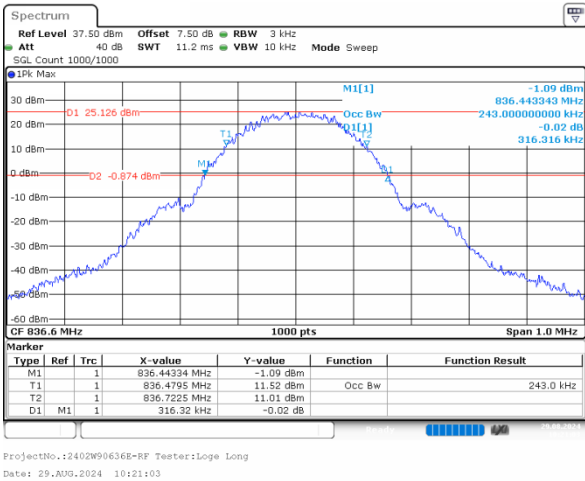
Mode	99% OBW (MHz)	EBW (MHz)
GPRS_Low_Solt1	0.242	0.318
GPRS_Middle_Solt1	0.243	0.316
GPRS_High_Solt1	0.243	0.317
EDGE_Low_Solt1	0.244	0.313
EDGE_Middle_Solt1	0.245	0.313
EDGE_High_Solt1	0.243	0.310

GSM 850 , Normal

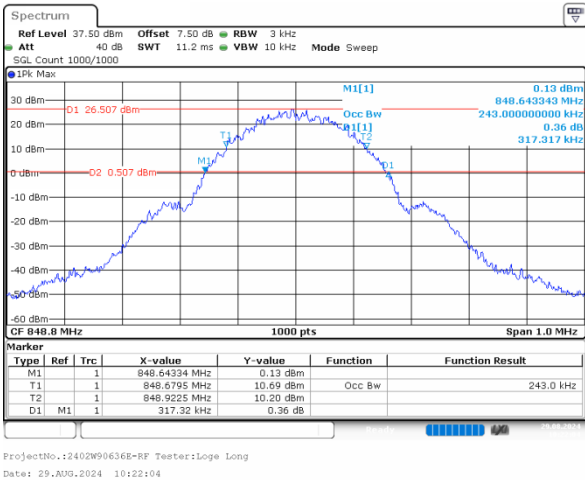
GPRS_Low_Solt1 0.242MHz



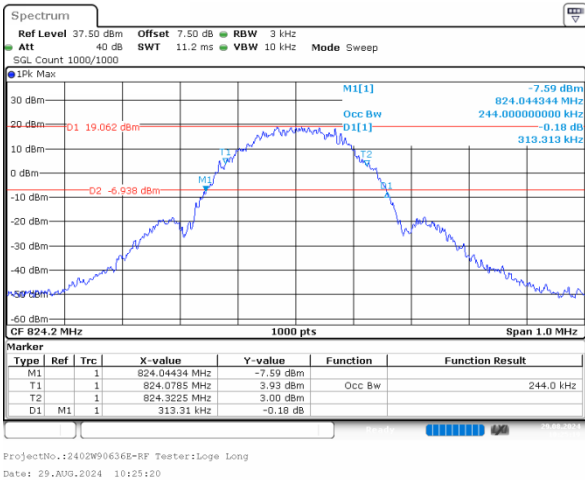
GPRS_Middle_Solt1 0.243MHz



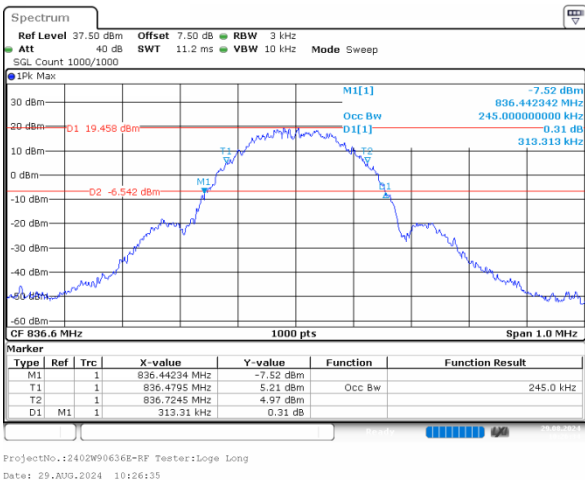
GPRS_High_Solt1 0.243MHz



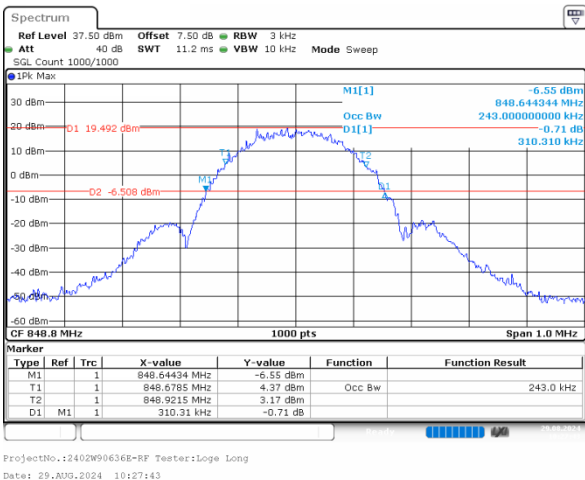
EDGE_Low_Solt1 0.244MHz



EDGE_Middle_Solt1 0.245MHz



EDGE_High_Solt1 0.243MHz



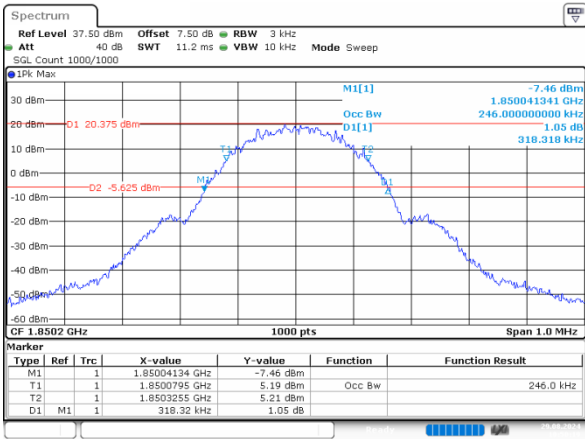
FCC Part 24E

GSM 1900 , Normal

Mode	99% OBW (MHz)	EBW (MHz)
GPRS_Low_Solt1	0.246	0.318
GPRS_Middle_Solt1	0.243	0.316
GPRS_High_Solt1	0.245	0.318
EDGE_Low_Solt1	0.245	0.308
EDGE_Middle_Solt1	0.244	0.307
EDGE_High_Solt1	0.247	0.318

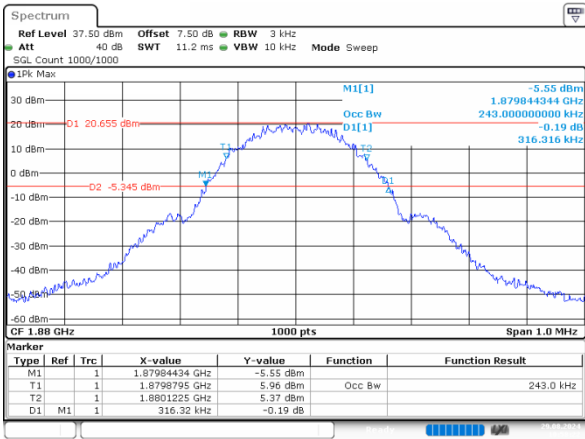
GSM 1900 , Normal

GPRS_Low_Solt1 0.246MHz



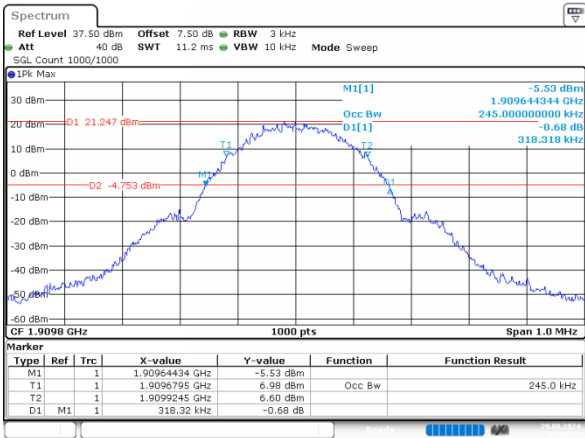
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GPRS_Middle_Solt1 0.243MHz



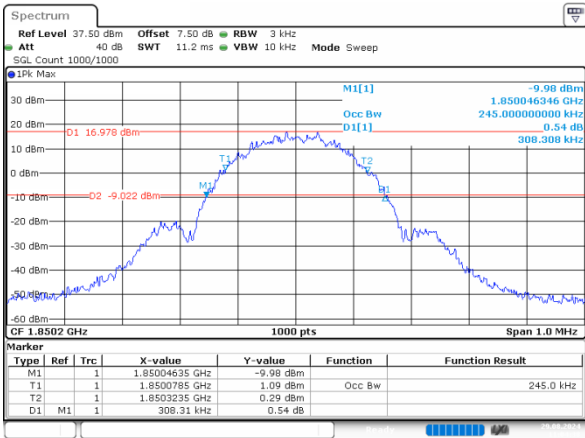
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GPRS_High_Solt1 0.245MHz



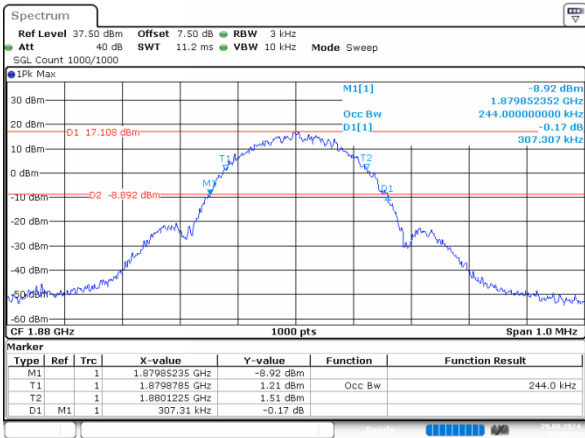
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EDGE_Low_Solt1 0.245MHz



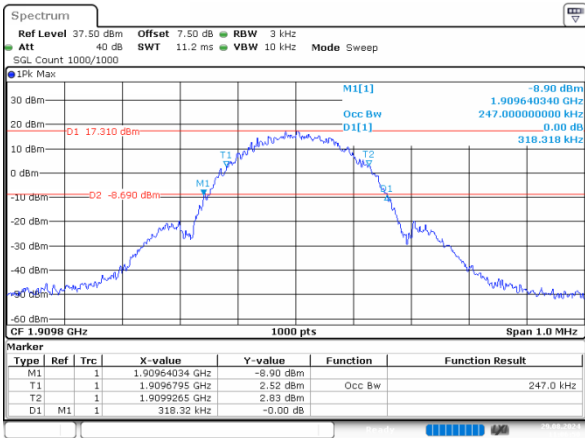
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EDGE_Middle_Solt1 0.244MHz



ProjectNo.:2402W90636E-RF Tester:Loge Long
 Date: 29.AUG.2024 11:05:41

EDGE_High_Solt1 0.247MHz



ProjectNo.:2402W90636E-RF Tester:Loge Long
 Date: 29.AUG.2024 11:06:51

RF Output Power

FCC Part 22H

GSM 850 , Normal

Mode	Peak Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Result
GPRS_Low_Solt1	33.06	30.69	38.45	Pass
GPRS_Low_Solt2	31.84	29.47	38.45	Pass
GPRS_Low_Solt3	29.69	27.32	38.45	Pass
GPRS_Low_Solt4	28.39	26.02	38.45	Pass
GPRS_Middle_Solt1	33.04	30.67	38.45	Pass
GPRS_Middle_Solt2	31.88	29.51	38.45	Pass
GPRS_Middle_Solt3	29.97	27.60	38.45	Pass
GPRS_Middle_Solt4	28.62	26.25	38.45	Pass
GPRS_High_Solt1	32.72	30.35	38.45	Pass
GPRS_High_Solt2	31.58	29.21	38.45	Pass
GPRS_High_Solt3	29.68	27.31	38.45	Pass
GPRS_High_Solt4	28.32	25.95	38.45	Pass
EDGE_Low_Solt1	27.06	24.69	38.45	Pass
EDGE_Low_Solt2	26.65	24.28	38.45	Pass
EDGE_Low_Solt3	24.78	22.41	38.45	Pass
EDGE_Low_Solt4	24.20	21.83	38.45	Pass
EDGE_Middle_Solt1	27.27	24.90	38.45	Pass
EDGE_Middle_Solt2	26.85	24.48	38.45	Pass
EDGE_Middle_Solt3	24.94	22.57	38.45	Pass
EDGE_Middle_Solt4	24.33	21.96	38.45	Pass
EDGE_High_Solt1	27.08	24.71	38.45	Pass
EDGE_High_Solt2	26.66	24.29	38.45	Pass
EDGE_High_Solt3	24.78	22.41	38.45	Pass
EDGE_High_Solt4	24.14	21.77	38.45	Pass

Note:

$$ERP = \text{Conducted Power(dBm)} - L_C(\text{dB}) + G_T(\text{dBd})$$

$$G_T(\text{dBd}) = G_T(\text{dBi}) - 2.15$$

$$1.Ant\ Gain = -0.02\text{dBi};$$

$$2.C_L = \text{signal attenuation in the connecting cable between the transmitter and antenna in } 0.2\text{dB}$$

FCC Part 24E

GSM 1900 , Normal

Mode	Peak Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Result
GPRS_Low_Solt1	28.34	28.60	33	Pass
GPRS_Low_Solt2	27.37	27.63	33	Pass
GPRS_Low_Solt3	25.44	25.70	33	Pass
GPRS_Low_Solt4	24.59	24.85	33	Pass
GPRS_Middle_Solt1	28.51	28.77	33	Pass
GPRS_Middle_Solt2	27.43	27.69	33	Pass
GPRS_Middle_Solt3	25.65	25.91	33	Pass
GPRS_Middle_Solt4	24.70	24.96	33	Pass
GPRS_High_Solt1	28.81	29.07	33	Pass
GPRS_High_Solt2	27.71	27.97	33	Pass
GPRS_High_Solt3	25.84	26.10	33	Pass
GPRS_High_Solt4	24.83	25.09	33	Pass
EDGE_Low_Solt1	24.75	25.01	33	Pass
EDGE_Low_Solt2	24.39	24.65	33	Pass
EDGE_Low_Solt3	22.26	22.52	33	Pass
EDGE_Low_Solt4	21.58	21.84	33	Pass
EDGE_Middle_Solt1	24.89	25.15	33	Pass
EDGE_Middle_Solt2	24.54	24.80	33	Pass
EDGE_Middle_Solt3	22.40	22.66	33	Pass
EDGE_Middle_Solt4	21.81	22.07	33	Pass
EDGE_High_Solt1	25.14	25.40	33	Pass
EDGE_High_Solt2	24.77	25.03	33	Pass
EDGE_High_Solt3	22.67	22.93	33	Pass
EDGE_High_Solt4	22.05	22.31	33	Pass

Note:

$EIRP = \text{Conducted Power(dBm)} - L_C(\text{dB}) + G_T(\text{dBi})$

1.Ant Gain = 0.56dBi;

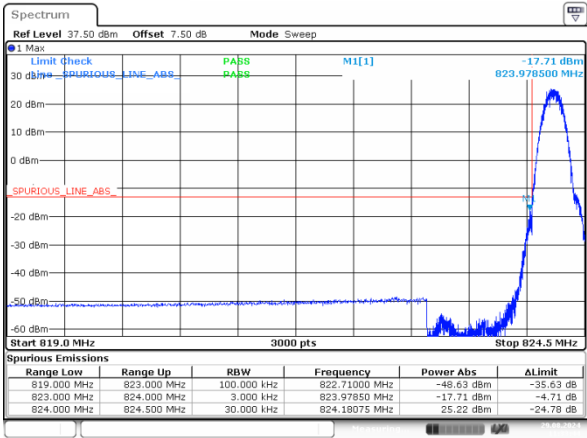
2.C_L = signal attenuation in the connecting cable between the transmitter and antenna in 0.3dB

Out of band emission,Band Edge

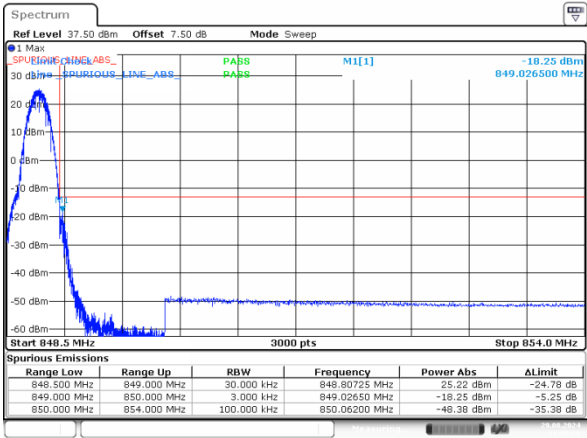
FCC Part 22H

GSM 850 , Normal

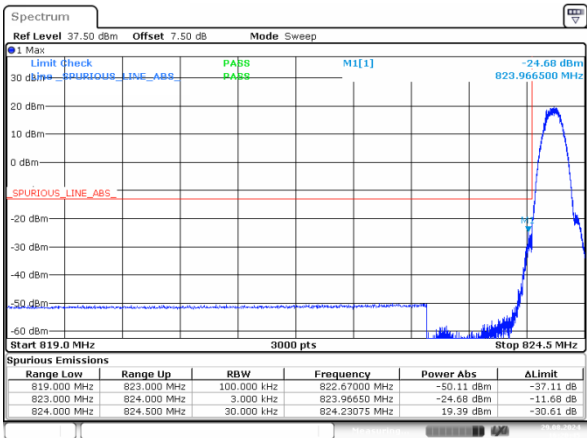
GPRS_Low_Solt1 -17.71dBm



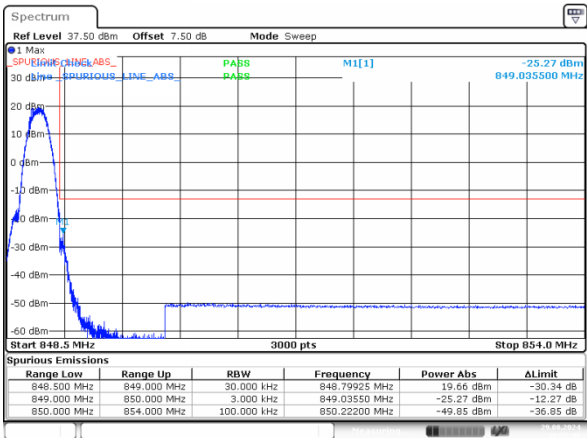
GPRS_High_Solt1 -18.25dBm



EDGE_Low_Solt1 -24.68dBm



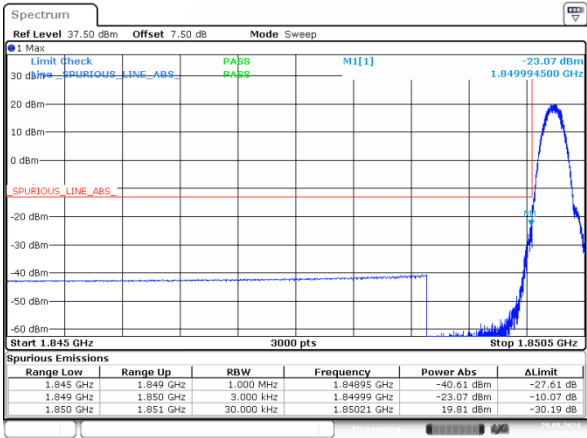
EDGE_High_Solt1 -25.27dBm



FCC Part 24E

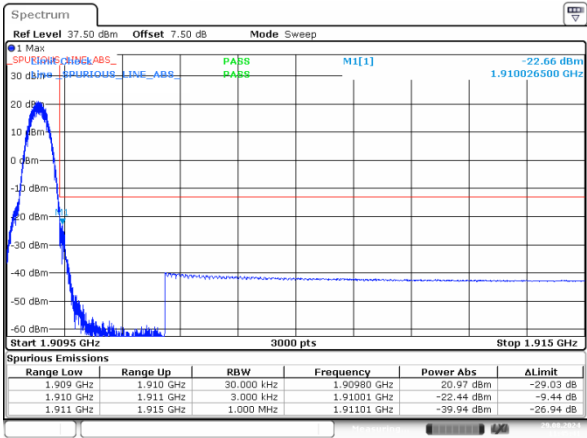
GSM 1900 , Normal

GPRS_Low_Solt1 -23.07dBm



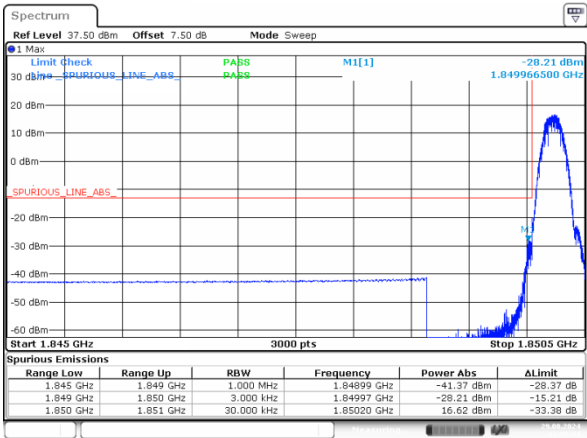
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Date: 29.AUG.2024 11:43:46

GPRS_High_Solt1 -22.66dBm



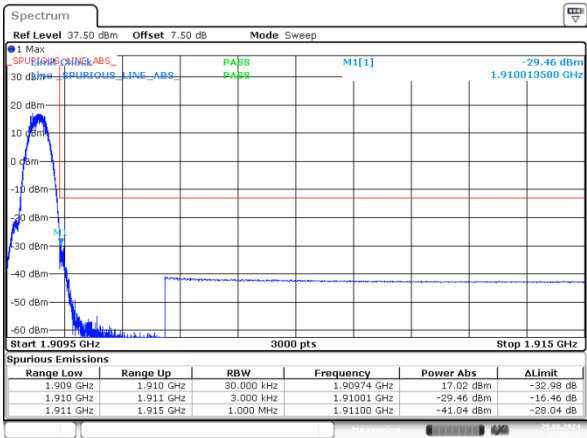
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EDGE_Low_Solt1 -28.21dBm



ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:55:55

EDGE_High_Solt1 -29.46dBm



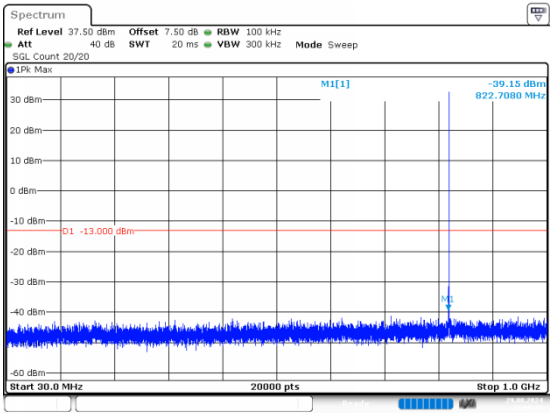
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Spurious Emissions at Antenna Terminal

FCC Part 22H
GSM 850 , Normal

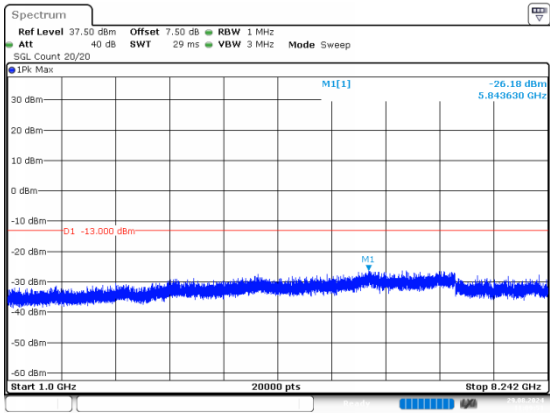
GPRS_Low_Solt1

Below 1G



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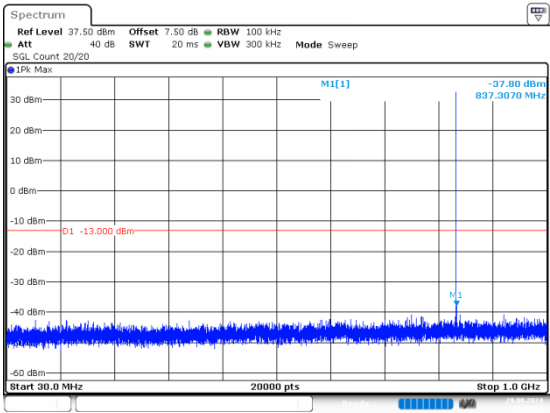
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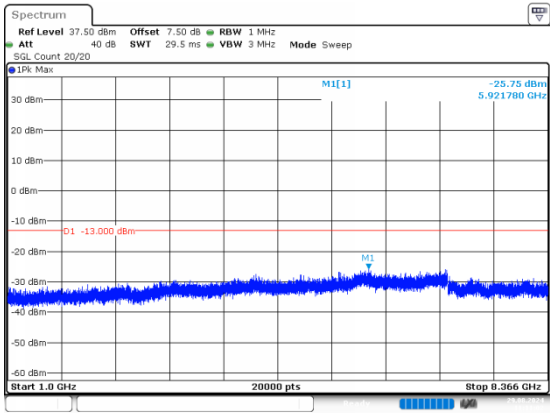
GPRS_Middle_Solt1

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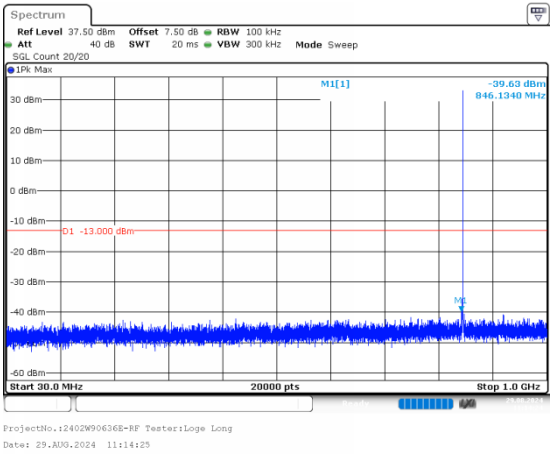
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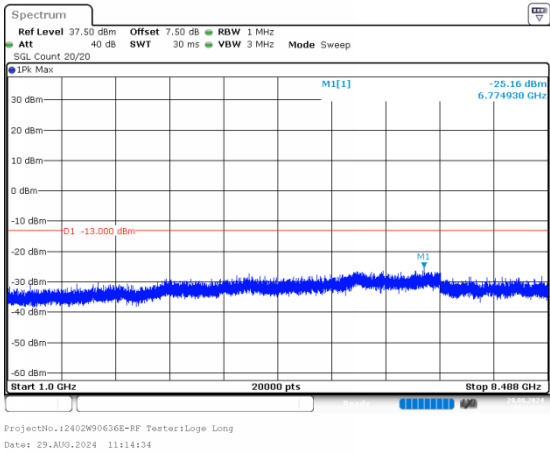
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Date: 29.AUG.2024 11:11:03

GPRS_High_Solt1

Below 1G

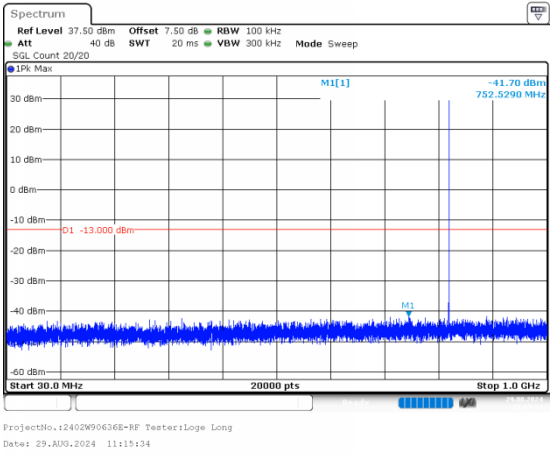


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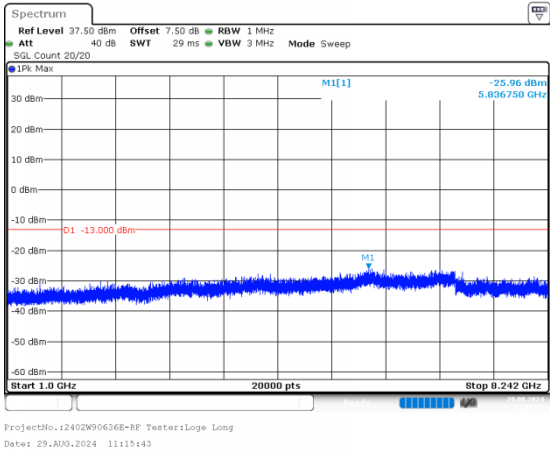


EDGE_Low_Solt1

Below 1G

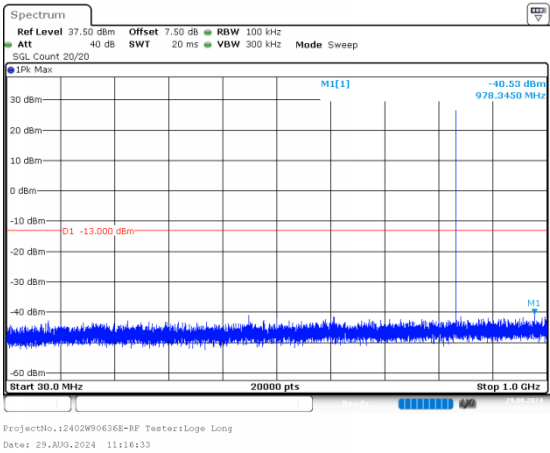


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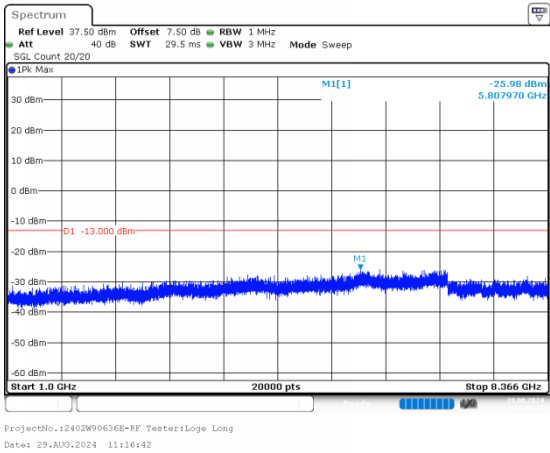


EDGE_Middle_Solt1

Below 1G

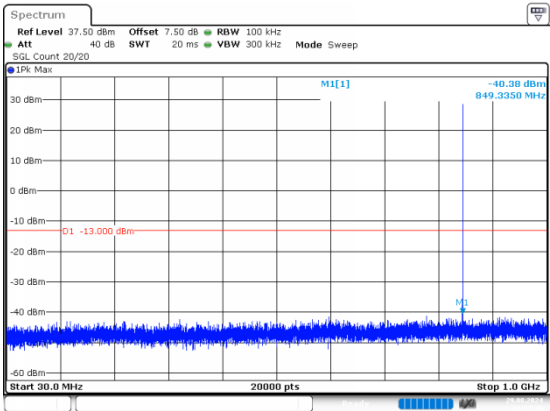


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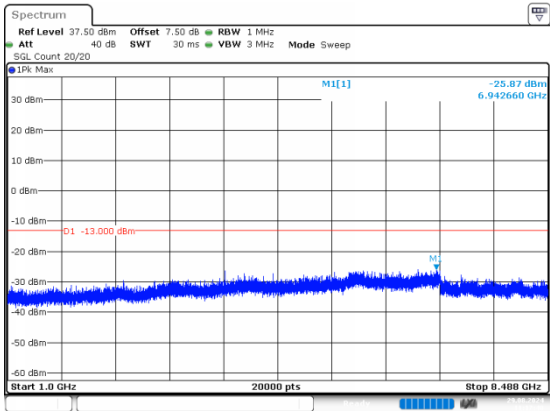
EDGE_High_Solt1

Below 1G



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Date: 29.AUG.2024 11:17:40

Above 1G

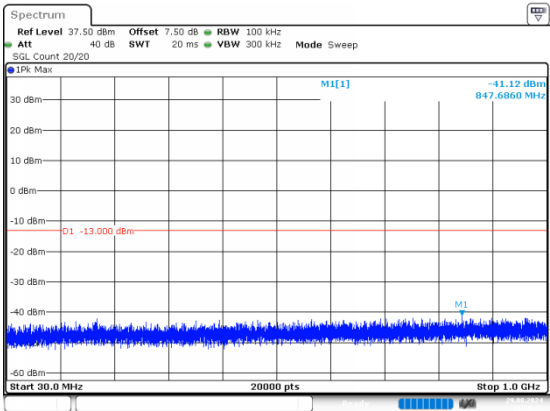


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FCC Part 24E
GSM 1900 , Normal

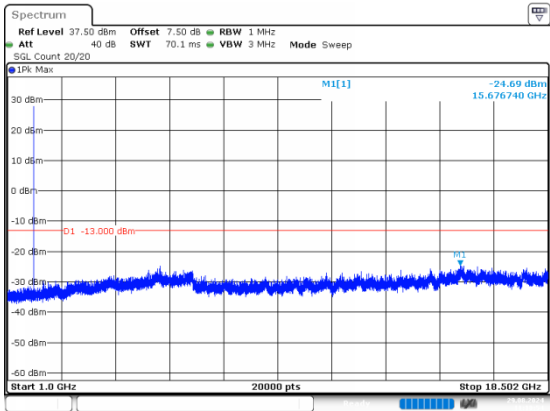
GPRS_Low_Solt1

Below 1G



ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:18:43

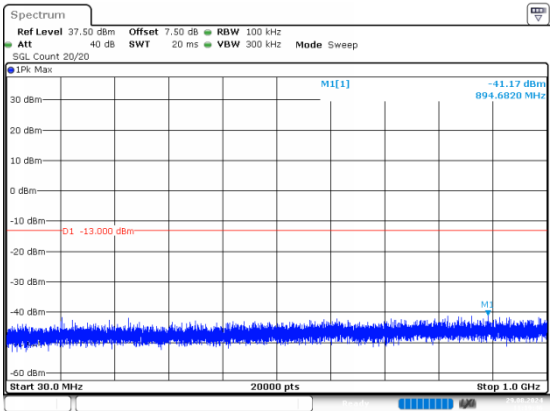
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ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:18:55

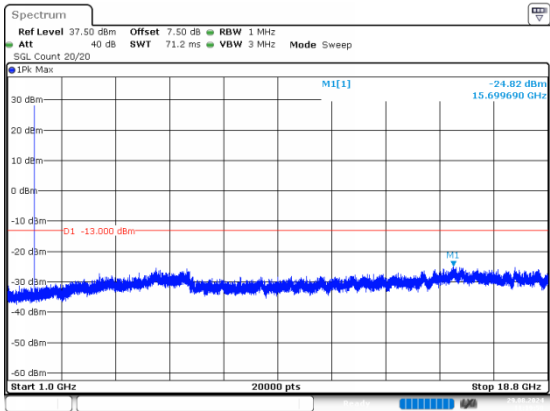
GPRS_Middle_Solt1

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ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:19:47

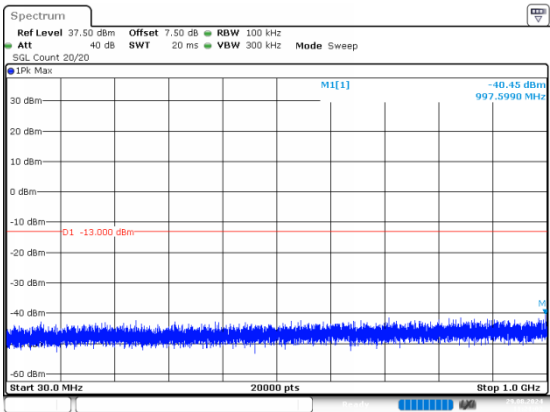
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ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:19:58

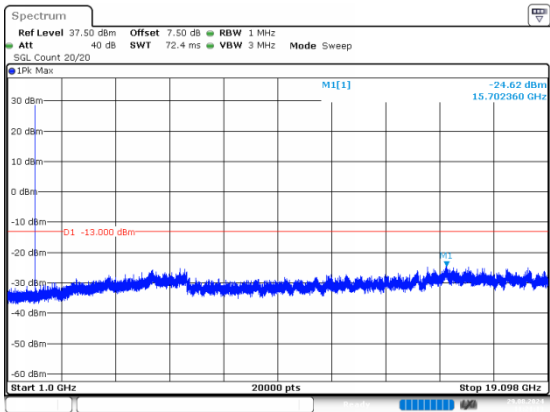
GPRS_High_Solt1

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ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:21:02

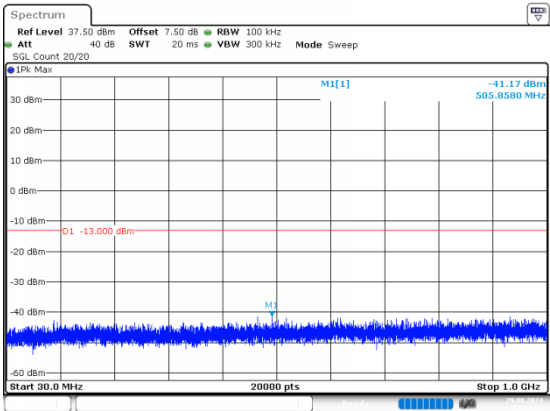
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ProjectNo.:2402W90636E-RF Tester:Loge Long
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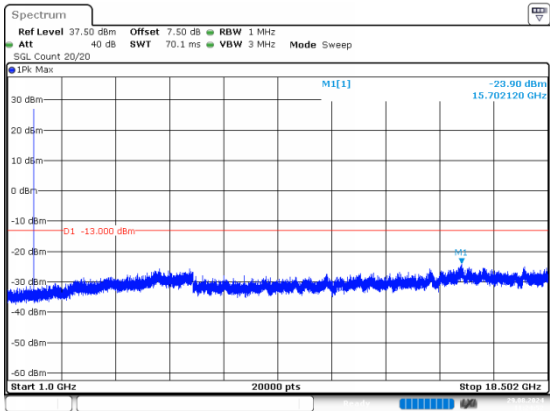
EDGE_Low_Solt1

Below 1G



ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:24:40

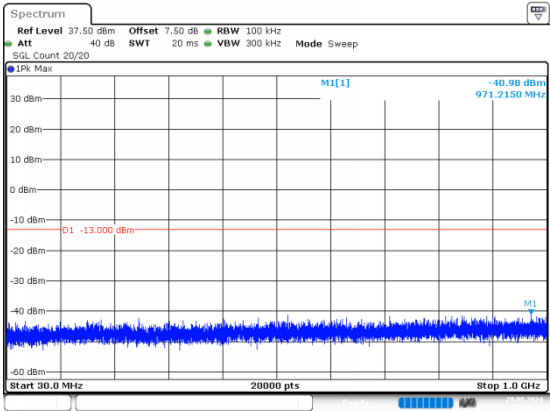
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ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:24:53

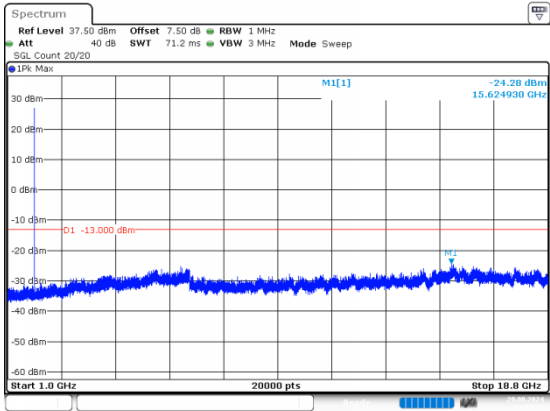
EDGE_Middle_Solt1

Below 1G



ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:27:28

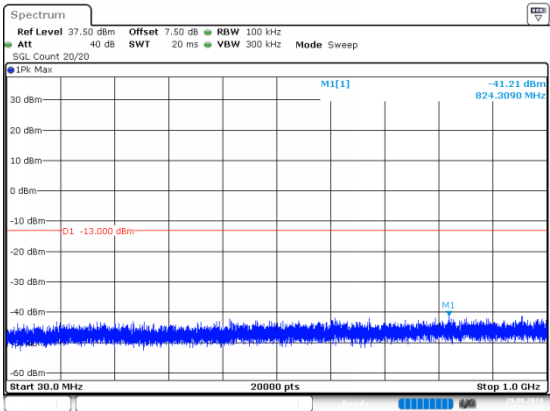
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ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:27:40

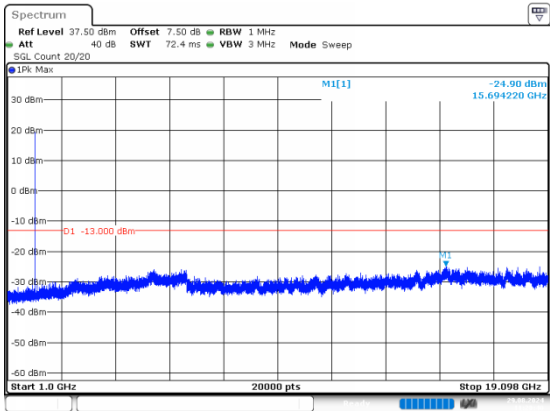
EDGE_High_Solt1

Below 1G



ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:28:29

Above 1G



ProjectNo.:2402W90636E-RF Tester:Loge Long
Date: 29.AUG.2024 11:28:40