Testing Laboratory
3023

Test report No.: 2330006R-RFUSV23S-A

TEST REPORT

Product Name	5G Enterprise Router
Trademark	BEC, Billion
Model and /or type reference	AirConnect® 8112, BEC AirConnect® 8112, BEC 8112
Applicant´s name / address	Billion Electric Co., Ltd. 8F., No.192, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Manufacturer´s name	Billion Electric Co., Ltd.
Test method requested, standard	FCC CFR Title 47 Part 24
Test reference	FCC CFR Title 47 Part 2, TIA/EIA 603-E 2016 KDB 971168 D01V03R01, ANSI C63.26 2015
FCC ID	QI3BEC-8112
Verdict Summary	IN COMPLIANCE
Documented By (Senior Project Specialist / Joanne Lin)	Joanne Lin
Tested By (Engineer / Daniel Wu)	Daniel Wu
Approved By (Manager / Tim Sung)	Tim Sung
Date of Receipt	2023/03/01
Date of Issue	2023/06/21
Report Version	V1.0

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Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

General conditions

1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

Report No.	Version	Description	Issued Date
2330006R-RFUSV23S-A	V1.0	Initial issue of report.	2023/06/21

1. General Information

1.1 EUT Description

Product Name	5G Enterprise Router
Trademark	BEC, Billion
Model and /or type reference	AirConnect® 8112, BEC AirConnect® 8112, BEC 8112
FCC ID	QI3BEC-8112
IMEI	868371050171660
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
TX Frequency	LTE Band 2: 1850 MHz ~1910 MHz 5GNR n2: 1850 MHz ~1910 MHz
RX Frequency	LTE Band 2: 1930 MHz ~1990 MHz 5GNR n2: 1930 MHz ~1990 MHz
Bandwidth	LTE Band 2: 1.4 MHz / 3 MHz / 5 MHz / 10 MHz / 15 MHz / 20 MHz 5GNR n2: 5 MHz / 10 MHz / 15 MHz / 20 MHz
Type of Modulation	LTE Band 2: QPSK / 16QAM / 64QAM / 256QAM 5GNR n2: pi/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM
Adapter	MFR: BILLION, M/N: PA1024-150HUB200 Input: AC 100-240V~50-60Hz, 0.6A Output: 15.0V⎓2.0A, 30.0W Max Cable out: Non-shielded, 1.5m

Note: It's declared by manufacture about all models are electrically identical, different model names for marketing purpose.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	GRAND-TEK TECHNOLOGY CO.,LTD	OA-5G-EB-01-BL	PCB	1.9 dBi for Band 2 (TX/RX)
2				0.4 dBi for Band 2 (RX)
3				2.2 dBi for Band 2 (RX)
4				2.6 dBi for Band 2 (RX)

Note: The antenna gain as by the manufacturer provided.

1.2 Operational Description

The EUT provide all functions described as above. The EUT is tested with maximum rated TX power via the Base Station simulator. DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

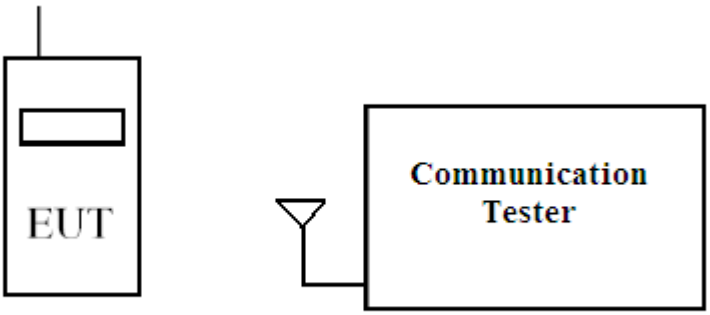
Test Mode	LTE Band 2 5GNR n2

Note:

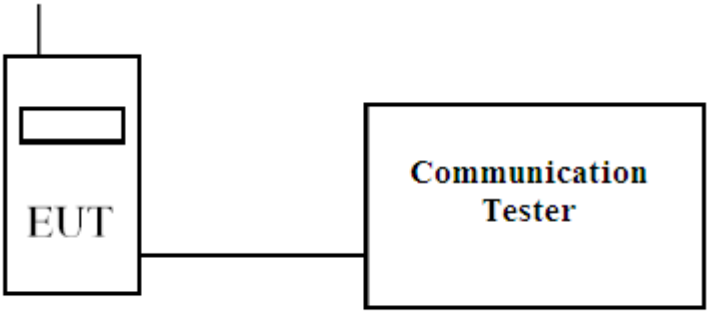
1. Regards to the frequency band operation; the lowest, middle and highest frequency of channel were selected to perform the test, and then shown on this report.
2. This device was tested under all configurations, combinations, bandwidths, RB configurations and modulations, and the worst case was found in QPSK modulation for LTE and SA mode pi/2 BPSK modulation for 5GNR, therefore the “Conducted Band Edge” & “Spurious Emission” test items perform QPSK modulation for LTE and SA mode pi/2 BPSK modulation for 5GNR in this report.
3. For LTE, “Peak to Average Ratio” test item shown worst case modulation QPSK and 16QAM and on this report.
4. For 5GNR, “Peak to Average Ratio” test item shown worst case modulation pi/2 BPSK, QPSK and 16QAM and on this report.
5. The product both supports the SA and NSA mode. After evaluation and comparison, the worst case is investigated in the SA mode. Therefore, there is only displayed the test result for SA mode in the test report.
6. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
7. The EUT was performed at X axis, Y axis and Z axis position for radiated spurious emission tests. The worst case was found at X axis, so the measurement will follow this same test configuration.

1.3 Configuration of tested System

(a) Configuration of Radiated measurement



(b) Configuration of Conducted measurement



1.4 EUT Setup Procedures

1	Setup the EUT and simulators as shown on 1.3.
2	Turn on the power of all equipment.
3	The EUT was set to communicate with Base Station simulator.
4	Repeat the above procedure (3).

1.5 Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Actual	Test Date
Radiated Emission	Temperature (°C)	23.1 °C	2023/03/10~2023/06/21
	Humidity (%RH)	68.0 %	
Conductive	Temperature (°C)	24.2 °C	
	Humidity (%RH)	61.0 %	

USA	FCC Registration Number: TW0033
Site Description	Accredited by TAF
	Accredited Number: 3023
Test Laboratory	DEKRA Testing and Certification Co., Ltd
Address	No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan
Performed Location	No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	+886-3-275-7255
Fax Number	+886-3-327-8031

2. Technical Test

2.1 Summary of test result

Test Item	FCC Reference section	FCC Limit	Result
RF Output Power	§2.1033 §2.1046 §24.232	< 2 Watts	Pass
Occupied Bandwidth	§2.1049	Within the frequency range	Pass
Spurious Emission at Antenna Terminals	§24.238	< -13 dBm	Pass
Conducted Emission	§24.238	< -13dBm	Pass
Field Strength of Spurious Radiation	§2.1053 §24.238	< -13 dBm	Pass
Frequency Stability for Temperature & Voltage	§2.1055 §24.235	< ±2.5 ppm	Pass
Peak to Average Ratio	§24.232	< 13 dB	Pass

2.2 List of test Equipment

Conducted / HY-SR03

Instrument Description	Manufacturer	Model No.	Serial No.	Last Calibration	Next Calibration
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510357	2022/05/18	2023/05/17
Spectrum Analyzer	Agilent	N9010A	MY48030495	2023/01/07	2024/01/06
Standard Temperature & Humidity Chamber	K SON	THS-D4T-100	A0606	2022/08/23	2023/08/22
Radio Communication Analyzer	Anritsu	MT8820C	6201465467	2022/08/10	2023/08/09
AC Power Supply	EXTECH Electronics	6605	1570547	2023/01/17	2024/01/16

Radiated / HY-CB03

Instrument Description	Manufacturer	Model No.	Serial No.	Last Calibration	Next Calibration
Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021/08/11	2023/08/10
Horn Antenna	Com-Power	AH-840	101100	2021/10/04	2023/10/03
Horn Antenna	RF SPIN	DRH18-E	210508A18ES	2022/06/08	2023/06/07
Horn Antenna	RF SPIN	DRH18-E	210507A18ES	2023/05/11	2024/05/10
Pre-Amplifier	SGH	0301	20211007-10	2023/01/10	2024/01/09
Pre-Amplifier	SGH	PRAMP118	20200701	2023/01/10	2024/01/09
Pre-Amplifier	EMCI	EMC05820SE	980310	2023/01/10	2024/01/09
Pre-Amplifier	EMCI	EMC184045SE	980369	2023/01/10	2024/01/09
Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314		
Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
Spectrum Analyzer	R&S	FSV3044	101114	2023/02/16	2024/02/15
Coaxial Cable	SGH	SGH18	2021005-1	2023/01/10	2024/01/09
Coaxial Cable	SGH	SGH18	202108-4		
Coaxial Cable	SGH	HA800	GD20110223-1		
Coaxial Cable	SGH	HA800	GD20110222-3		
Radio Communication Analyzer	Anritsu	MT8820C	6201465467	2022/08/10	2023/08/09

2.3 Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95 % confidence level based on a coverage factor (k=2).

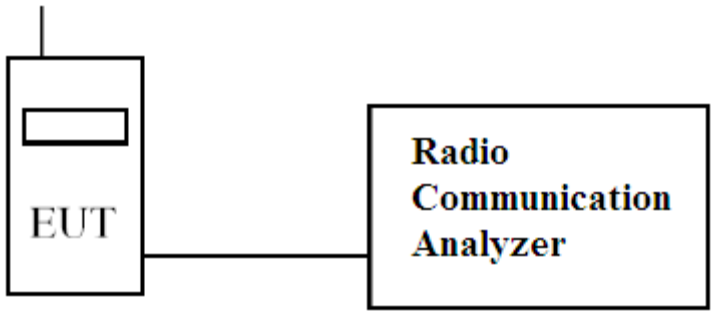
Test Item	Uncertainty
Conducted Output Power	± 1.58 dB
Occupied Bandwidth	± 1580.61 Hz
Conducted Band Edge	± 2.14 dB
Conducted Spurious Emissions	± 2.14 dB
Radiated Spurious Emissions	± 5.88 dB for 30MHz ~ 1GHz ± 3.11 dB for 1GHz ~ 18GHz ± 3.09 dB for 18GHz ~ 40GHz
Frequency Stability	± 0.42 ppm
Peak to Average Ratio	± 2.14 dB

3. Conducted Output Power Measurment

3.1 Test Specification

According to FCC Part 2.1033, 2.1046, 24.232.

3.2 Test Setup



3.3 Limits

Band	Limit
Band 2/1900	EIRP < 2 W

3.4 Test Procedure

The EUT is tested with maximum rated TX power via the Base Station simulator, and the output power was measured at the antenna terminals of the EUT.

3.5 Test Result of Maximum Power Output and ERP/EIRP Power

LTE Band 2													
Mode					Conducted Power				EIRP Power				Limit
BW (MHz)	Channel	Frequency (MHz)	RB No.	RB offset	QPSK (dBm)	16-QAM (dBm)	64-QAM (dBm)	256-QAM (dBm)	QPSK EIRP(W)	16-QAM EIRP(W)	64-QAM EIRP(W)	256-QAM EIRP(W)	Limit EIRP(W)
1.4	18607	1850.7	1	0	23.77	22.93	22.06	19.37	0.369	0.304	0.249	0.134	2
1.4	18607	1850.7	1	2	23.74	23.02	22.14	19.32	0.366	0.310	0.254	0.132	2
1.4	18607	1850.7	1	5	23.75	22.98	22.05	19.24	0.367	0.308	0.248	0.130	2
1.4	18607	1850.7	6	0	22.79	21.88	20.99	18.78	0.294	0.239	0.195	0.117	2
1.4	18900	1880	1	0	24.01	23.50	22.27	19.49	0.390	0.347	0.261	0.138	2
1.4	18900	1880	1	2	23.99	23.51	22.30	19.52	0.388	0.348	0.263	0.139	2
1.4	18900	1880	1	5	23.89	23.37	22.07	19.34	0.379	0.337	0.249	0.133	2
1.4	18900	1880	6	0	22.99	22.13	20.98	18.89	0.308	0.253	0.194	0.120	2
1.4	19193	1909.3	1	0	23.90	23.26	22.10	19.32	0.380	0.328	0.251	0.132	2
1.4	19193	1909.3	1	2	23.90	23.31	22.18	19.31	0.380	0.332	0.256	0.132	2
1.4	19193	1909.3	1	5	23.77	23.13	22.04	19.25	0.369	0.318	0.248	0.130	2
1.4	19193	1909.3	6	0	22.84	21.89	20.92	18.98	0.298	0.239	0.191	0.122	2
3	18615	1851.5	1	0	23.95	23.42	22.22	19.35	0.385	0.340	0.258	0.133	2
3	18615	1851.5	1	7	23.89	23.44	22.16	19.38	0.379	0.342	0.255	0.134	2
3	18615	1851.5	1	14	23.74	23.23	21.96	19.15	0.366	0.326	0.243	0.127	2
3	18615	1851.5	15	0	22.94	21.96	20.97	18.75	0.305	0.243	0.194	0.116	2
3	18900	1880	1	0	24.02	23.40	22.30	19.38	0.391	0.339	0.263	0.134	2
3	18900	1880	1	7	**24.11**	24.07	22.27	19.43	0.399	0.395	0.261	0.136	2
3	18900	1880	1	14	23.86	23.36	22.14	19.27	0.377	0.336	0.254	0.131	2
3	18900	1880	15	0	22.91	21.94	20.90	18.83	0.303	0.242	0.191	0.118	2
3	19185	1908.5	1	0	23.90	23.34	22.27	19.46	0.380	0.334	0.261	0.137	2
3	19185	1908.5	1	7	23.86	23.45	22.25	19.37	0.377	0.343	0.260	0.134	2
3	19185	1908.5	1	14	23.70	23.24	21.99	19.30	0.363	0.327	0.245	0.132	2
3	19185	1908.5	15	0	22.90	21.94	20.91	18.80	0.302	0.242	0.191	0.117	2
5	18625	1852.5	1	0	23.70	23.23	21.91	19.32	0.363	0.326	0.240	0.132	2
5	18625	1852.5	1	12	23.77	23.13	22.12	19.40	0.369	0.318	0.252	0.135	2
5	18625	1852.5	1	24	23.63	23.00	21.88	19.38	0.357	0.309	0.239	0.134	2
5	18625	1852.5	25	0	22.77	21.78	20.80	18.74	0.293	0.233	0.186	0.116	2
5	18900	1880	1	0	23.86	23.41	22.05	19.58	0.377	0.340	0.248	0.141	2
5	18900	1880	1	12	23.89	23.39	22.07	19.50	0.379	0.338	0.249	0.138	2
5	18900	1880	1	24	23.80	23.13	21.91	19.45	0.372	0.318	0.240	0.136	2
5	18900	1880	25	0	22.83	21.82	20.87	18.74	0.297	0.236	0.189	0.116	2
5	19175	1907.5	1	0	23.79	23.25	22.11	19.80	0.371	0.327	0.252	0.148	2
5	19175	1907.5	1	12	23.82	23.20	22.14	19.37	0.373	0.324	0.254	0.134	2
5	19175	1907.5	1	24	23.71	23.20	22.08	19.31	0.364	0.324	0.250	0.132	2
5	19175	1907.5	25	0	22.76	21.75	20.76	18.64	0.292	0.232	0.185	0.113	2
10	18650	1855	1	0	23.78	23.30	22.11	19.24	0.370	0.331	0.252	0.130	2
10	18650	1855	1	24	23.81	23.33	22.16	19.33	0.372	0.333	0.255	0.133	2
10	18650	1855	1	49	23.73	23.19	22.02	19.22	0.366	0.323	0.247	0.129	2
10	18650	1855	50	0	22.83	21.85	20.84	18.74	0.297	0.237	0.188	0.116	2
10	18900	1880	1	0	23.93	23.44	22.17	19.81	0.383	0.342	0.255	0.148	2
10	18900	1880	1	24	23.98	23.46	22.19	19.88	0.387	0.344	0.256	0.151	2
10	18900	1880	1	49	23.77	23.30	22.15	19.78	0.369	0.331	0.254	0.147	2
10	18900	1880	50	0	22.91	21.89	20.89	18.75	0.303	0.239	0.190	0.116	2
10	19150	1905	1	0	23.83	23.13	22.04	19.37	0.374	0.318	0.248	0.134	2
10	19150	1905	1	24	23.85	23.25	22.09	19.50	0.376	0.327	0.251	0.138	2
10	19150	1905	1	49	23.72	23.20	22.06	19.35	0.365	0.324	0.249	0.133	2
10	19150	1905	50	0	22.86	21.88	20.86	18.85	0.299	0.239	0.189	0.119	2

15	18675	1857.5	1	0	23.67	22.89	21.95	19.08	0.361	0.301	0.243	0.125	2
15	18675	1857.5	1	37	23.70	22.91	21.92	19.23	0.363	0.303	0.241	0.130	2
15	18675	1857.5	1	74	23.63	22.86	21.84	19.34	0.357	0.299	0.237	0.133	2
15	18675	1857.5	75	0	22.78	21.82	20.80	18.62	0.294	0.236	0.186	0.113	2
15	18900	1880	1	0	23.79	23.28	22.25	19.33	0.371	0.330	0.260	0.133	2
15	18900	1880	1	37	23.86	23.37	22.23	19.40	0.377	0.337	0.259	0.135	2
15	18900	1880	1	74	23.83	23.17	21.94	19.42	0.374	0.321	0.242	0.136	2
15	18900	1880	75	0	22.80	21.82	20.86	18.66	0.295	0.236	0.189	0.114	2
15	19125	1902.5	1	0	23.77	22.97	22.10	19.22	0.369	0.307	0.251	0.129	2
15	19125	1902.5	1	37	23.79	23.03	22.07	19.39	0.371	0.311	0.249	0.135	2
15	19125	1902.5	1	74	23.67	22.83	21.93	19.40	0.361	0.297	0.242	0.135	2
15	19125	1902.5	75	0	22.76	21.70	20.73	18.60	0.292	0.229	0.183	0.112	2
20	18700	1860	1	0	23.99	23.13	22.83	19.01	0.388	0.318	0.297	0.123	2
20	18700	1860	1	49	23.95	23.03	22.93	19.26	0.385	0.311	0.304	0.131	2
20	18700	1860	1	99	23.76	22.83	22.91	19.16	0.368	0.297	0.303	0.128	2
20	18700	1860	100	0	22.93	21.96	22.01	18.55	0.304	0.243	0.246	0.111	2
20	18900	1880	1	0	23.83	23.25	21.99	19.49	0.374	0.327	0.245	0.138	2
20	18900	1880	1	49	23.83	23.18	22.20	19.35	0.374	0.322	0.257	0.133	2
20	18900	1880	1	99	23.68	22.95	21.86	19.51	0.361	0.305	0.238	0.138	2
20	18900	1880	100	0	22.81	21.84	20.86	18.60	0.296	0.237	0.189	0.112	2
20	19100	1900	1	0	23.82	23.25	22.11	19.46	0.373	0.327	0.252	0.137	2
20	19100	1900	1	49	23.74	23.21	22.16	19.19	0.366	0.324	0.255	0.129	2
20	19100	1900	1	99	23.72	23.02	22.05	19.42	0.365	0.310	0.248	0.136	2
20	19100	1900	100	0	22.87	21.87	20.86	18.66	0.300	0.238	0.189	0.114	2

Note:

According to KDB 412172 D01 Section 1.2 Power Approach

EIRP = PT + GT - LC = ERP + 2.15 dB, ERP = EIRP - 2.15 dB

PT = transmitter output power in dBm

GT = gain of the transmitting antenna in dBi

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

5GNR n2															
Mode					Conducted Power					EIRP Power					Limit
BW (MHz)	Channel	Frequency (MHz)	RB No.	RB offset	PI/2 BPSK (dBm)	QPSK (dBm)	16-QAM (dBm)	64-QAM (dBm)	256-QAM (dBm)	PI/2 BPSK EIRP(W)	QPSK EIRP(W)	16-QAM EIRP(W)	64-QAM EIRP(W)	256-QAM EIRP(W)	Limit EIRP(W)
5	370500	1852.5	1	0	23.23	22.74	21.88	21.33	19.51	0.326	0.291	0.239	0.210	0.138	2
5	370500	1852.5	1	13	23.86	23.64	22.87	21.27	19.53	0.377	0.358	0.300	0.207	0.139	2
5	370500	1852.5	1	24	23.07	22.75	21.81	21.21	19.43	0.314	0.292	0.235	0.205	0.136	2
5	370500	1852.5	25	0	23.25	22.78	21.77	21.19	19.25	0.327	0.294	0.233	0.204	0.130	2
5	376000	1880	1	0	23.28	22.82	21.87	21.50	19.61	0.330	0.296	0.238	0.219	0.142	2
5	376000	1880	1	13	23.87	23.71	22.87	21.40	19.58	0.378	0.364	0.300	0.214	0.141	2
5	376000	1880	1	24	23.14	22.81	22.06	21.55	19.56	0.319	0.296	0.249	0.221	0.140	2
5	376000	1880	25	0	23.35	22.81	21.80	21.30	21.30	0.335	0.296	0.234	0.209	0.209	2
5	381500	1907.5	1	0	23.14	22.67	21.86	21.44	19.56	0.319	0.286	0.238	0.216	0.140	2
5	381500	1907.5	1	13	23.76	23.68	22.90	21.38	19.67	0.368	0.361	0.302	0.213	0.144	2
5	381500	1907.5	1	24	23.10	22.63	21.88	21.45	19.59	0.316	0.284	0.239	0.216	0.141	2
5	381500	1907.5	25	0	23.25	22.71	21.76	21.18	19.23	0.327	0.289	0.232	0.203	0.130	2
10	371000	1855	1	0	23.19	22.62	21.92	21.17	19.57	0.323	0.283	0.241	0.203	0.140	2
10	371000	1855	1	26	23.73	23.64	22.80	21.38	19.80	0.366	0.358	0.295	0.213	0.148	2
10	371000	1855	1	51	23.10	22.78	21.83	21.12	19.49	0.316	0.294	0.236	0.200	0.138	2
10	371000	1855	50	0	23.15	22.71	21.74	21.20	19.22	0.320	0.289	0.231	0.204	0.129	2
10	371000	1855	50	2	23.22	22.70	21.69	21.19	19.23	0.325	0.288	0.229	0.204	0.130	2
10	376000	1880	1	0	23.13	22.81	21.92	21.21	19.52	0.318	0.296	0.241	0.205	0.139	2
10	376000	1880	1	26	23.80	23.70	22.94	21.38	19.61	0.372	0.363	0.305	0.213	0.142	2
10	376000	1880	1	51	23.21	22.91	21.89	21.31	19.51	0.324	0.303	0.239	0.209	0.138	2
10	376000	1880	50	0	23.29	22.76	21.83	21.31	19.28	0.330	0.292	0.236	0.209	0.131	2
10	376000	1880	50	2	23.29	22.75	21.84	21.29	19.29	0.330	0.292	0.237	0.208	0.132	2
10	381000	1905	1	0	23.24	22.76	21.91	21.27	19.57	0.327	0.292	0.240	0.207	0.140	2
10	381000	1905	1	26	23.72	23.68	22.80	21.25	19.58	0.365	0.361	0.295	0.207	0.141	2
10	381000	1905	1	51	23.14	22.71	21.85	21.32	19.60	0.319	0.289	0.237	0.210	0.141	2
10	381000	1905	50	0	23.23	22.65	21.75	21.24	19.26	0.326	0.285	0.232	0.206	0.131	2
10	381000	1905	50	2	23.22	22.64	21.81	21.25	19.23	0.325	0.284	0.235	0.207	0.130	2

15	371500	1857.5	1	0	23.34	22.80	22.08	21.43	19.85	0.334	0.295	0.250	0.215	0.150	2
15	371500	1857.5	1	39	**23.95**	23.86	23.04	21.45	19.74	0.385	0.377	0.312	0.216	0.146	2
15	371500	1857.5	1	78	23.30	22.89	22.16	21.45	19.80	0.331	0.301	0.255	0.216	0.148	2
15	371500	1857.5	75	0	23.44	22.91	21.93	21.41	19.46	0.342	0.303	0.242	0.214	0.137	2
15	371500	1857.5	75	4	23.36	22.96	21.95	21.39	19.42	0.336	0.306	0.243	0.213	0.136	2
15	376000	1880	1	0	23.36	22.83	22.09	21.36	19.73	0.336	0.297	0.251	0.212	0.146	2
15	376000	1880	1	39	23.91	23.89	22.98	21.46	19.92	0.381	0.379	0.308	0.217	0.152	2
15	376000	1880	1	78	23.35	22.91	22.05	21.47	19.74	0.335	0.303	0.248	0.217	0.146	2
15	376000	1880	75	0	23.43	22.93	21.99	21.41	19.46	0.341	0.304	0.245	0.214	0.137	2
15	376000	1880	75	4	23.41	22.90	22.03	21.44	19.48	0.340	0.302	0.247	0.216	0.137	2
15	380500	1902.5	1	0	23.33	22.84	22.04	21.34	19.71	0.333	0.298	0.248	0.211	0.145	2
15	380500	1902.5	1	39	23.84	23.82	22.98	21.44	19.72	0.375	0.373	0.308	0.216	0.145	2
15	380500	1902.5	1	78	23.29	22.78	22.08	21.35	19.64	0.330	0.294	0.250	0.211	0.143	2
15	380500	1902.5	75	0	23.38	22.88	21.86	21.38	19.41	0.337	0.301	0.238	0.213	0.135	2
15	380500	1902.5	75	4	23.35	22.87	21.90	21.42	19.35	0.335	0.300	0.240	0.215	0.133	2
20	372000	1860	1	0	23.25	22.82	21.95	21.25	19.53	0.327	0.296	0.243	0.207	0.139	2
20	372000	1860	1	53	23.86	23.84	22.97	21.35	19.83	0.377	0.375	0.307	0.211	0.149	2
20	372000	1860	1	105	23.32	22.89	22.04	21.38	19.61	0.333	0.301	0.248	0.213	0.142	2
20	372000	1860	100	0	23.37	22.86	21.88	21.32	19.34	0.337	0.299	0.239	0.210	0.133	2
20	372000	1860	100	6	23.34	22.86	21.86	21.35	19.28	0.334	0.299	0.238	0.211	0.131	2
20	376000	1880	1	0	23.28	22.81	22.05	21.31	19.61	0.330	0.296	0.248	0.209	0.142	2
20	376000	1880	1	53	23.81	23.74	23.02	21.40	19.93	0.372	0.366	0.310	0.214	0.152	2
20	376000	1880	1	105	23.38	22.91	22.07	21.37	19.75	0.337	0.303	0.249	0.212	0.146	2
20	376000	1880	100	0	23.28	22.77	21.78	21.36	19.27	0.330	0.293	0.233	0.212	0.131	2
20	376000	1880	100	6	23.32	22.81	21.82	21.32	19.28	0.333	0.296	0.236	0.210	0.131	2
20	380000	1900	1	0	23.34	22.92	21.96	21.34	19.70	0.334	0.303	0.243	0.211	0.145	2
20	380000	1900	1	53	23.88	23.85	22.98	21.38	19.74	0.378	0.376	0.308	0.213	0.146	2
20	380000	1900	1	105	23.26	22.85	21.99	21.37	19.66	0.328	0.299	0.245	0.212	0.143	2
20	380000	1900	100	0	23.41	22.91	21.84	21.40	19.35	0.340	0.303	0.237	0.214	0.133	2
20	380000	1900	100	6	23.37	22.87	21.91	21.43	19.42	0.337	0.300	0.240	0.215	0.136	2

Note:

According to KDB 412172 D01 Section 1.2 Power Approach

EIRP = PT + GT - LC = ERP + 2.15 dB, ERP = EIRP - 2.15 dB

PT = transmitter output power in dBm

GT = gain of the transmitting antenna in dBi

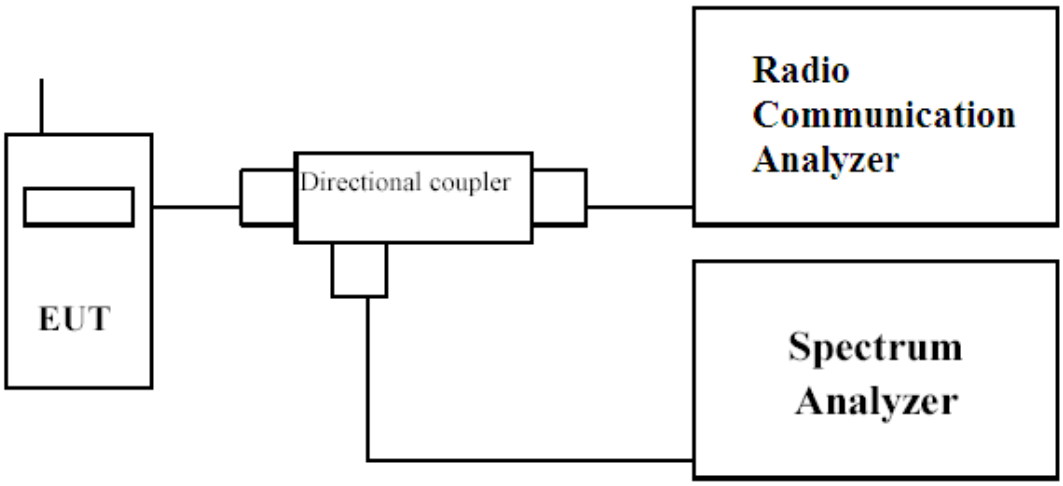
LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

4. Occupied Bandwidth

4.1 Test Secification

According to FCC Part 2.1049.

4.2 Test Setup



4.3 Test Procedure

The EUT is tested with maximum rated TX power via the Base Station simulator, and the occupied bandwidth was measured at the antenna terminals of the EUT.

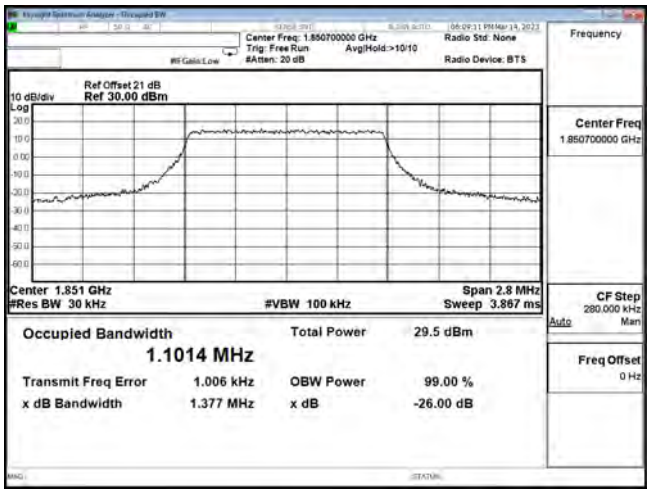
The Resolution BW of the analyzer is set to 1 %~5 % of the emission bandwidth. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The plots below show the resultant display from the Spectrum Analyzer.

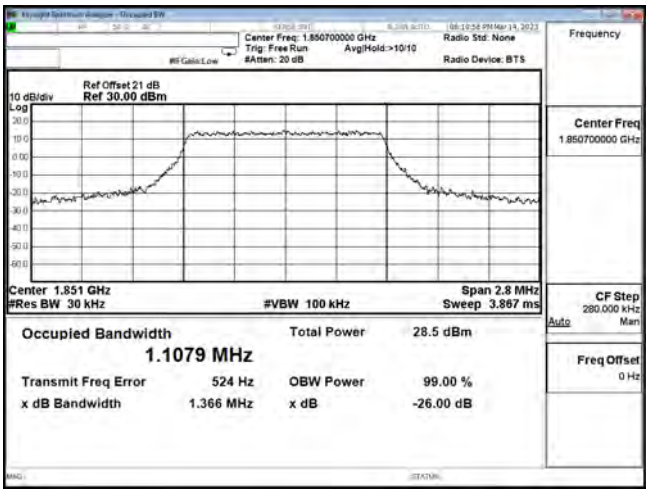
4.4 Test Result of Occupied Bandwidth

LTE Band 2						
BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
			QPSK	16QAM	64QAM	256QAM
1.4M	18607	1850.7	1.1014	1.1079	1.1023	1.1116
1.4M	18900	1880	1.1028	1.1096	1.1048	1.1137
1.4M	19193	1909.3	1.1038	1.1072	1.1052	1.1013
3M	18615	1851.5	2.7514	2.7488	2.7503	2.7486
3M	18900	1880	2.7505	2.7495	2.7591	2.7443
3M	19185	1908.5	2.7497	2.7543	2.7592	2.7499
5M	18625	1852.5	4.5147	4.5150	4.5326	4.3497
5M	18900	1880	4.5302	4.5291	4.5163	4.3462
5M	19175	1907.5	4.5154	4.5143	4.5129	4.3511
10M	18650	1855	9.0923	9.0998	9.0872	9.0769
10M	18900	1880	9.1182	9.0934	9.0994	9.0918
10M	19150	1905	9.1069	9.0974	9.0950	9.0900
15M	18675	1857.5	13.524	13.517	13.513	13.513
15M	18900	1880	13.520	13.509	13.512	13.531
15M	19125	1902.5	13.505	13.499	13.512	13.518
20M	18700	1860	18.607	18.581	18.596	18.535
20M	18900	1880	18.619	18.592	18.590	18.568
20M	19100	1900	18.623	18.599	18.628	18.569

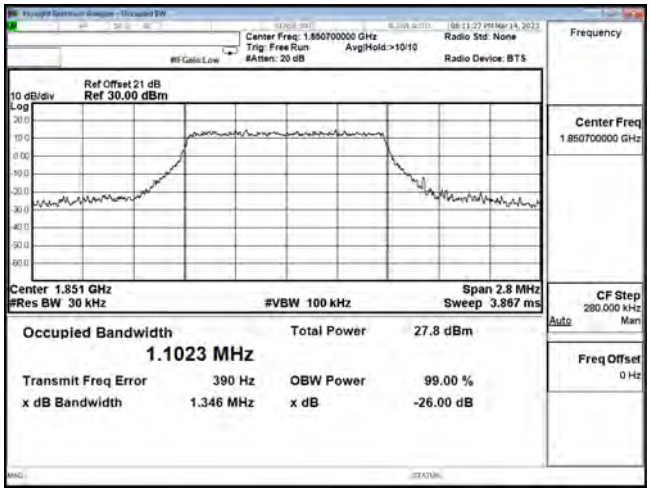
LTE Band 2						
BW	Channel	Frequency (MHz)	26 dB bandwidth (MHz)			
			QPSK	16QAM	64QAM	256QAM
1.4M	18607	1850.7	1.377	1.366	1.346	1.393
1.4M	18900	1880	1.379	1.374	1.380	1.368
1.4M	19193	1909.3	1.423	1.370	1.453	1.348
3M	18615	1851.5	3.154	3.149	3.127	3.154
3M	18900	1880	3.159	3.137	3.151	3.134
3M	19185	1908.5	3.139	3.157	3.117	3.124
5M	18625	1852.5	5.210	2.101	5.162	5.003
5M	18900	1880	5.159	5.200	5.165	5.032
5M	19175	1907.5	5.212	5.176	5.077	4.946
10M	18650	1855	10.25	10.25	10.24	10.29
10M	18900	1880	10.26	10.26	10.33	10.25
10M	19150	1905	10.29	10.27	10.18	10.18
15M	18675	1857.5	15.00	14.99	14.94	14.90
15M	18900	1880	14.97	14.99	14.90	14.99
15M	19125	1902.5	14.86	14.96	14.92	14.99
20M	18700	1860	20.58	20.67	20.72	20.78
20M	18900	1880	20.70	22.04	20.91	20.70
20M	19100	1900	20.67	21.25	20.74	20.60



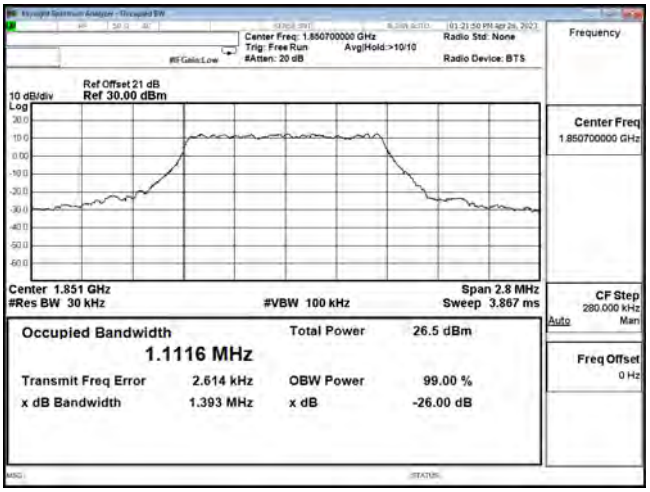
LTE BAND 2 1.4M CH18607 QPSK



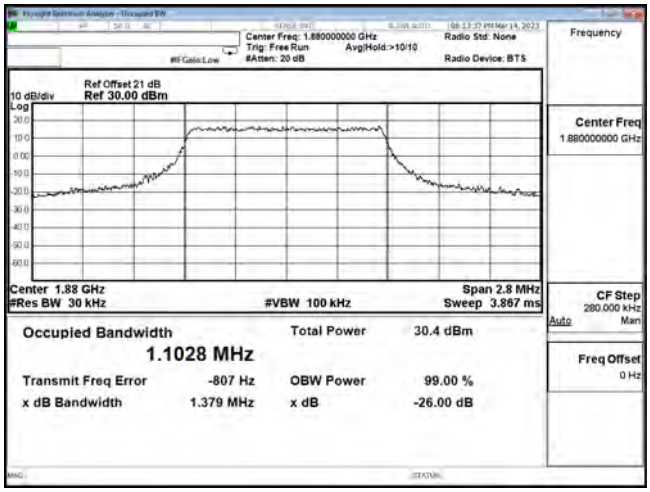
LTE BAND 2 1.4M CH18607 16QAM



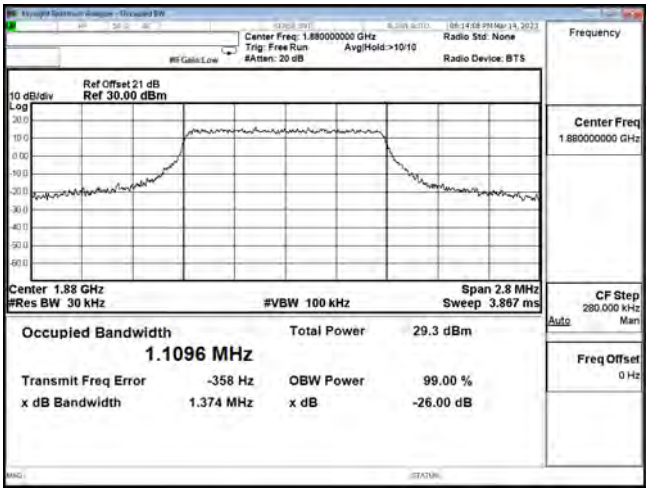
LTE BAND 2 1.4M CH18607 64QAM



LTE BAND 2 1.4M CH18607 256QAM



LTE BAND 2 1.4M CH18900 QPSK



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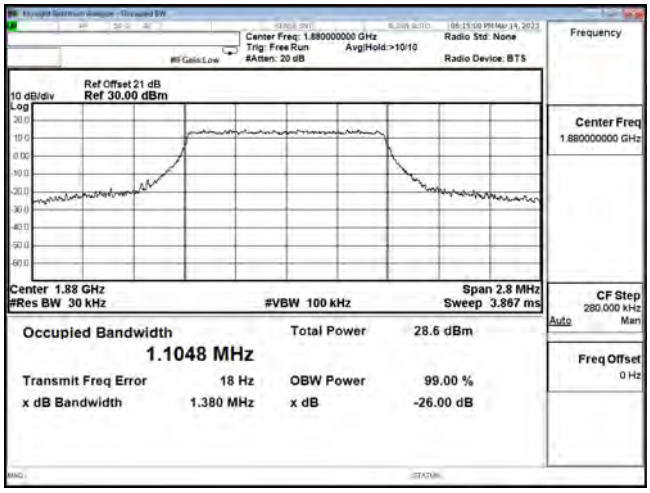

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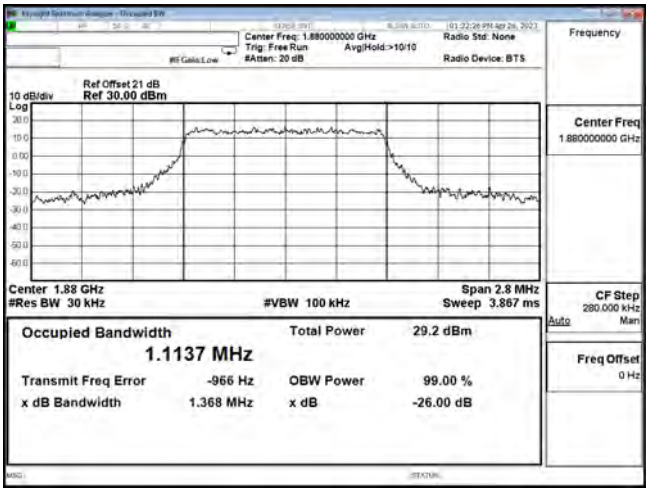

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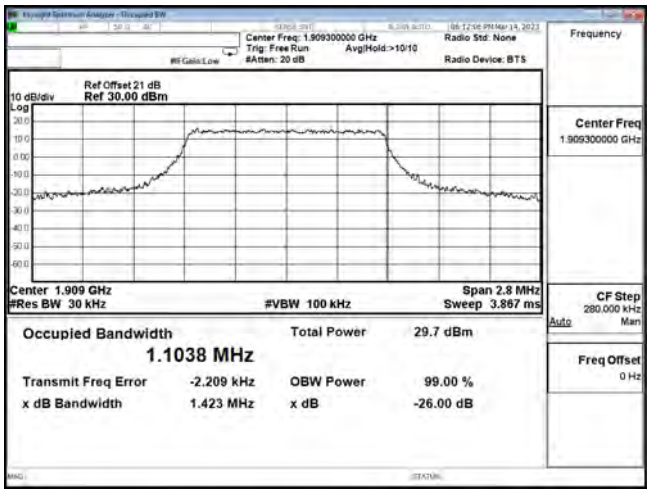
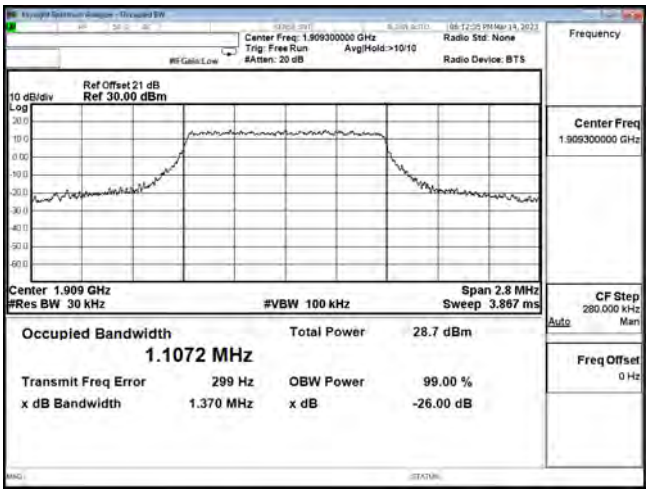


LTE BAND 2 1.4M CH19193 QPSK



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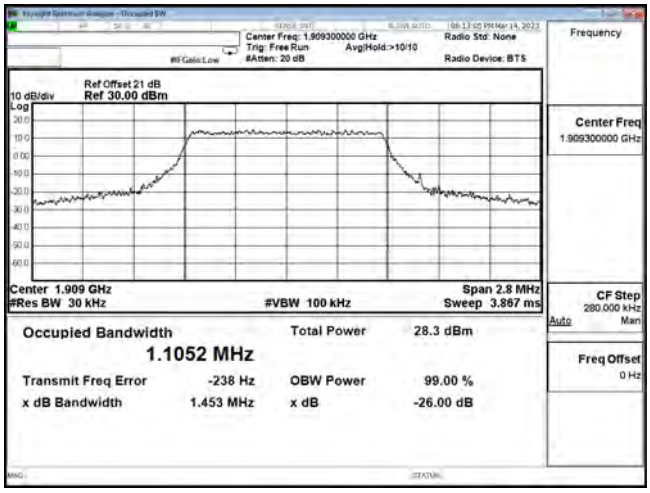

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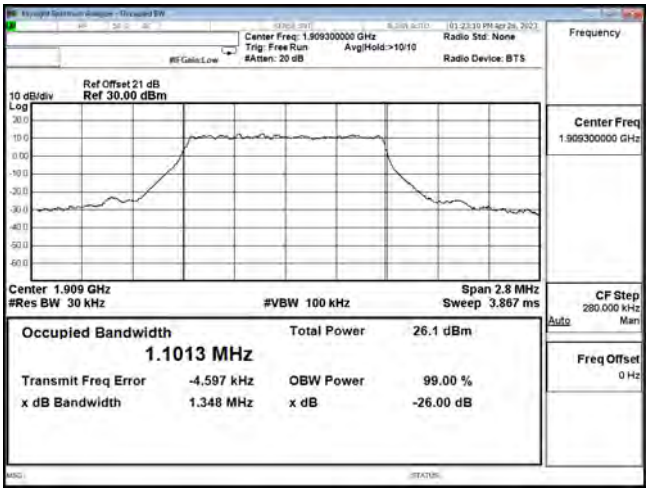
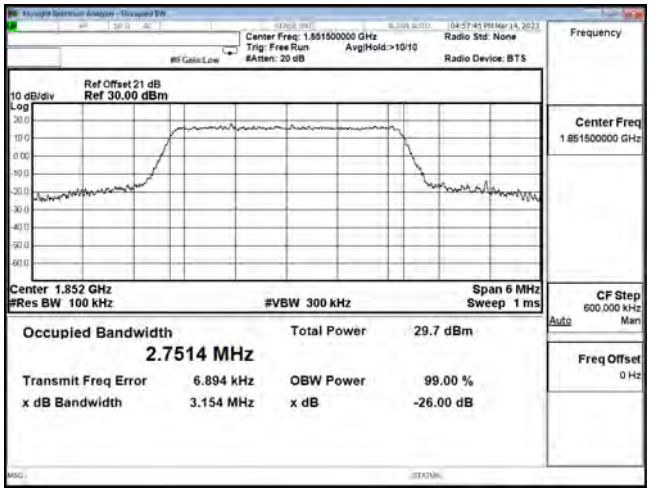
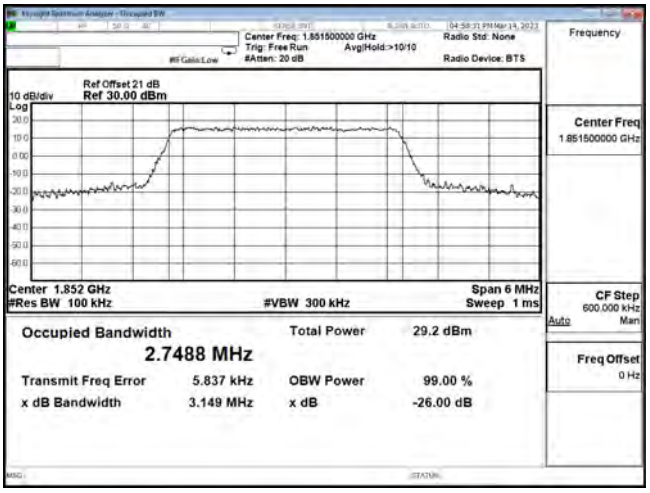


LTE BAND 2 1.4M CH19193 256QAM



LTE BAND 2 3M CH18615 QPSK



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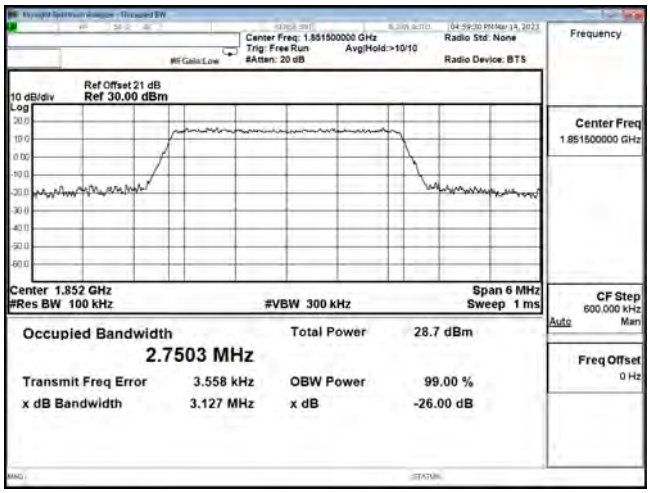

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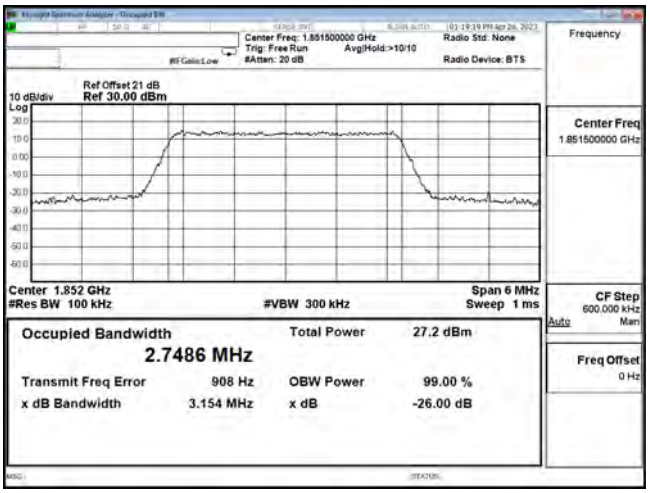

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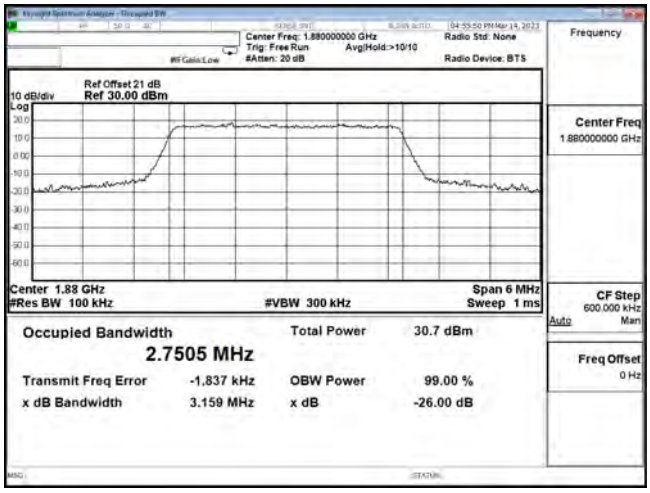

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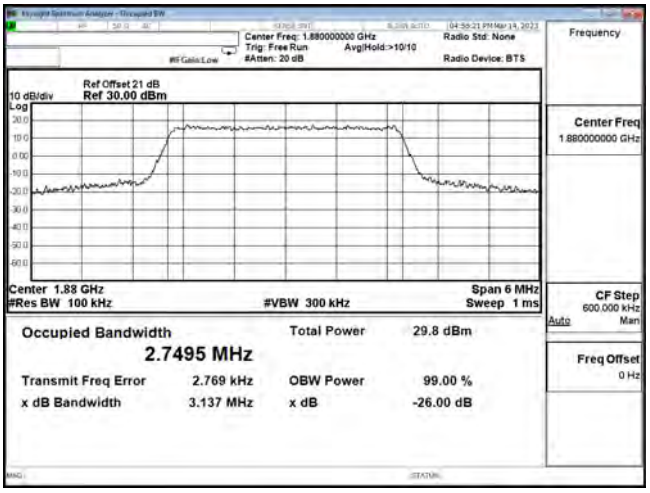

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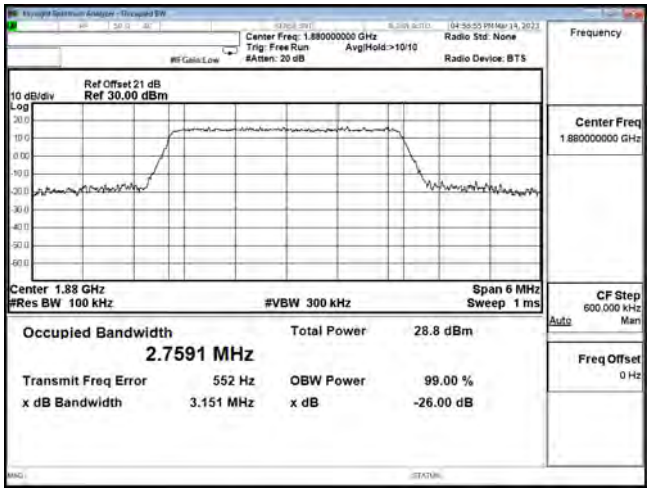

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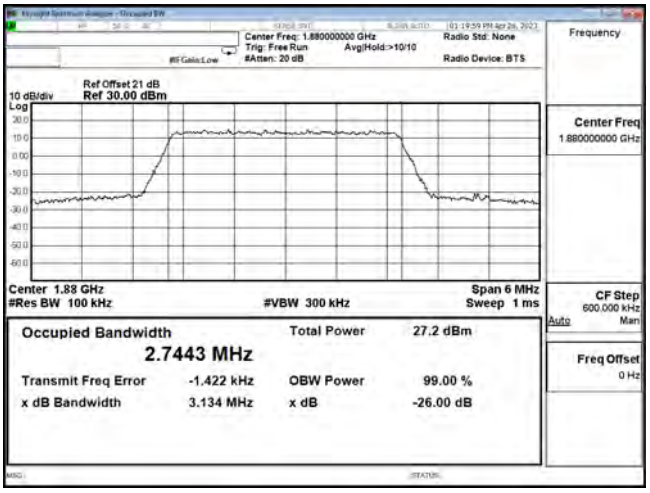

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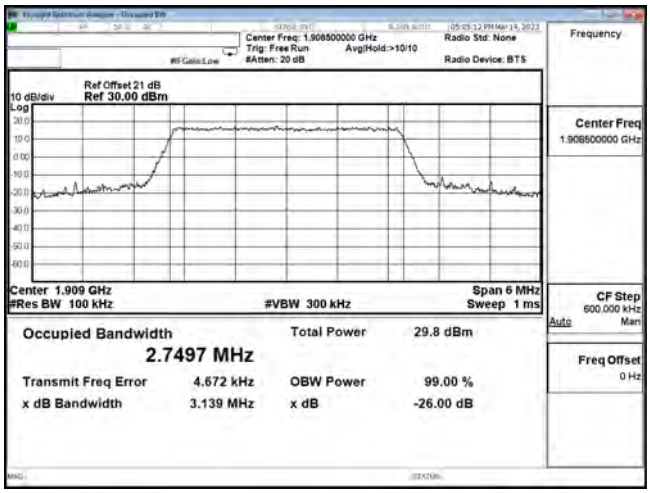

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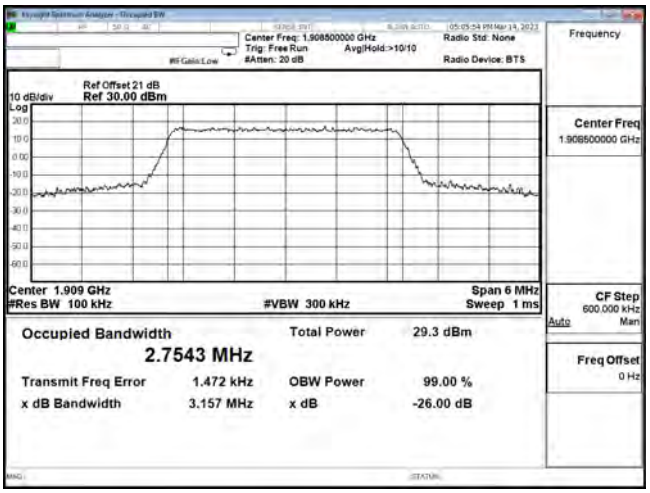

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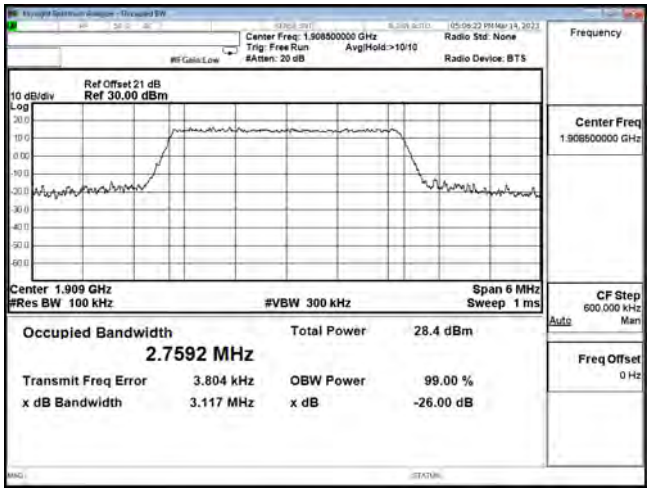

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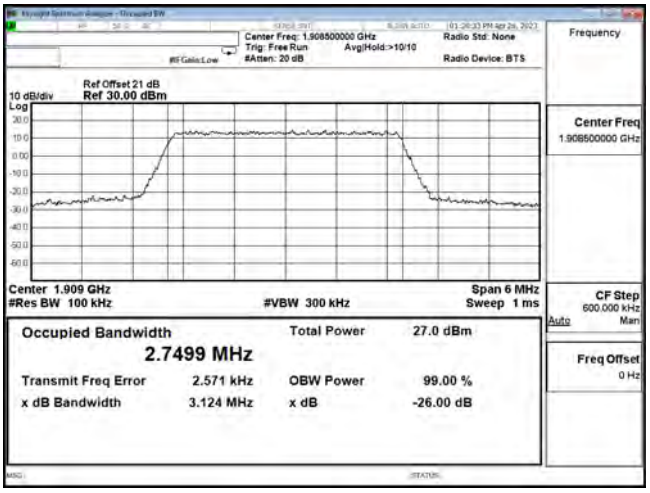

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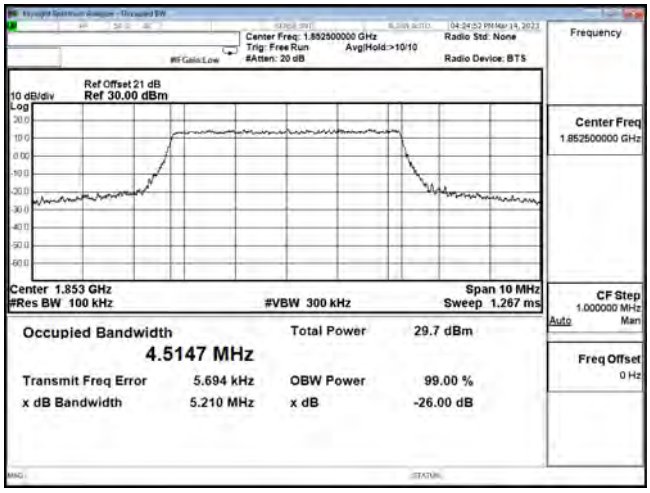

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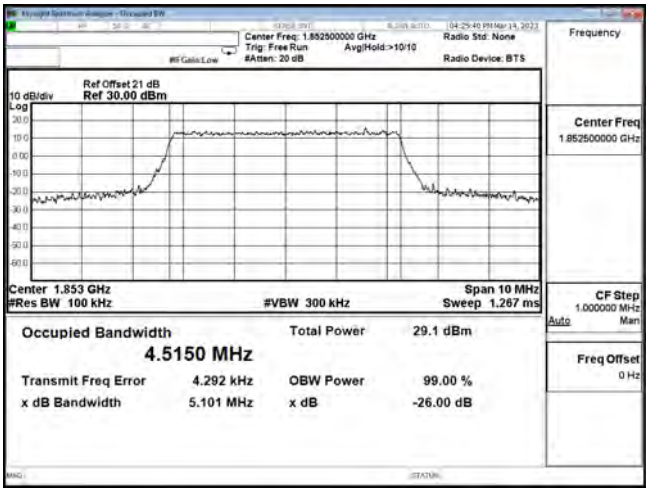

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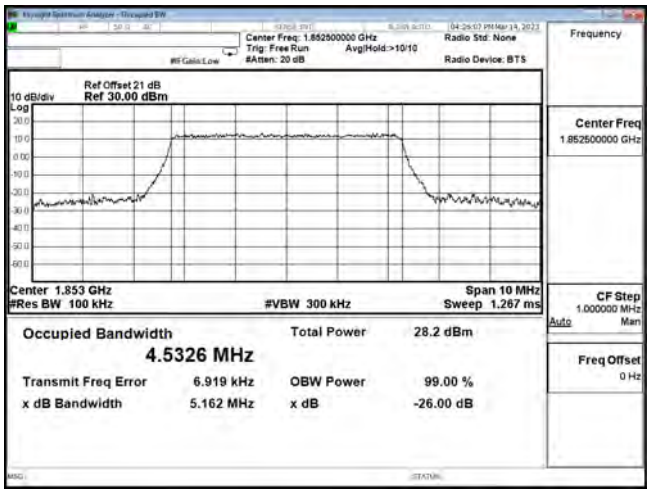

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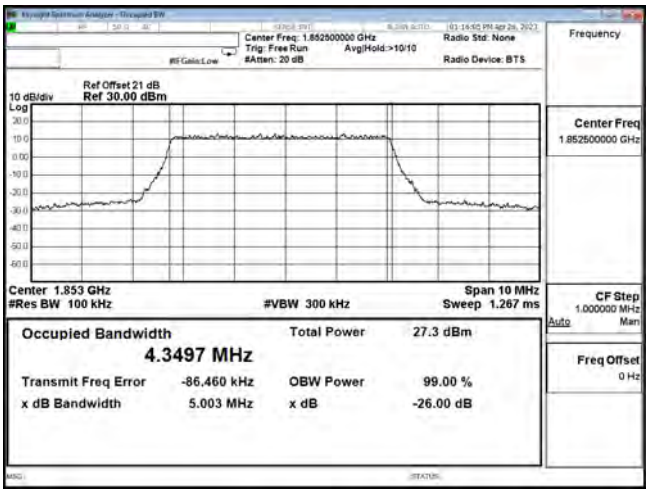

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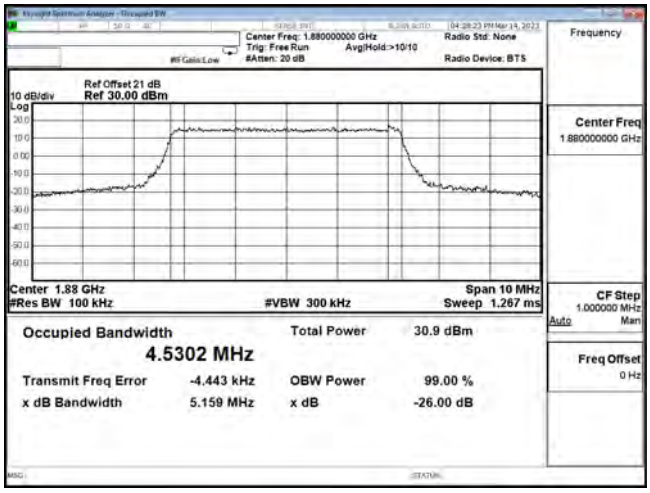
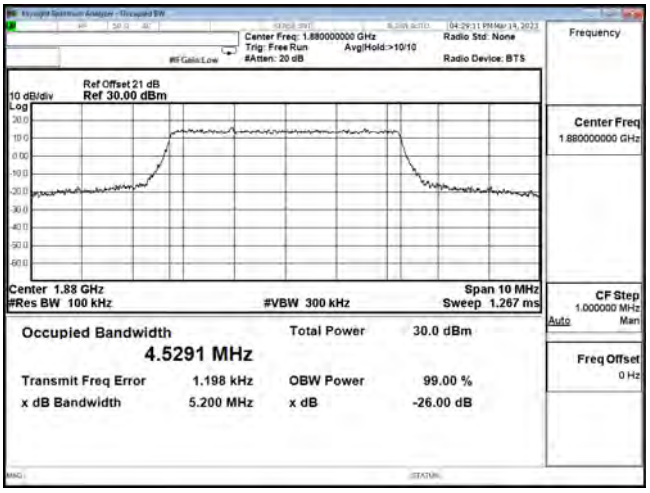
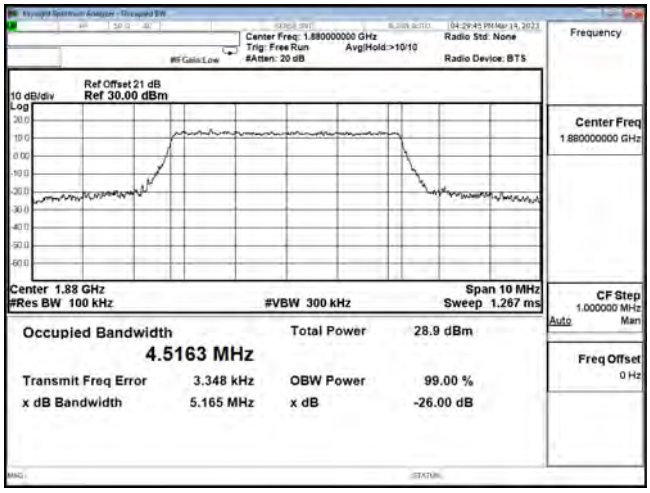


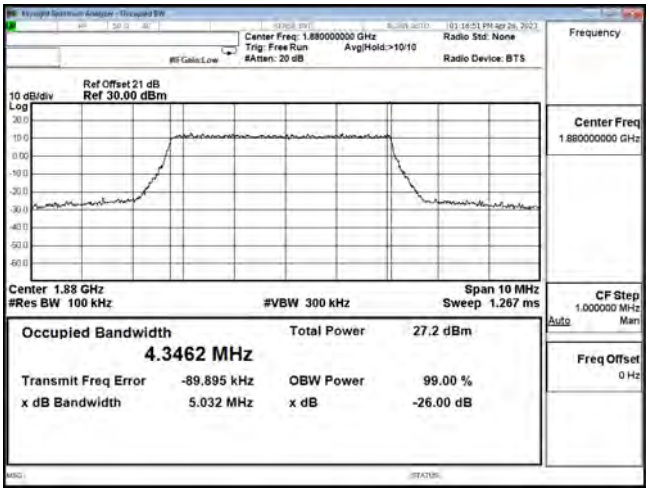
LTE BAND 2 5M CH18900 QPSK



LTE BAND 2 5M CH18900 16QAM



LTE BAND 2 5M CH18900 64QAM



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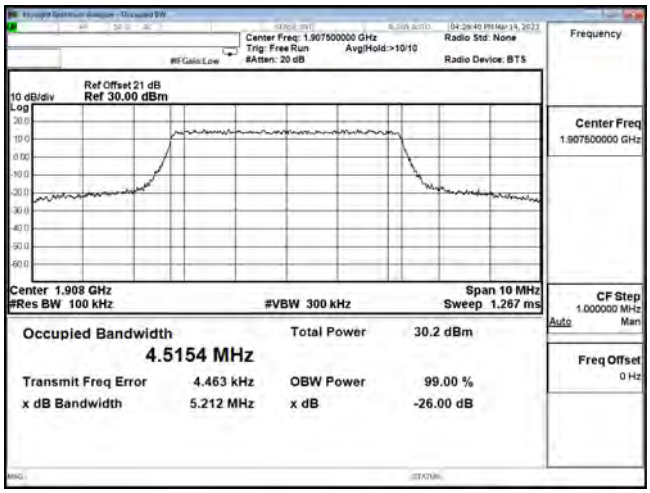
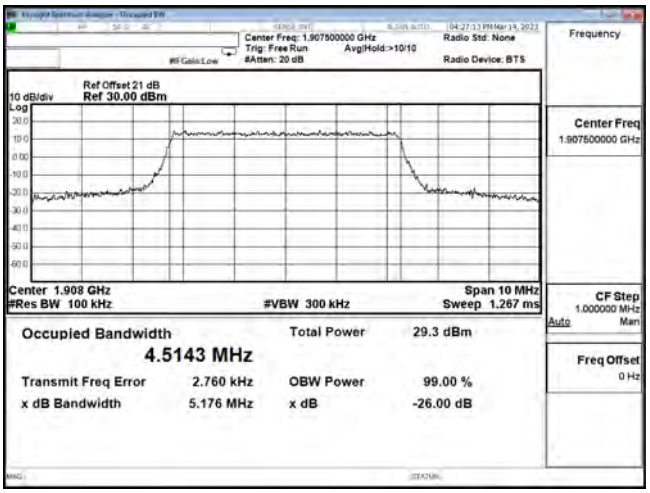


LTE BAND 2 5M CH19175 QPSK



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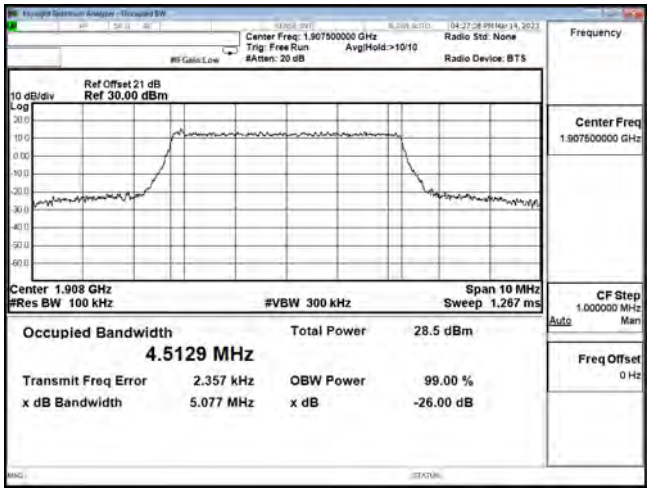

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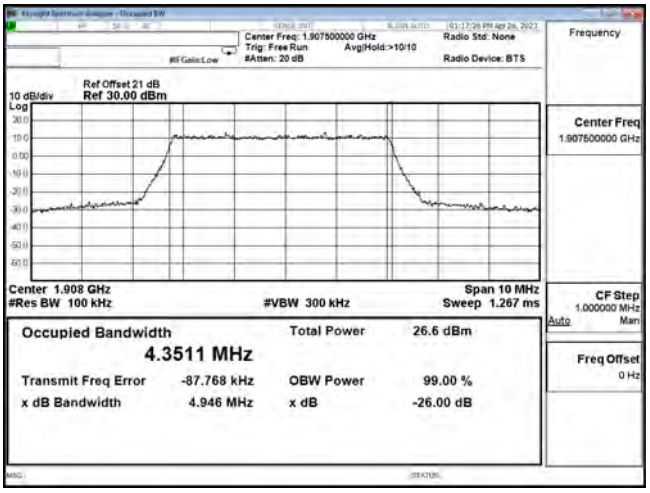

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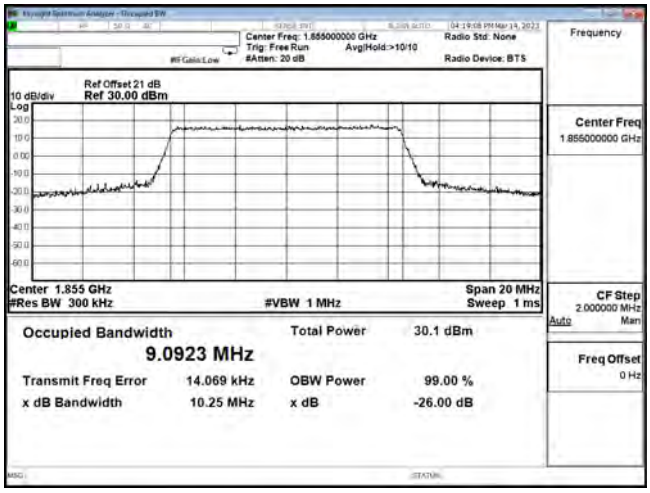
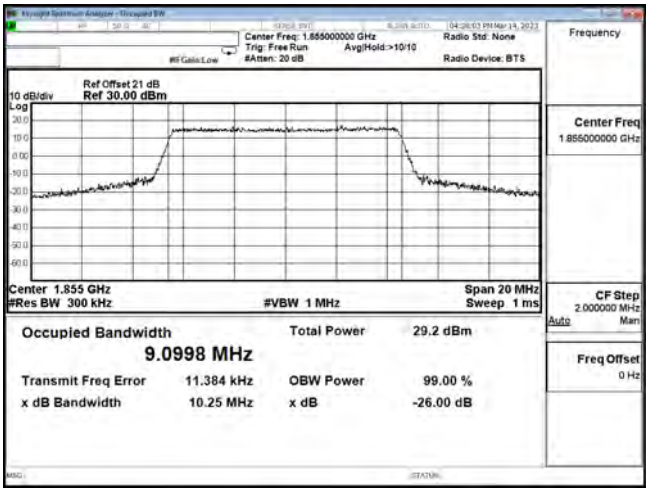


LTE BAND 2 10M CH18650 QPSK



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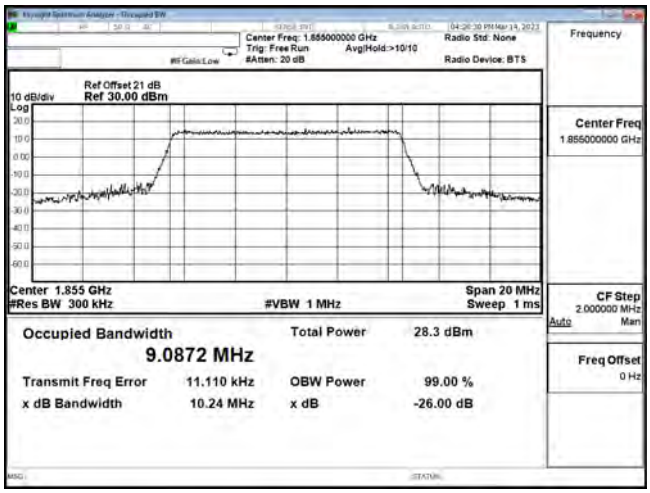

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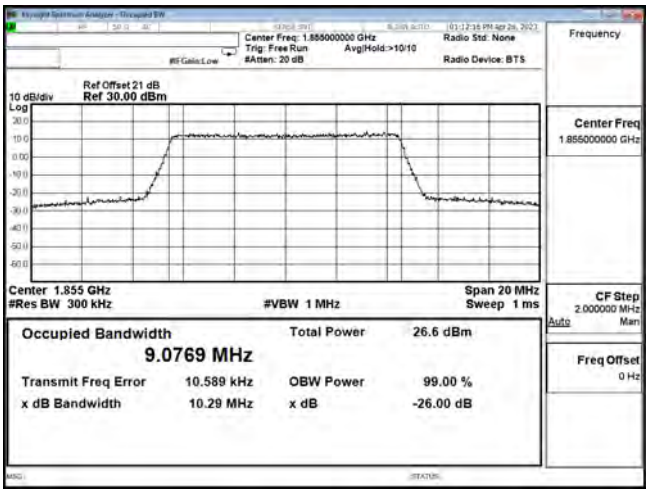

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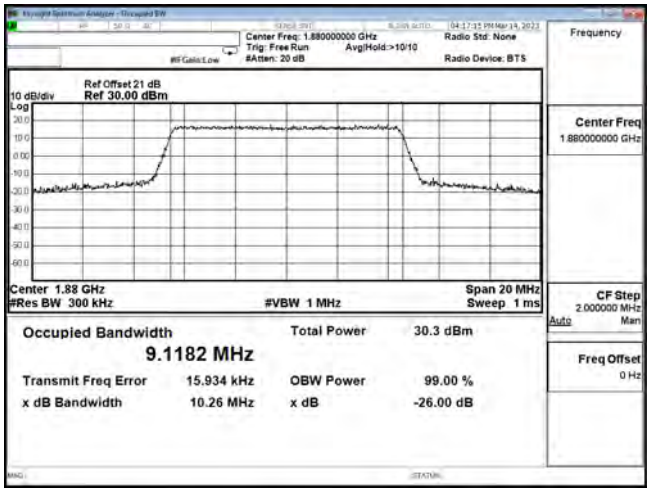

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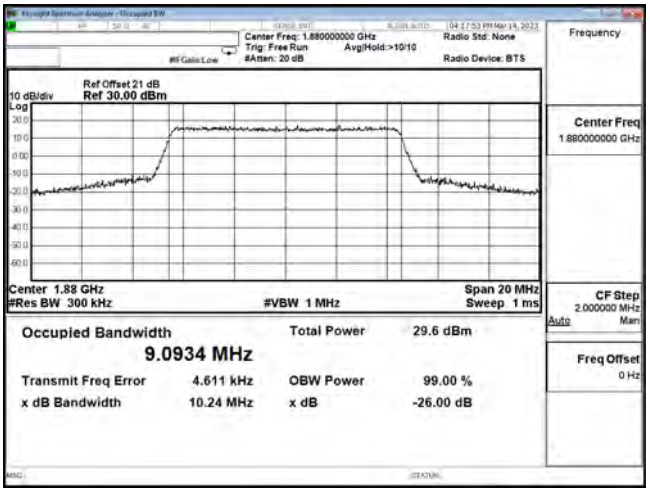

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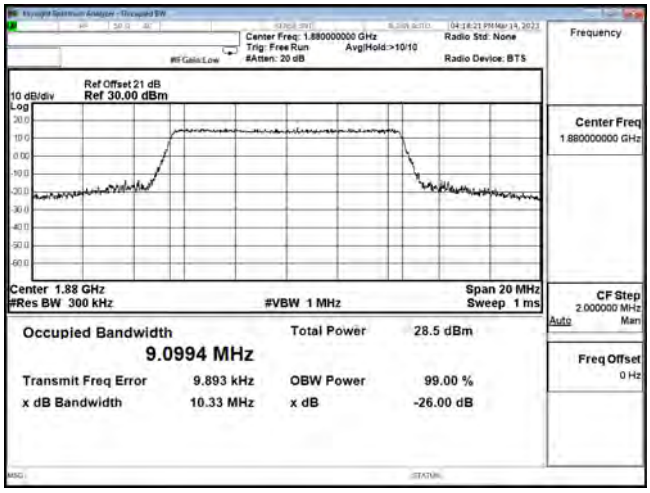

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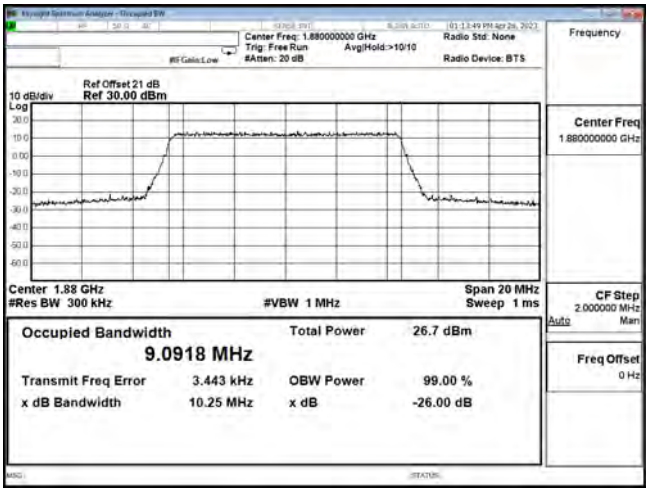

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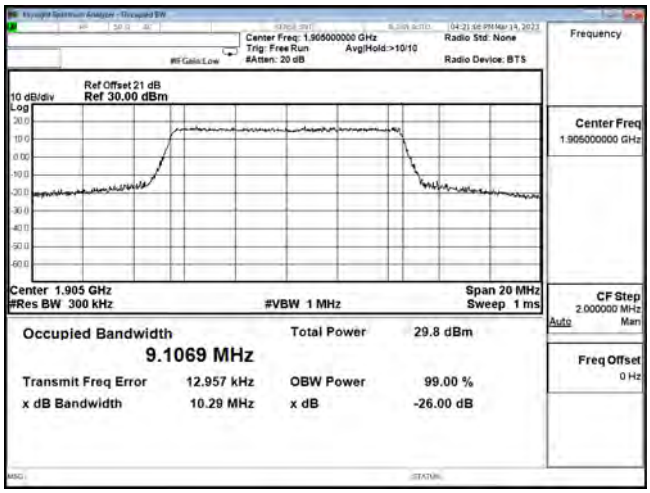

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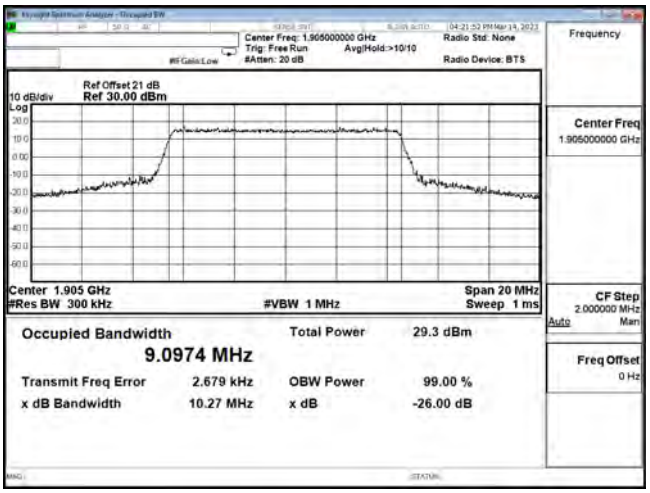

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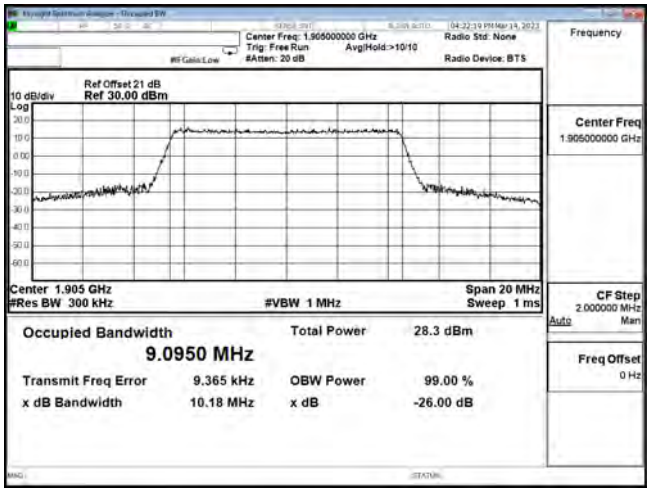

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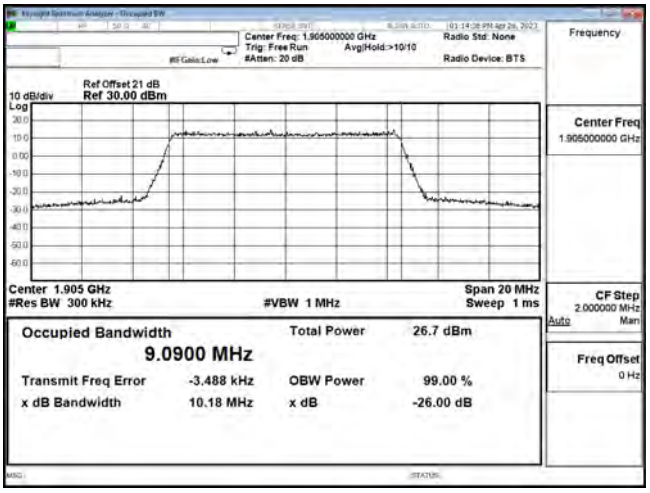

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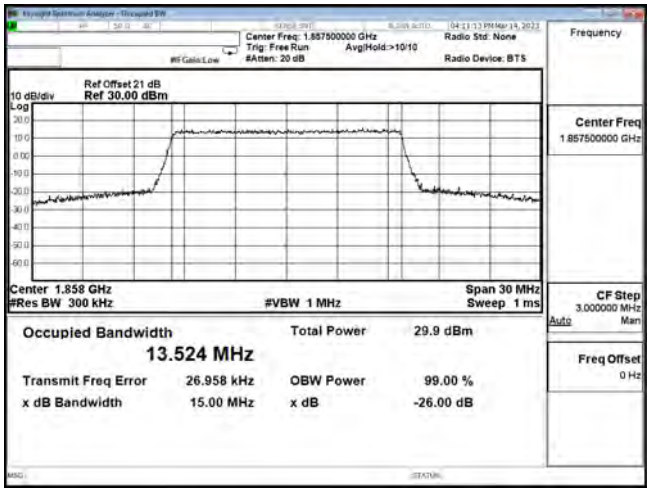

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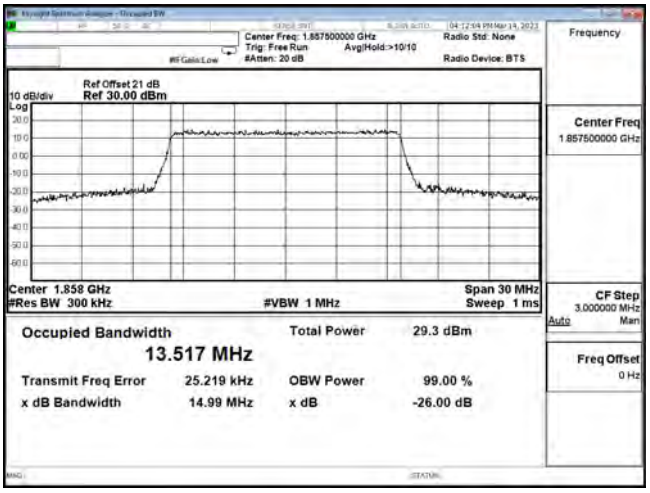

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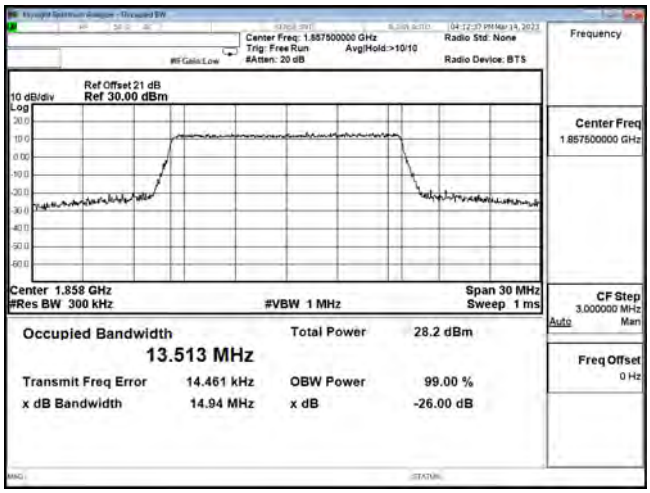

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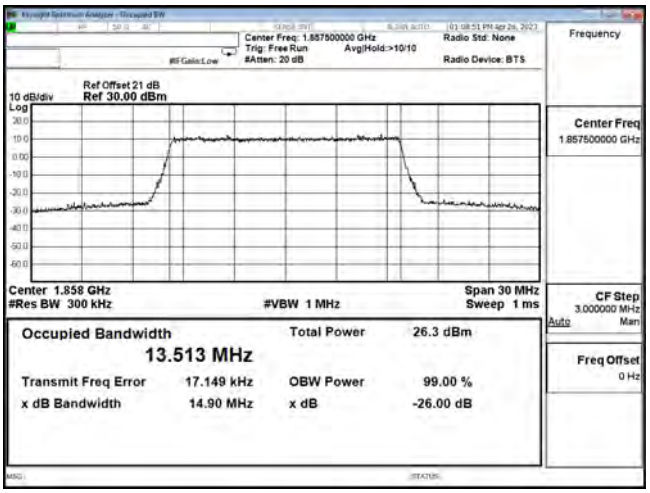

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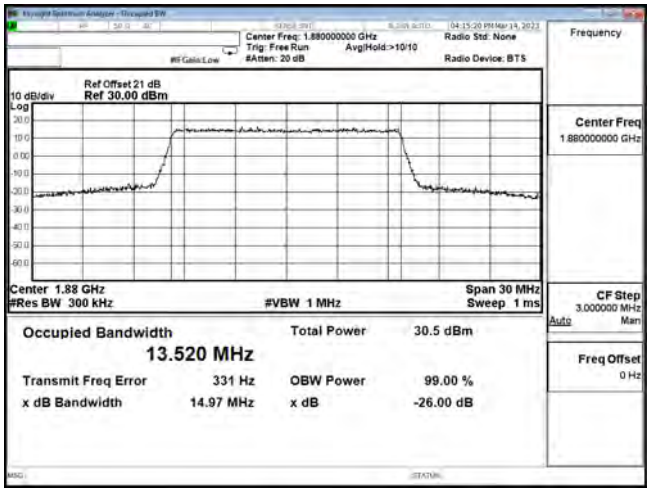

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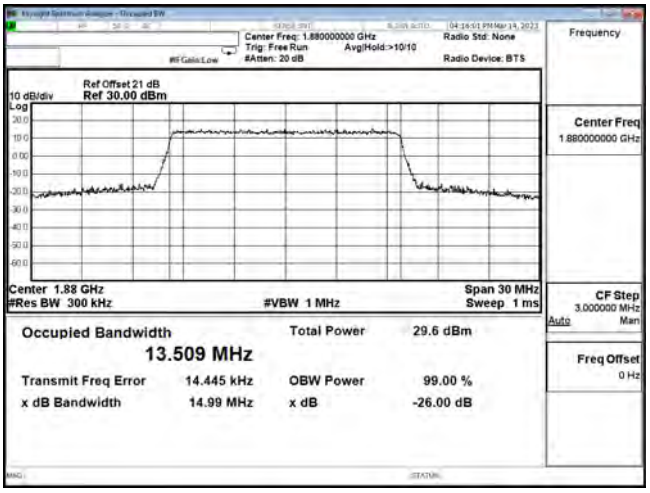

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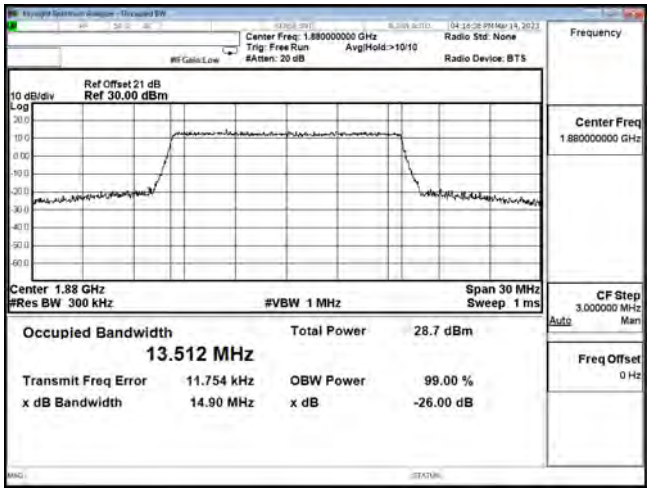

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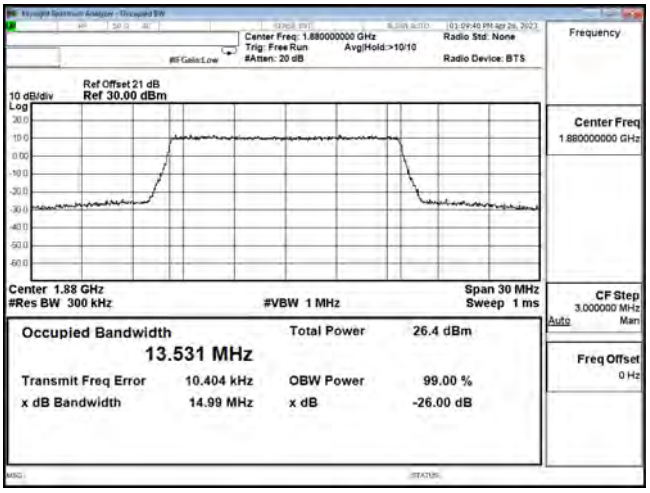

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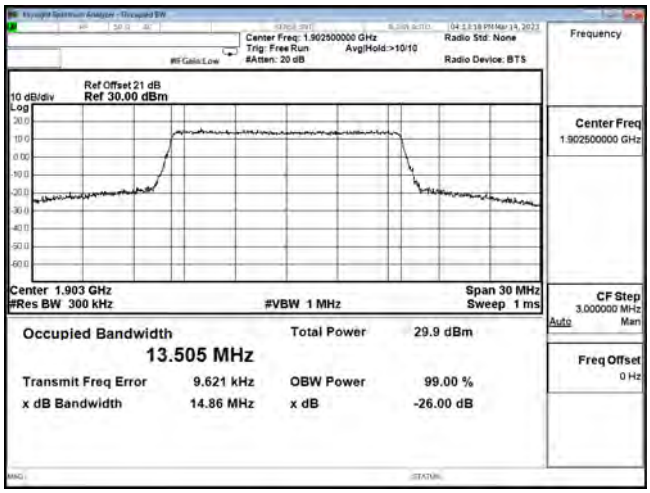

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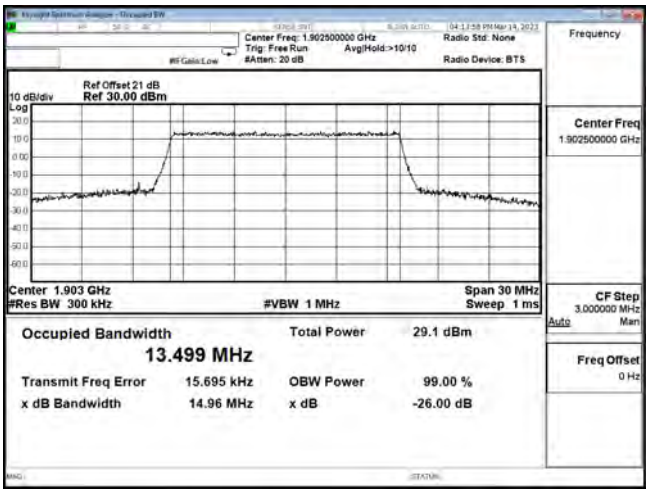

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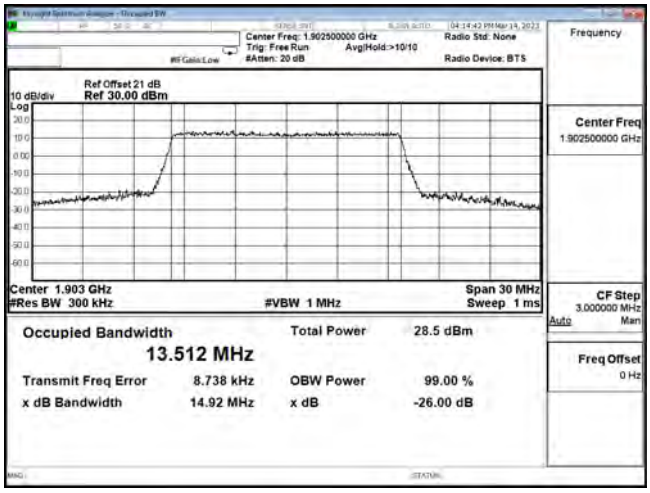

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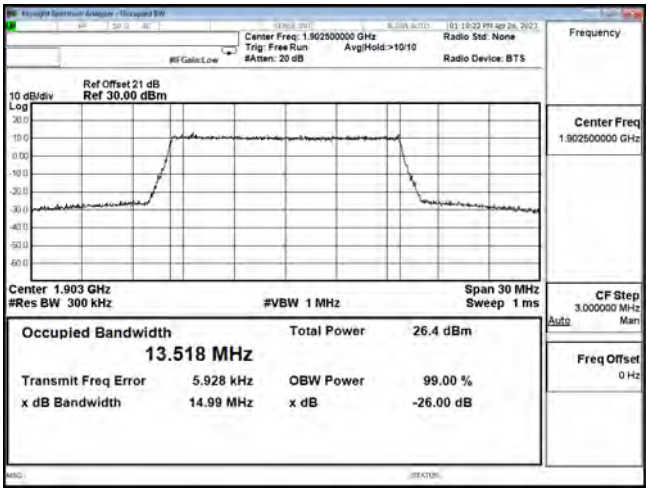

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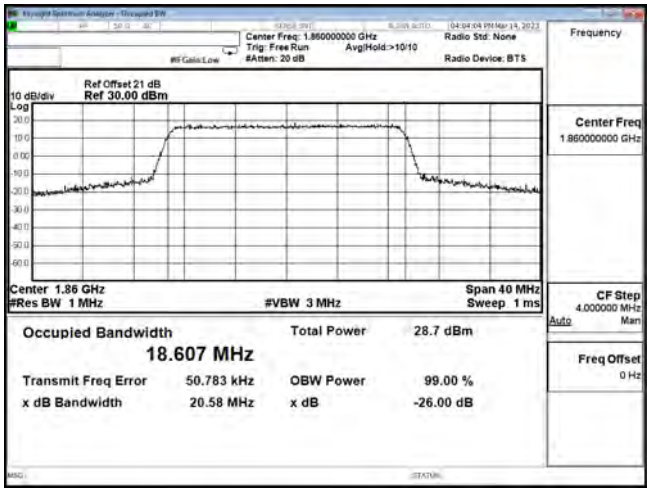

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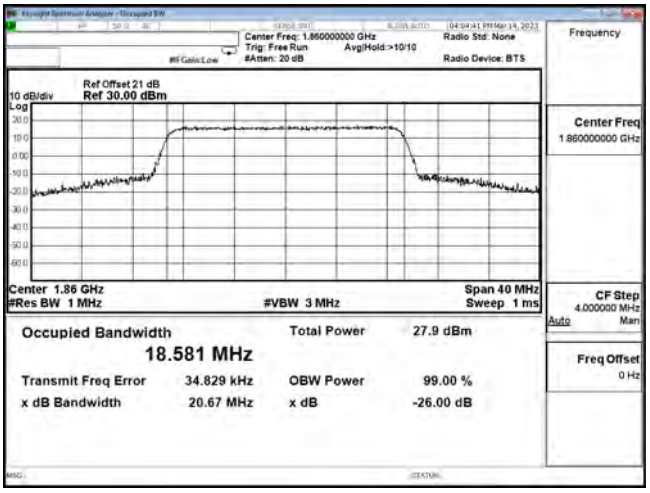

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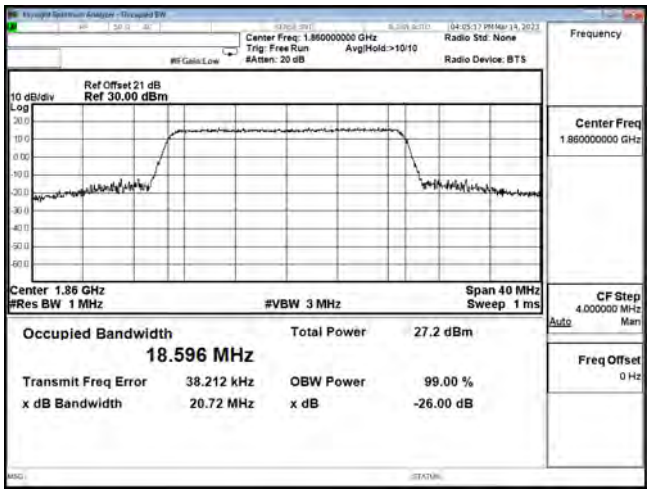

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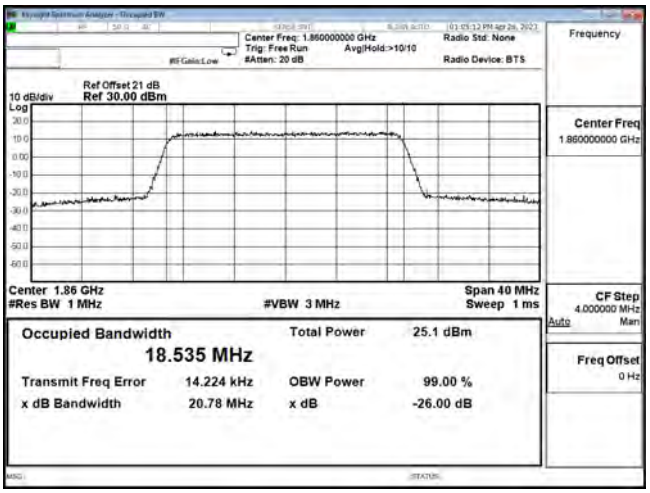

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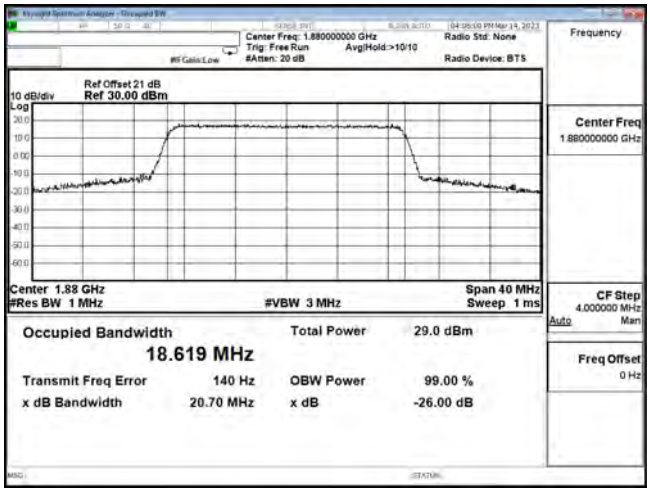

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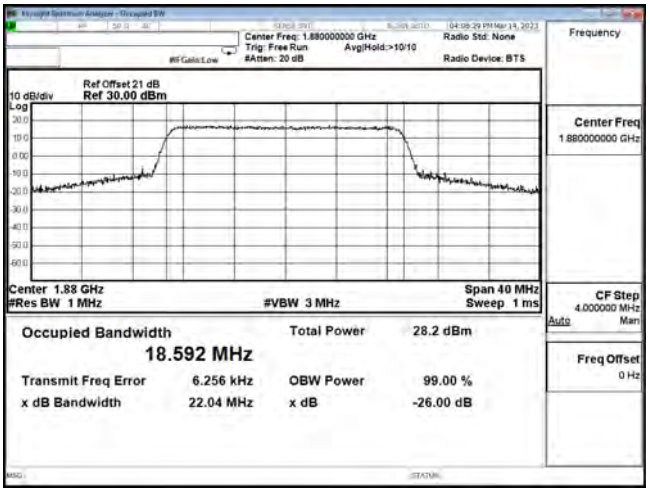

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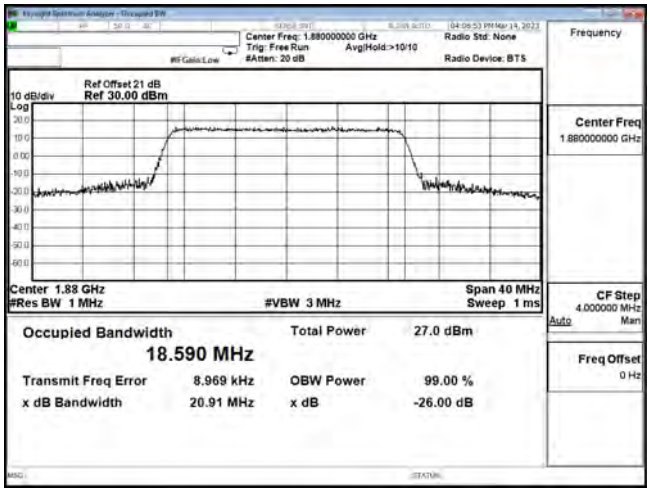

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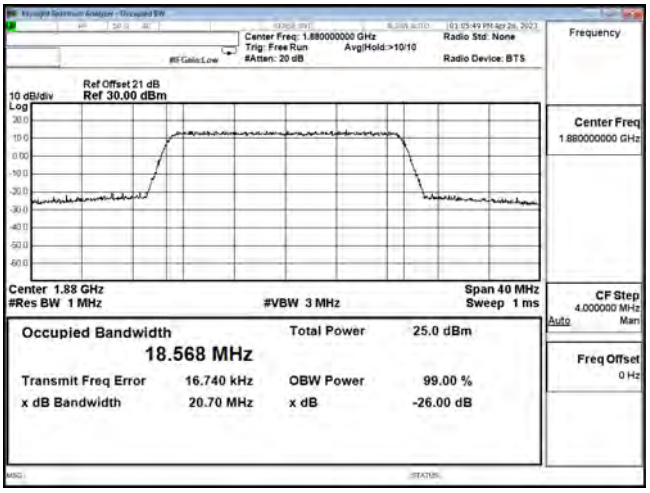

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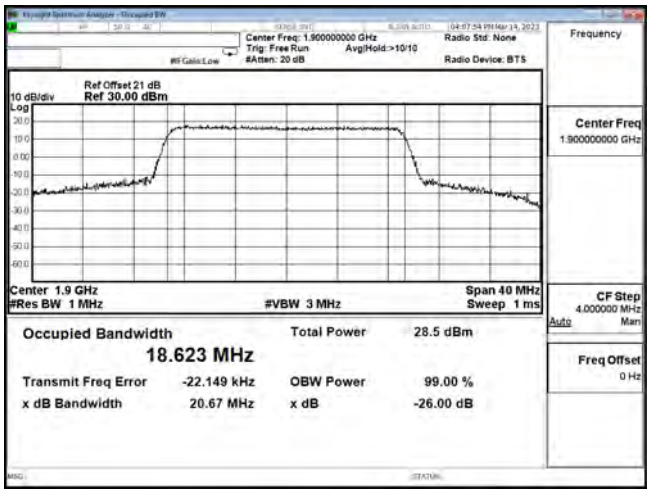
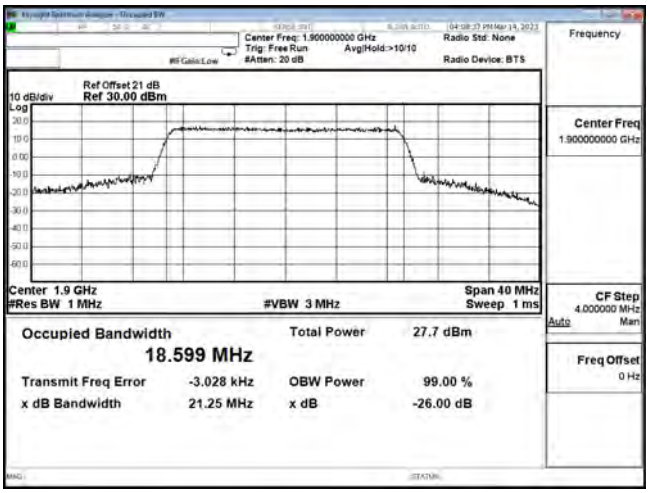


LTE BAND 2 20M CH19100 QPSK



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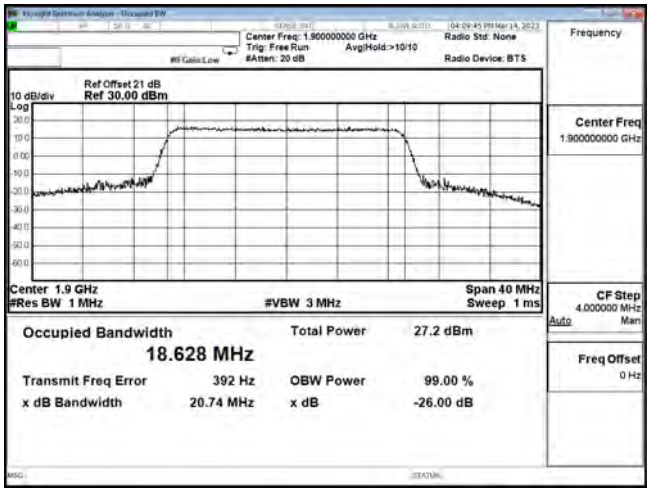

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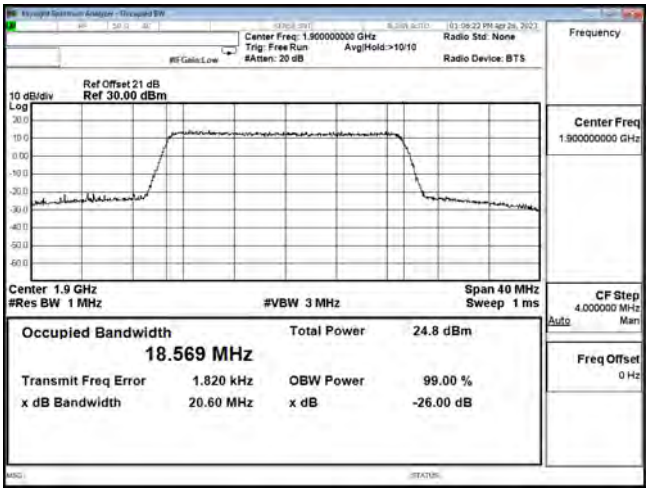
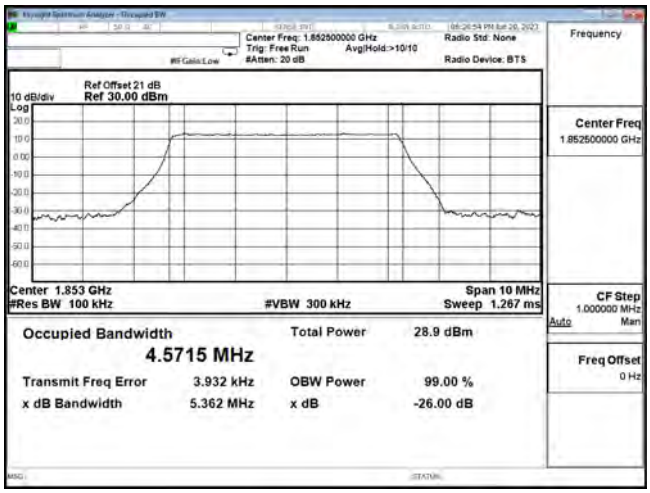


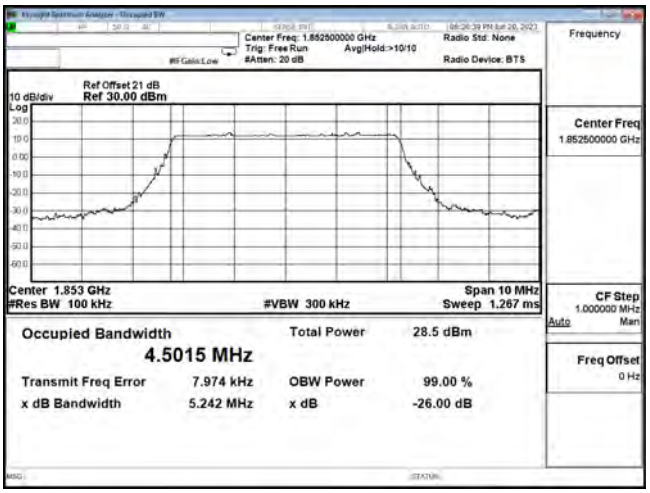
LTE BAND 2 20M CH19100 256QAM

5GNR n2						
Bandwidth (MHz)	Modulation	Channel	Frequency (MHz)	Measure Level (MHz)		Limit (MHz)
				26dB BW	99% BW	
5M	π/2-BPSK	370500	1852.5	4.572	5.362	N/A
		376000	1880	4.533	5.248	N/A
		381500	1907.5	4.518	5.208	N/A
	QPSK	370500	1852.5	4.502	5.242	N/A
		376000	1880	4.499	5.185	N/A
		381500	1907.5	4.499	5.288	N/A
	16-QAM	370500	1852.5	4.523	5.265	N/A
		376000	1880	4.515	5.177	N/A
		381500	1907.5	4.517	5.179	N/A
	64-QAM	370500	1852.5	4.512	5.199	N/A
		376000	1880	4.510	5.126	N/A
		381500	1907.5	4.499	5.185	N/A
	256-QAM	370500	1852.5	4.557	5.313	N/A
		376000	1880	4.516	5.287	N/A
		381500	1907.5	4.543	5.271	N/A
10M	π/2-BPSK	371000	1855	9.035	9.932	N/A
		376000	1880	9.031	9.931	N/A
		381000	1905	9.025	9.972	N/A
	QPSK	371000	1855	9.050	10.020	N/A
		376000	1880	9.061	9.997	N/A
		381000	1905	9.057	10.070	N/A
	16-QAM	371000	1855	9.046	9.942	N/A
		376000	1880	9.028	9.977	N/A
		381000	1905	9.023	9.930	N/A
	64-QAM	371000	1855	9.035	10.010	N/A
		376000	1880	9.051	10.030	N/A
		381000	1905	9.039	10.090	N/A
	256-QAM	371000	1855	9.086	9.988	N/A
		376000	1880	9.092	10.050	N/A
		381000	1905	9.099	10.070	N/A
15M	π/2-BPSK	371500	1857.5	13.462	14.570	N/A
		376000	1880	13.461	14.520	N/A
		380500	1902.5	13.479	14.570	N/A
	QPSK	371500	1857.5	13.477	14.490	N/A
		376000	1880	13.483	14.590	N/A
		380500	1902.5	13.493	14.520	N/A
	16-QAM	371500	1857.5	13.483	14.530	N/A
		376000	1880	13.473	14.470	N/A
		380500	1902.5	13.495	14.620	N/A
	64-QAM	371500	1857.5	13.473	14.520	N/A
		376000	1880	13.470	14.590	N/A
		380500	1902.5	13.488	14.520	N/A
	256-QAM	371500	1857.5	13.446	14.540	N/A
		376000	1880	13.450	14.540	N/A
		380500	1902.5	13.451	14.510	N/A

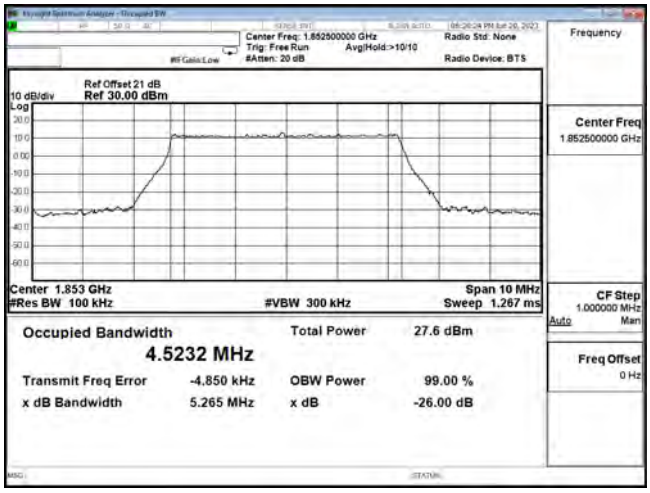
20M	π/2-BPSK	372000	1860	18.551	20.270	N/A
		376000	1880	18.567	20.240	N/A
		380000	1900	18.577	20.250	N/A
	QPSK	372000	1860	18.632	20.330	N/A
		376000	1880	18.660	20.320	N/A
		380000	1900	18.629	20.360	N/A
	16-QAM	372000	1860	18.505	20.270	N/A
		376000	1880	18.510	20.340	N/A
		380000	1900	18.539	20.300	N/A
	64-QAM	372000	1860	18.393	20.180	N/A
		376000	1880	18.412	20.150	N/A
		380000	1900	18.429	20.200	N/A
	256-QAM	372000	1860	18.486	20.260	N/A
		376000	1880	18.486	20.290	N/A
		380000	1900	18.511	20.280	N/A



OCC N2 5M CH370500 BPSK



OCC N2 5M CH370500 QPSK



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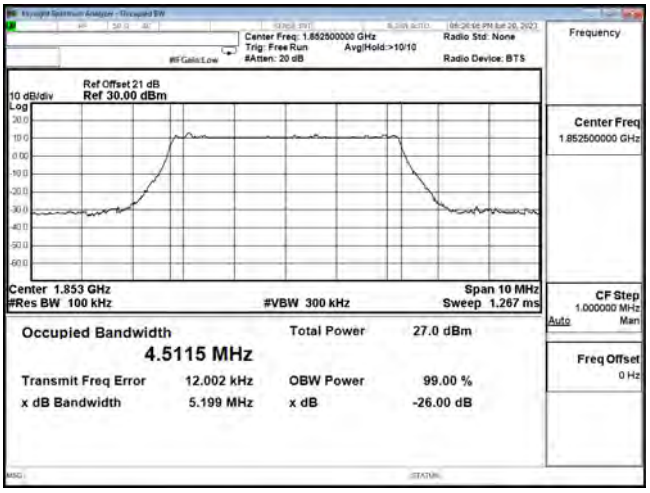

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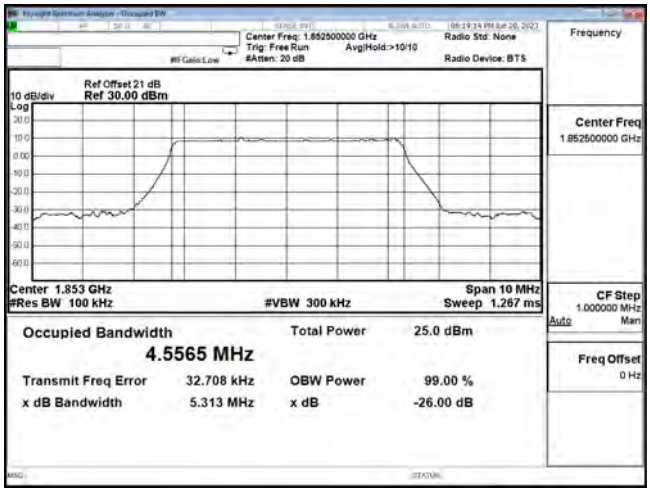

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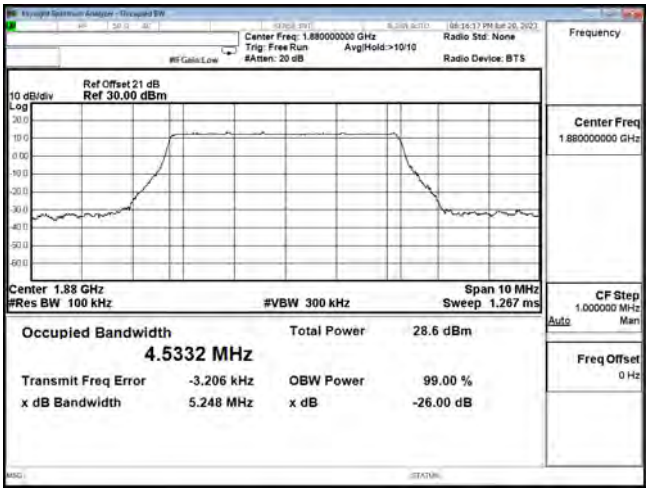

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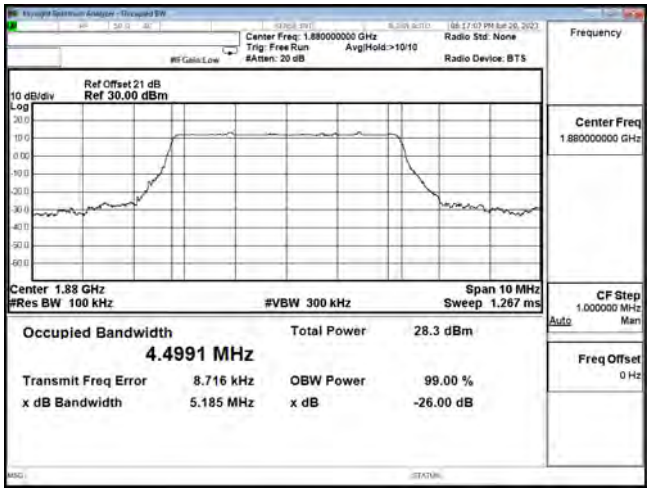

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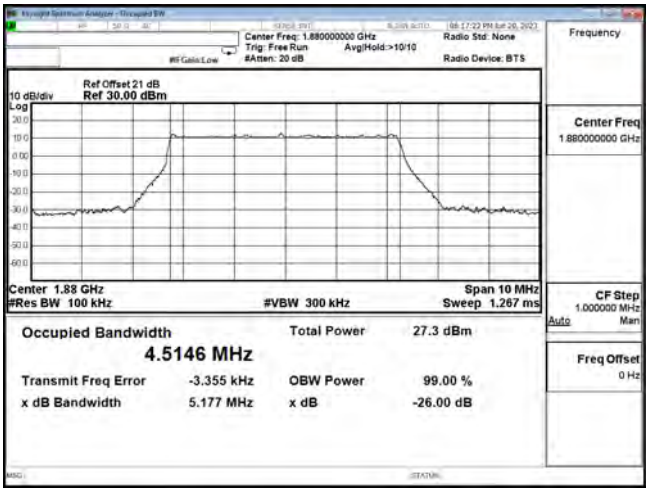

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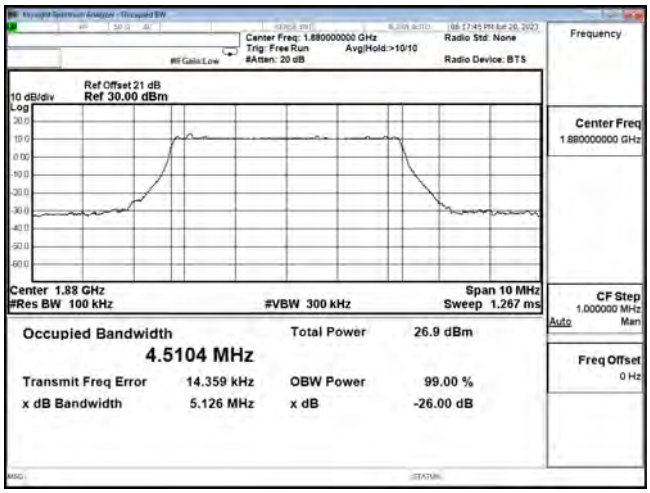

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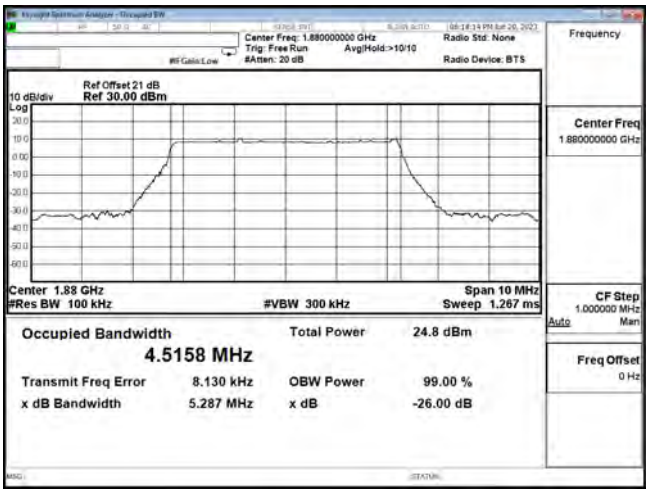

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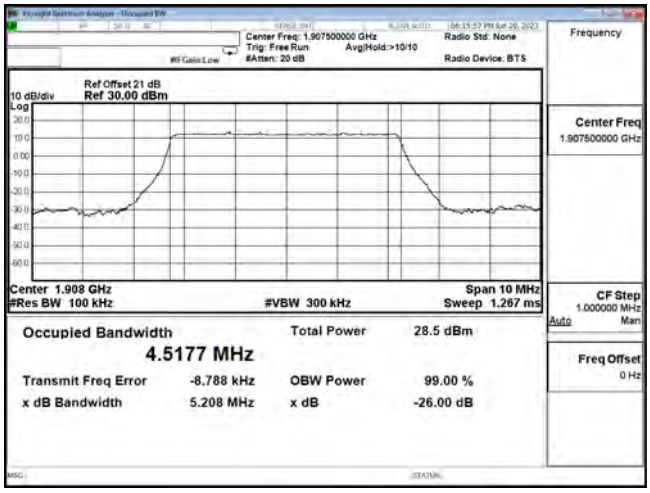

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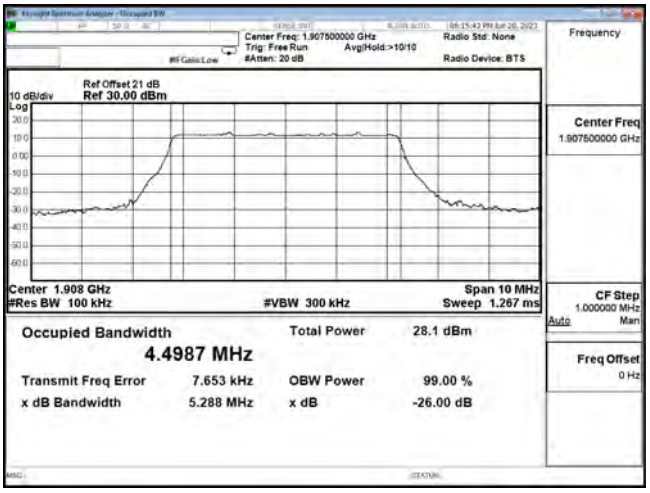

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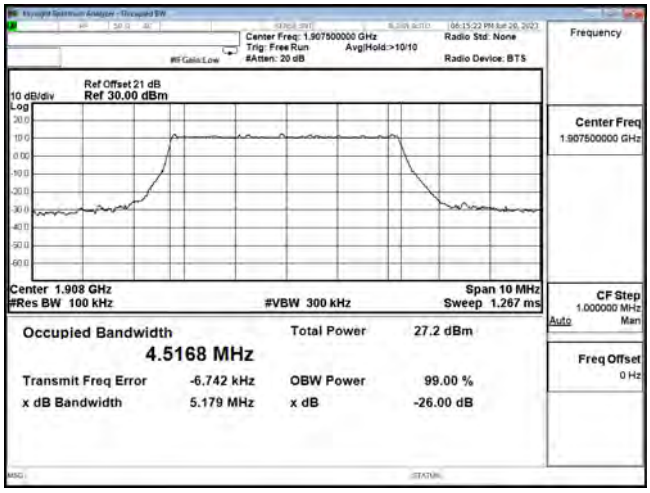

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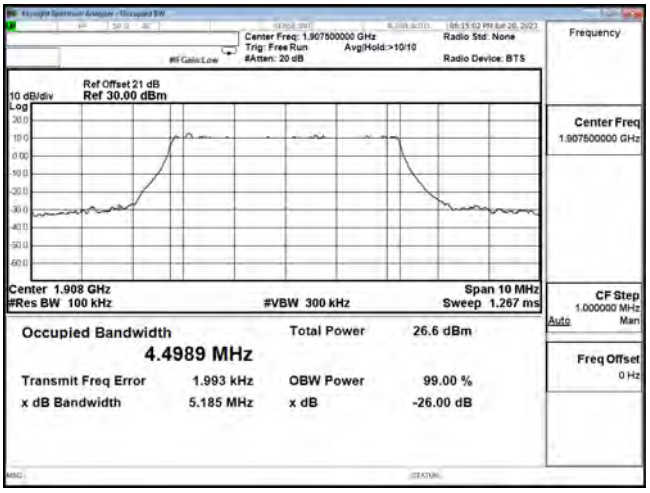

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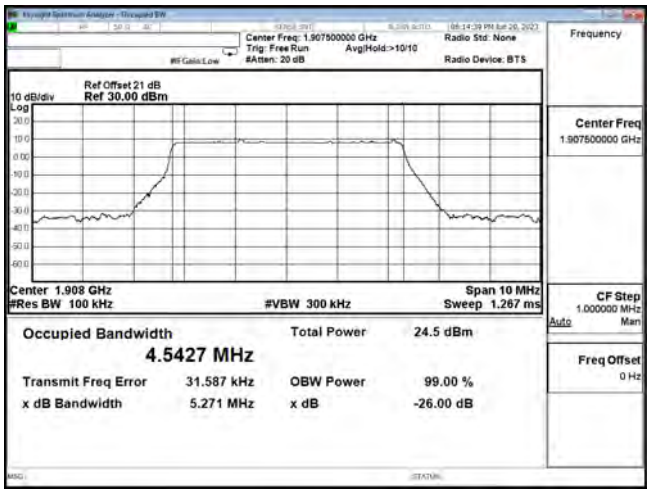

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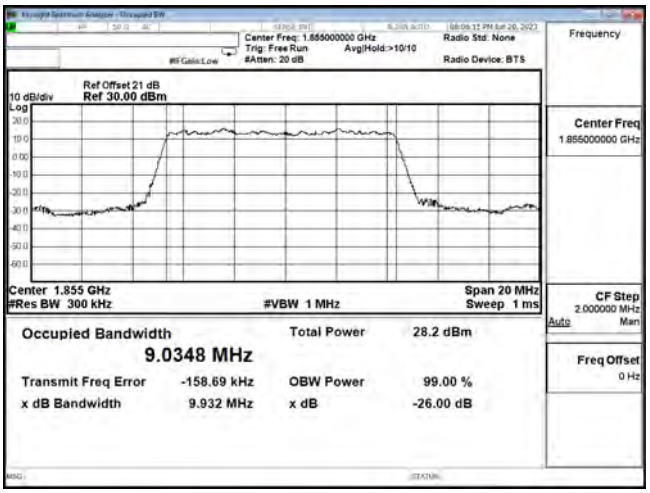

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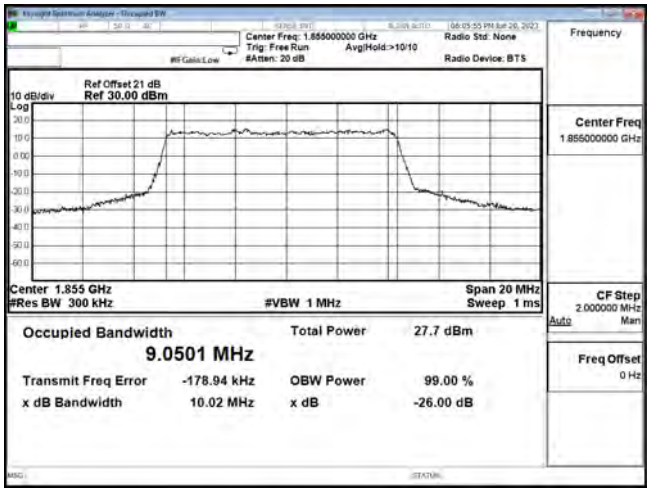

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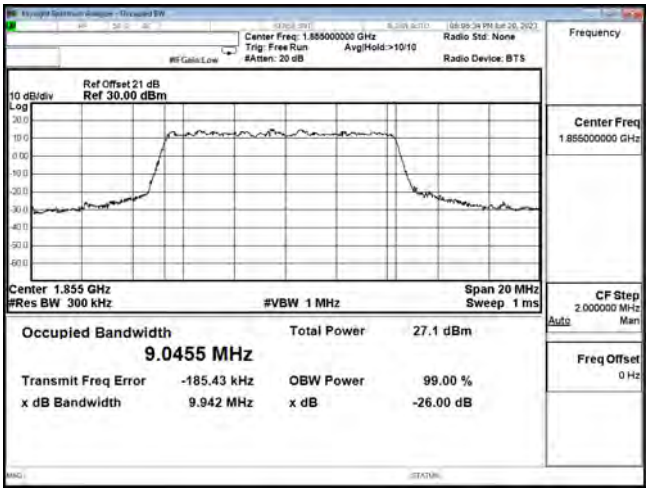

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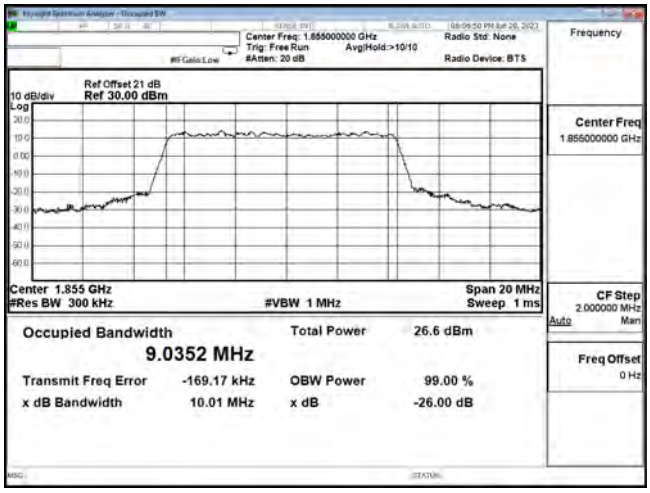

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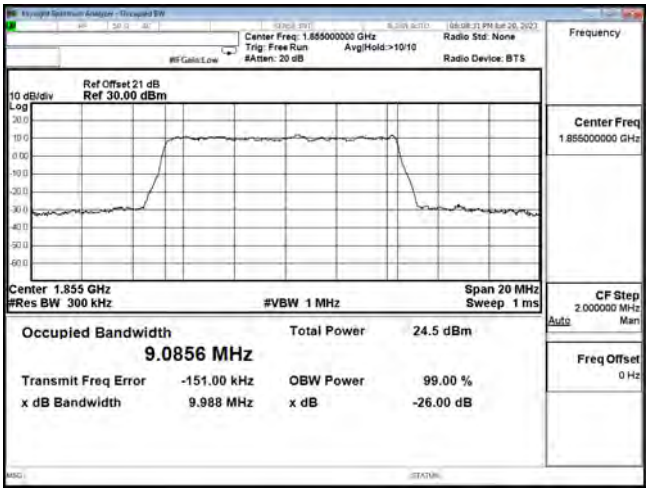

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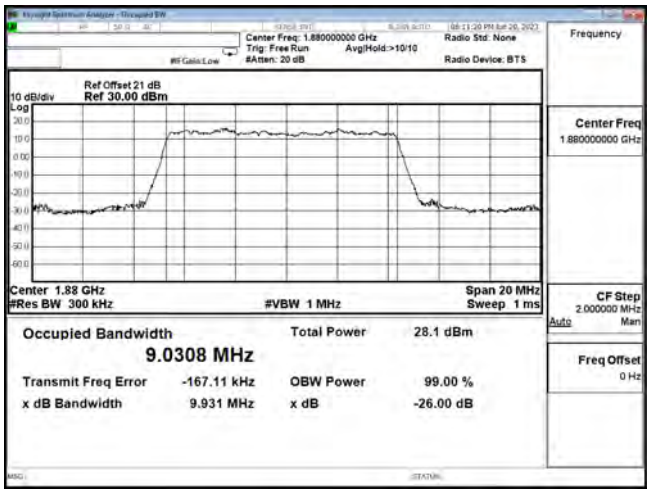

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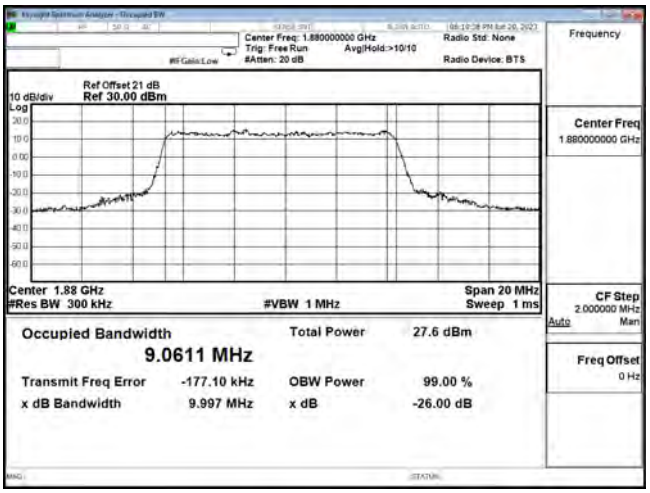

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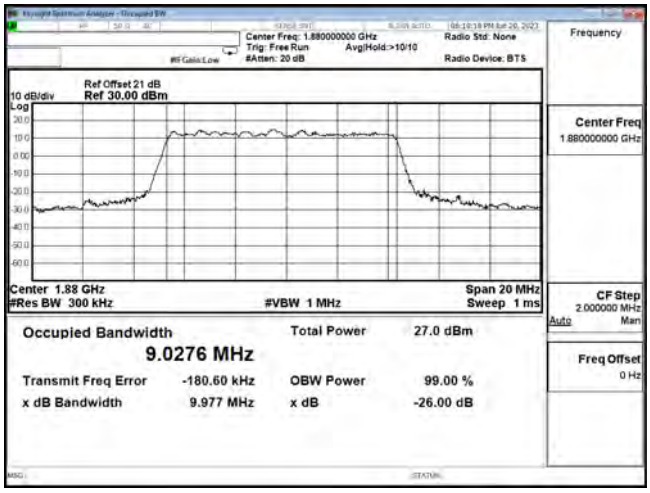

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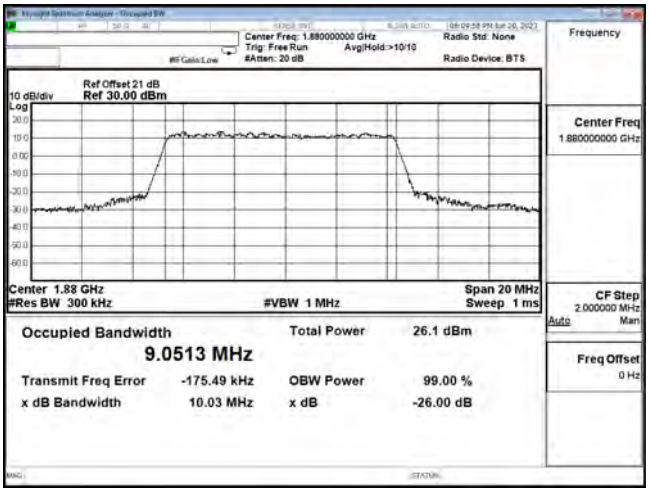

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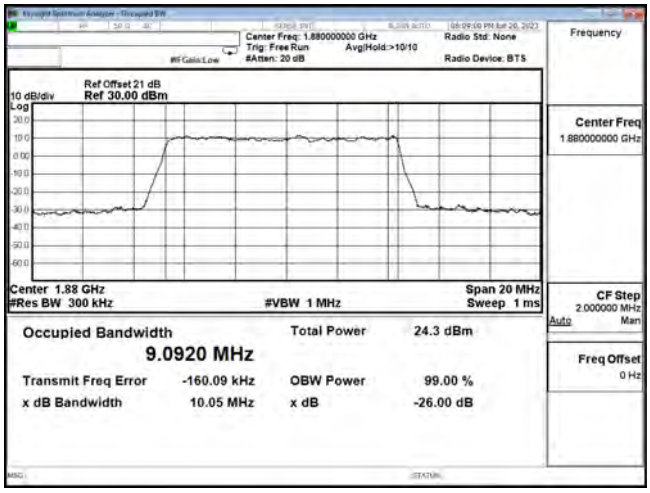

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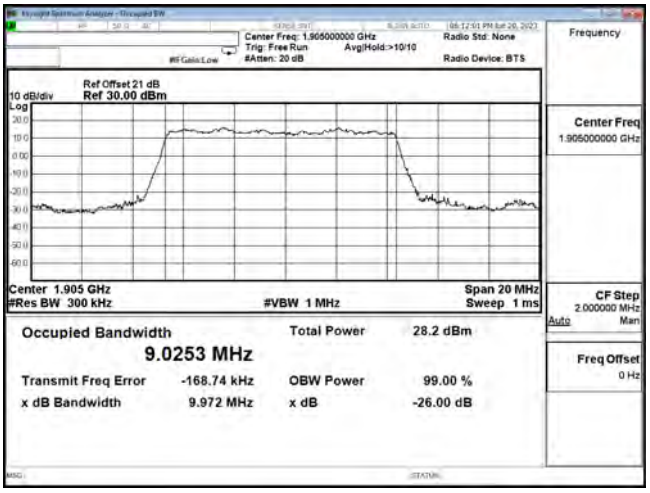

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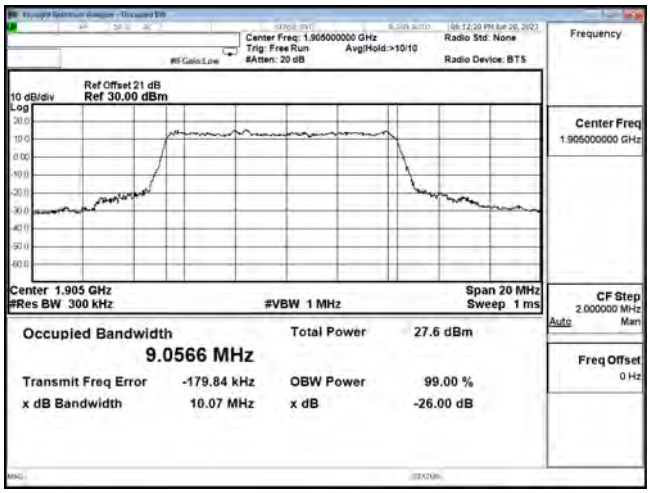

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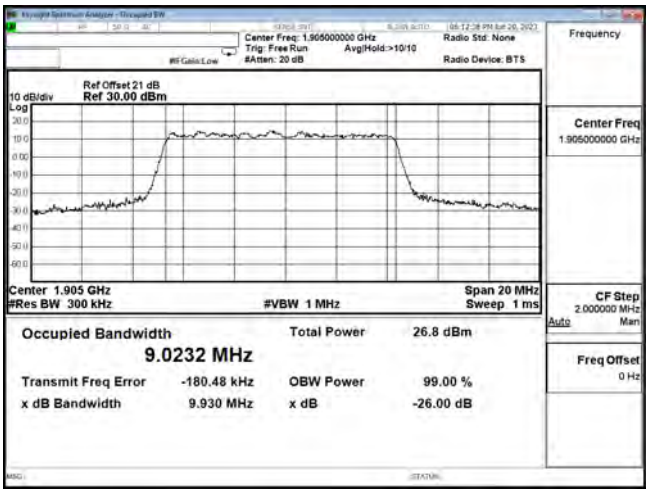

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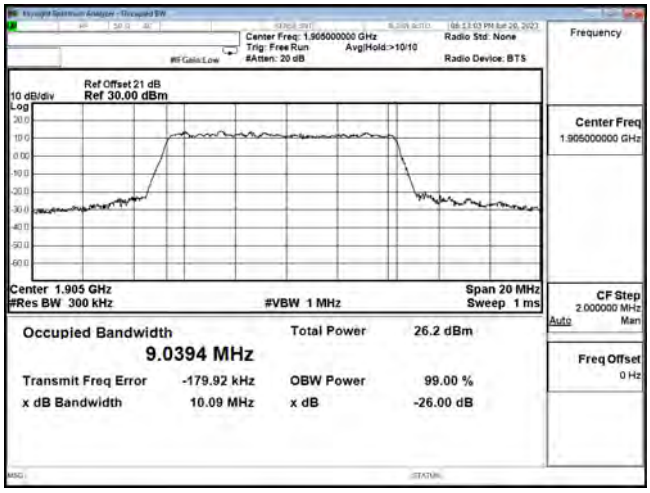

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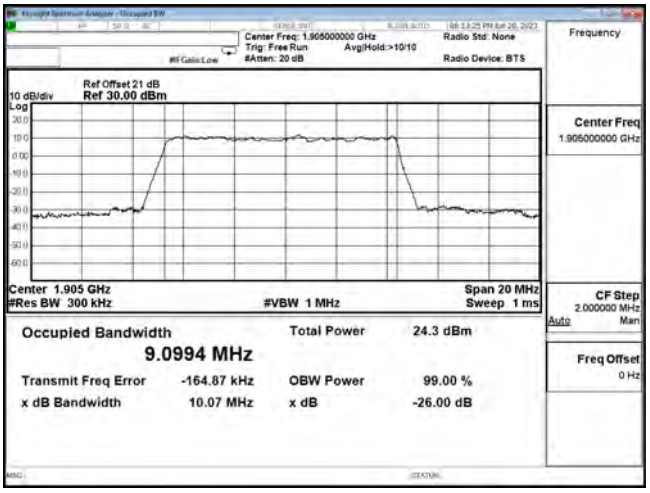

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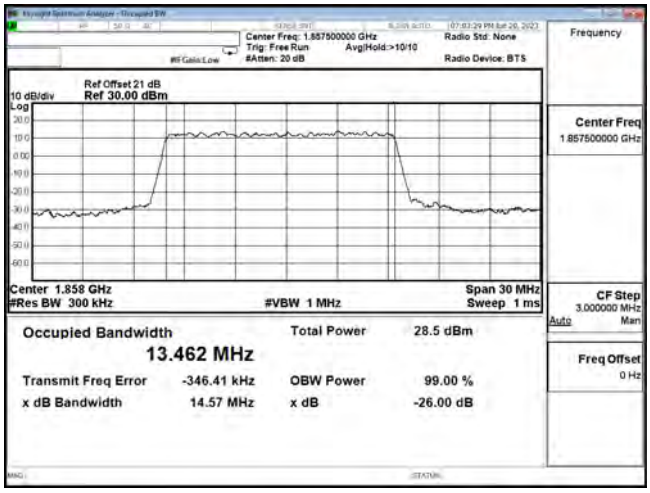

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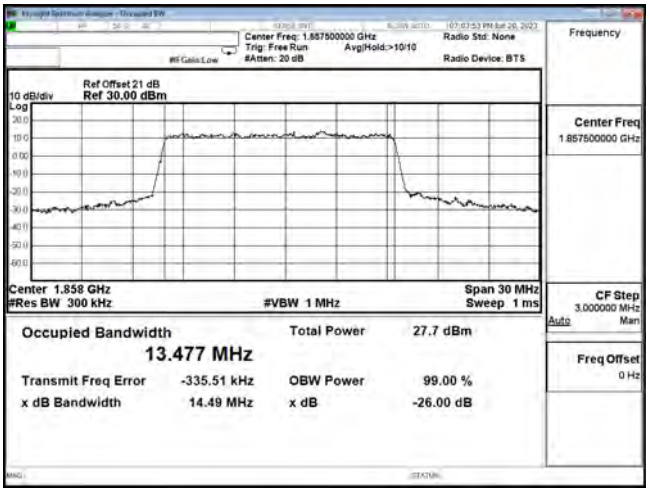

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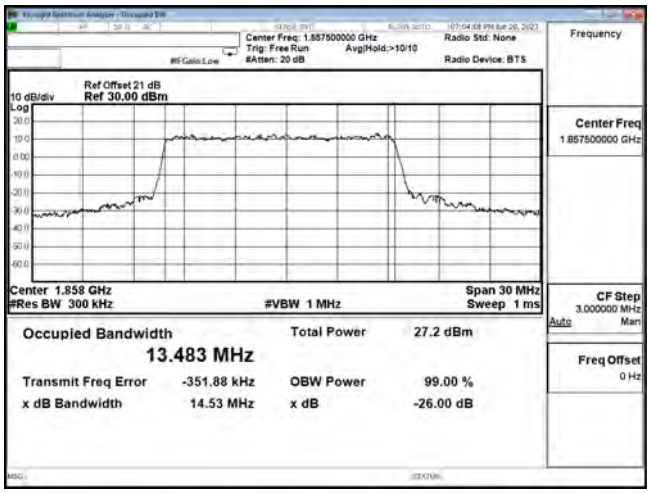

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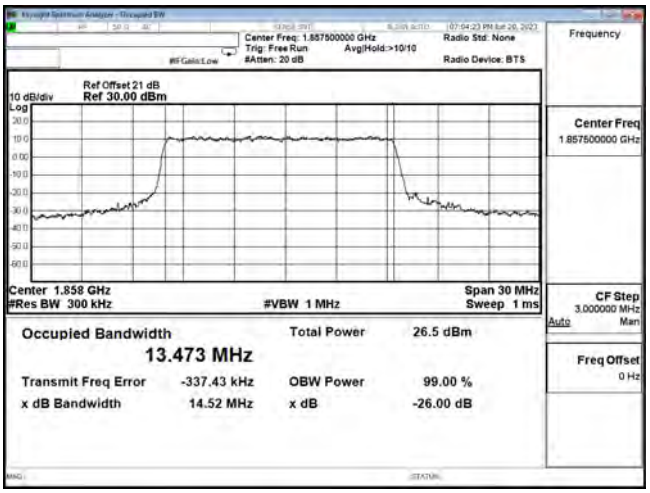

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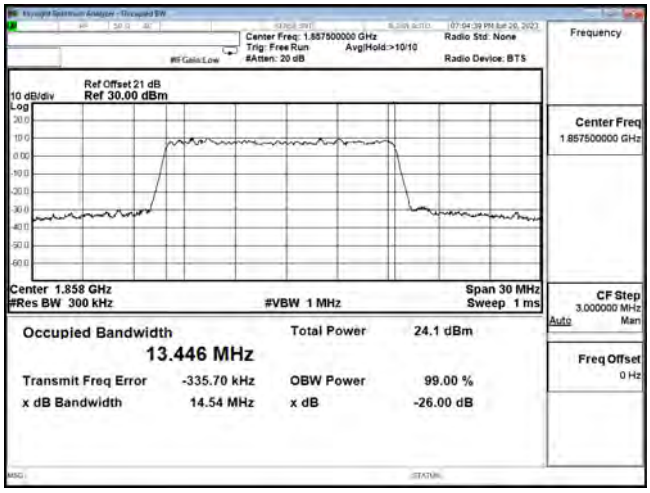

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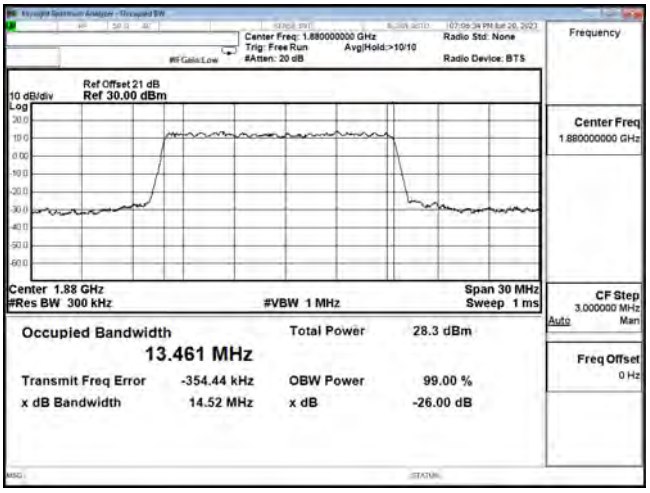

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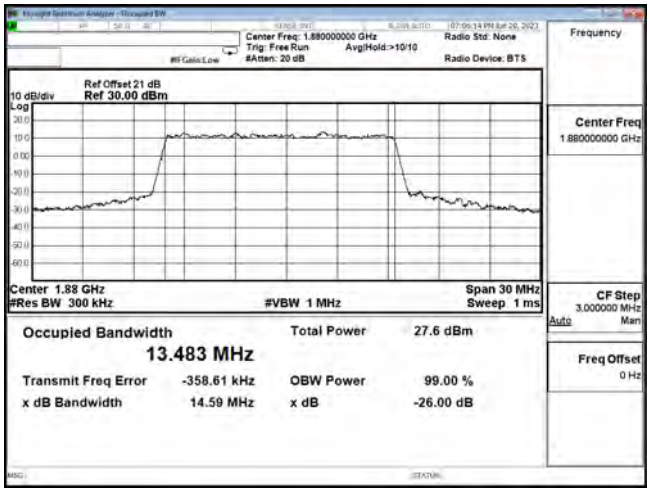

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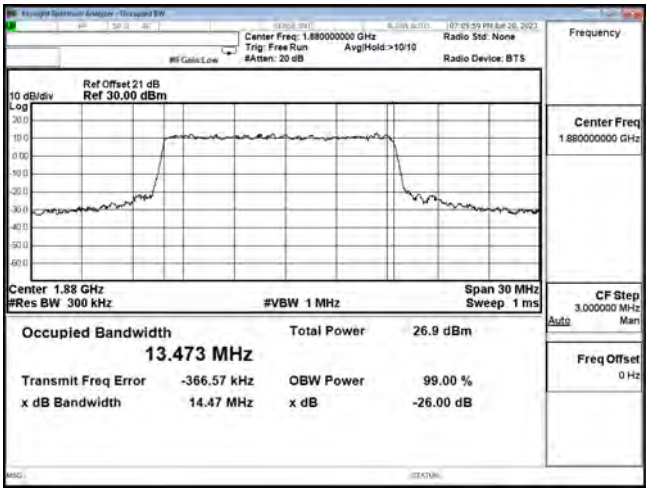

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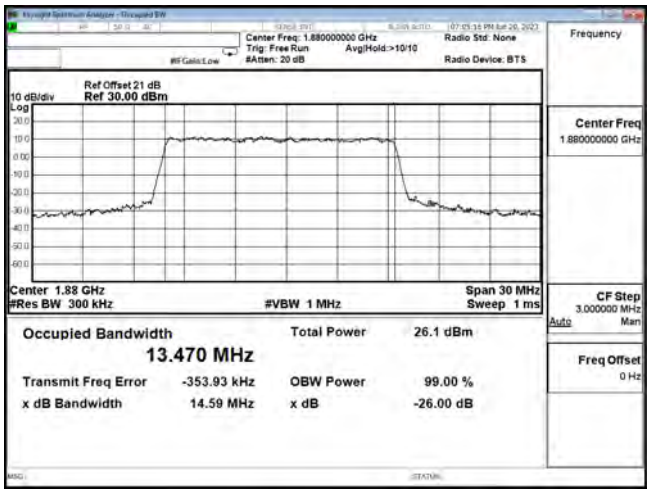

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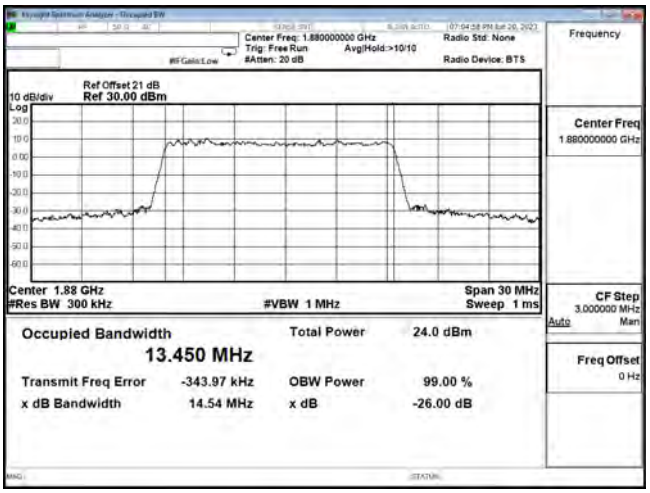

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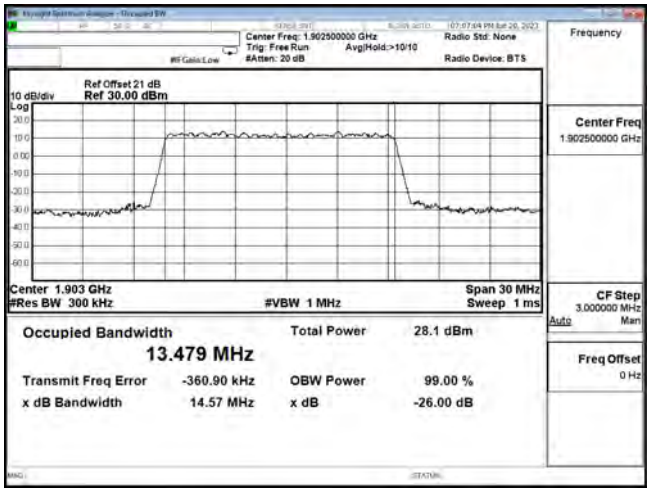

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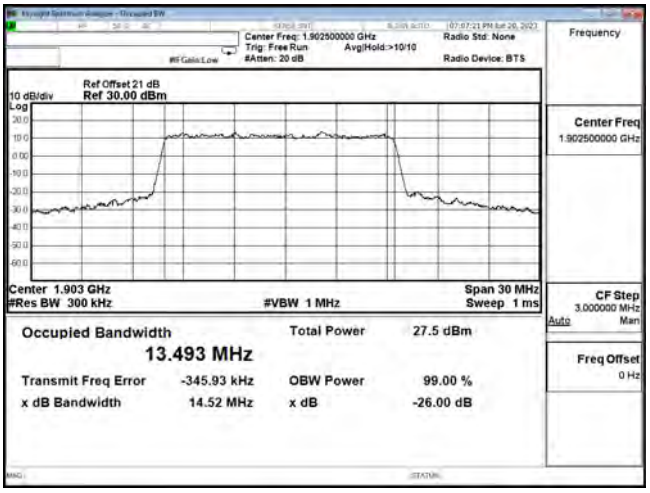

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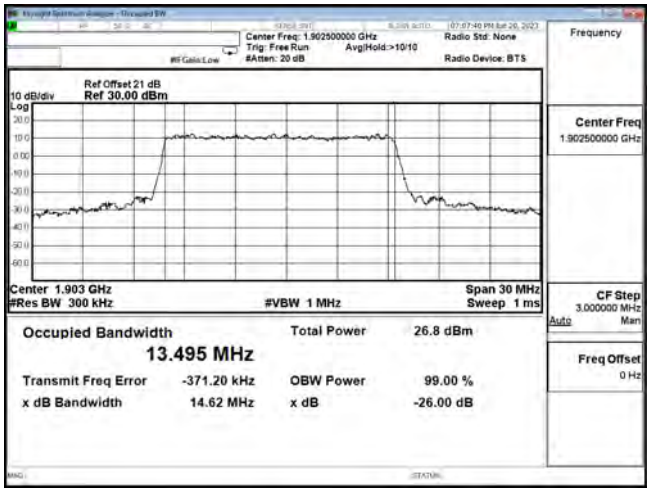

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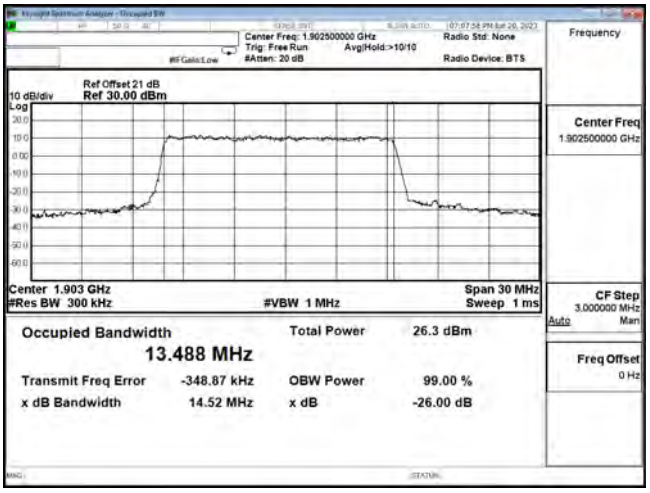

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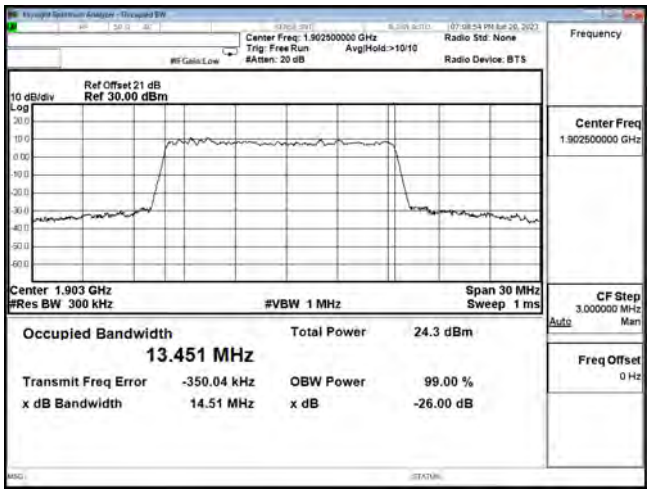

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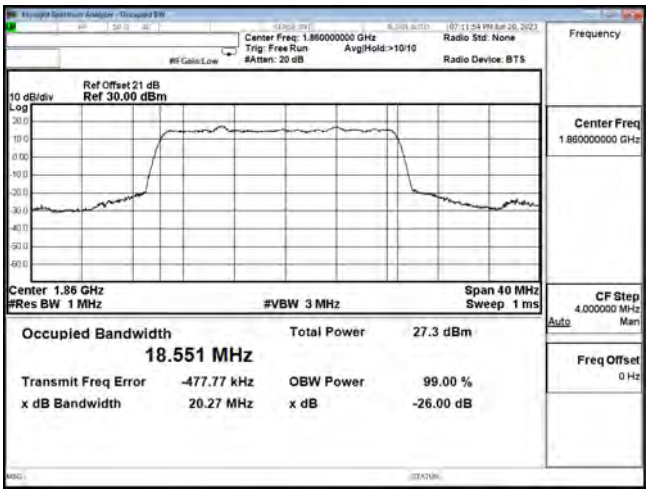

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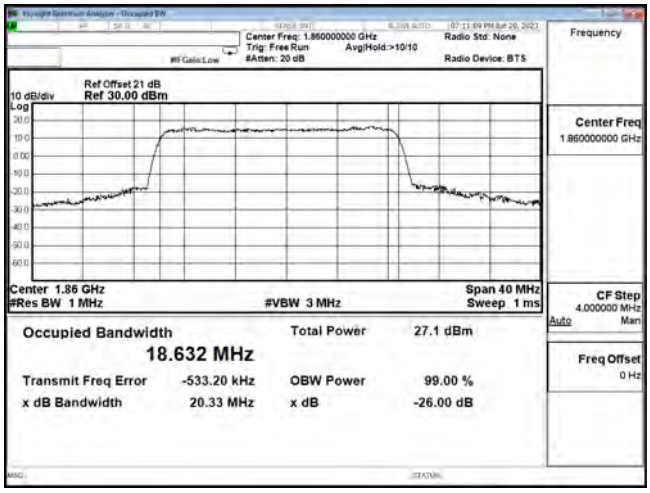

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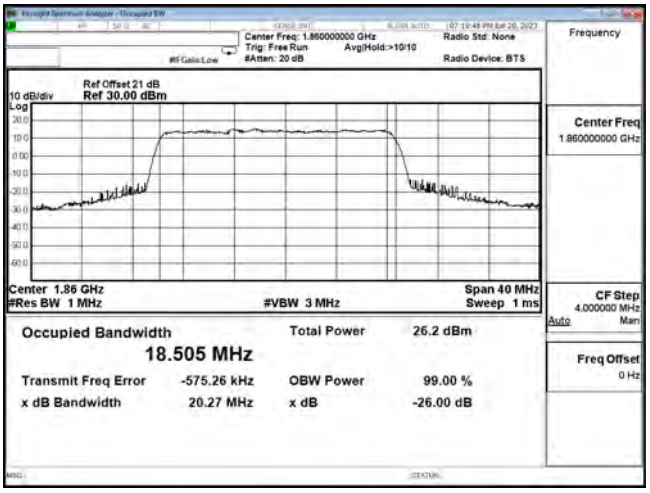

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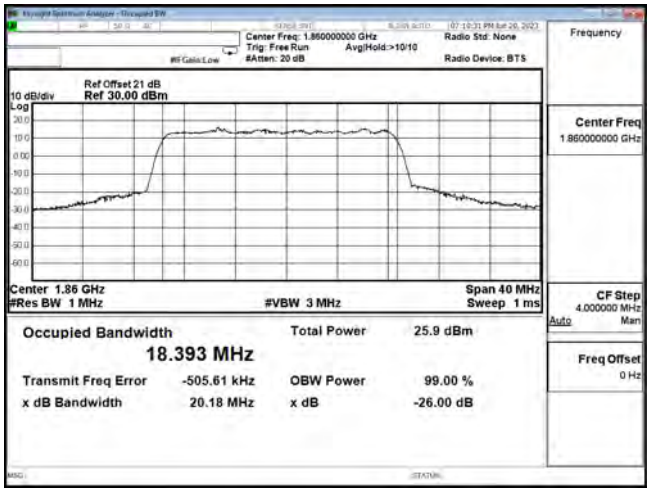

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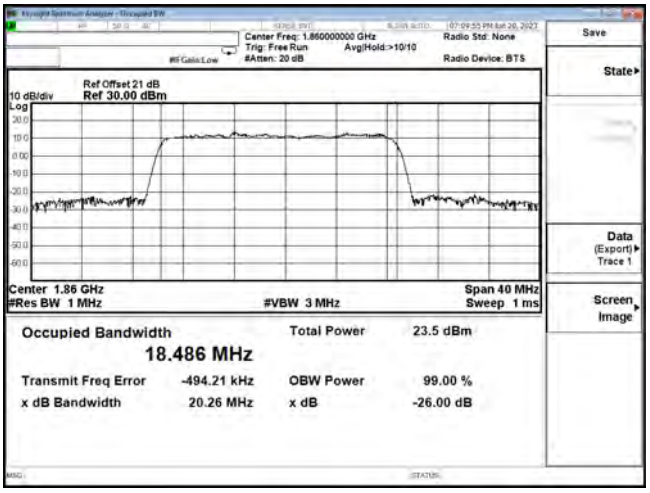

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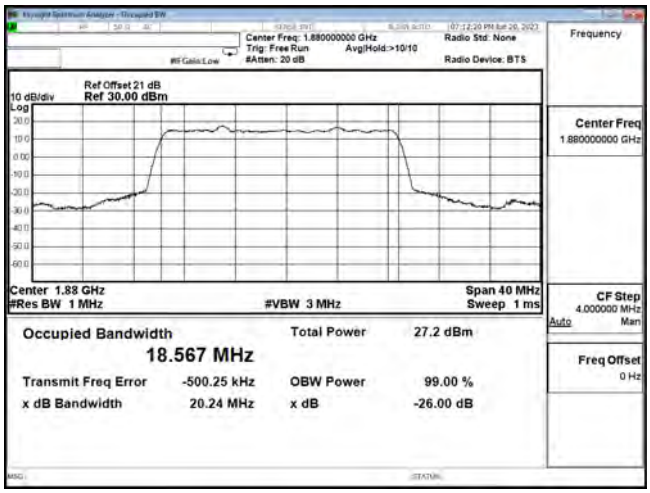

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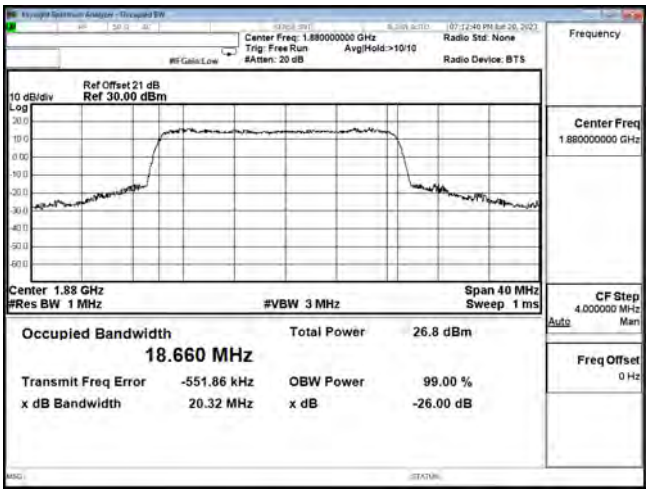

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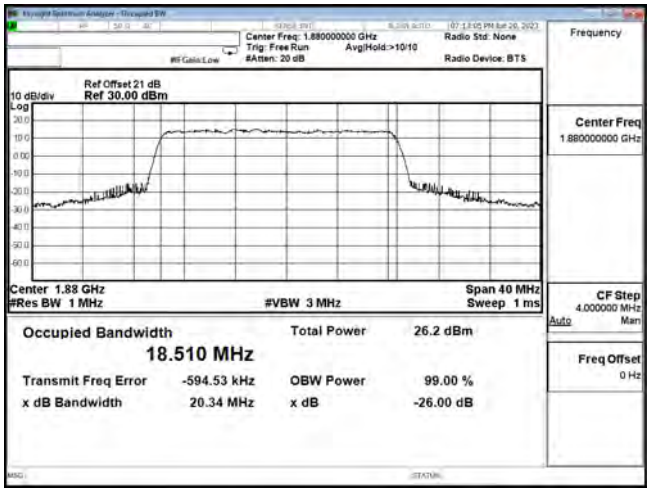

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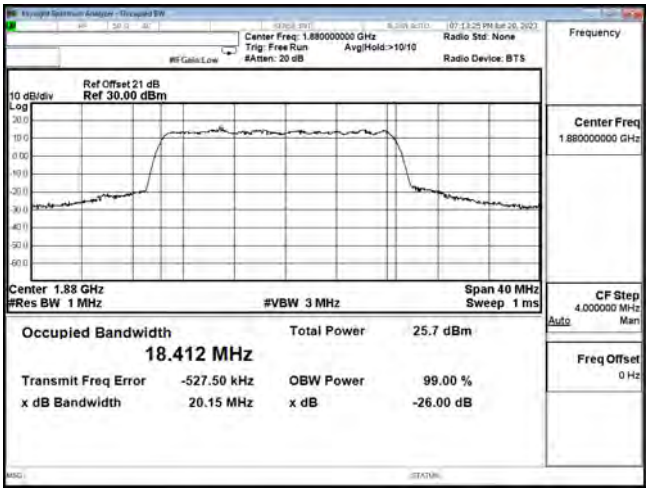

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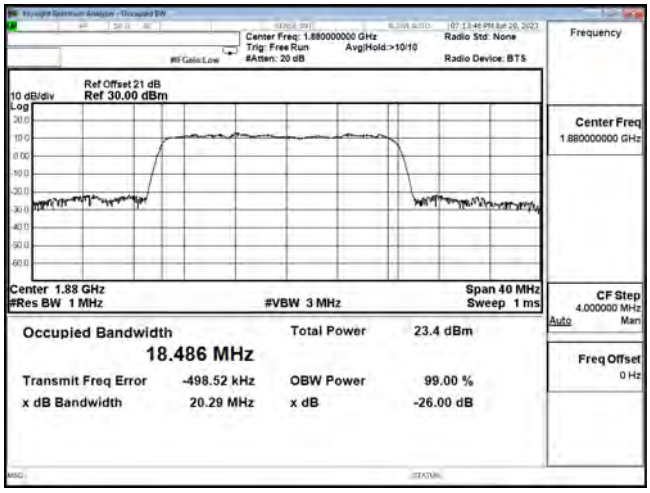

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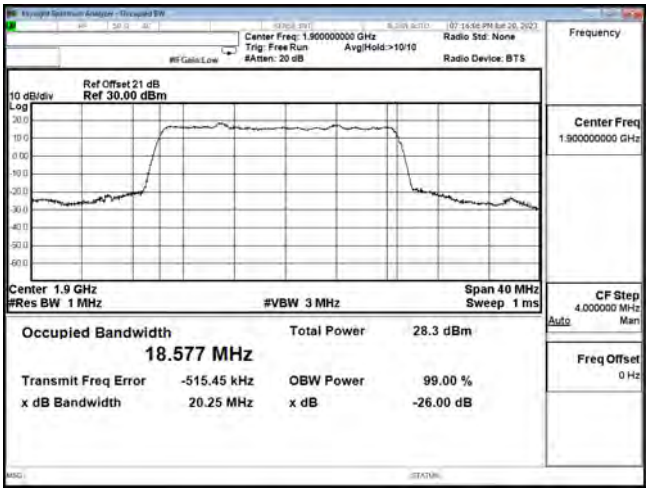

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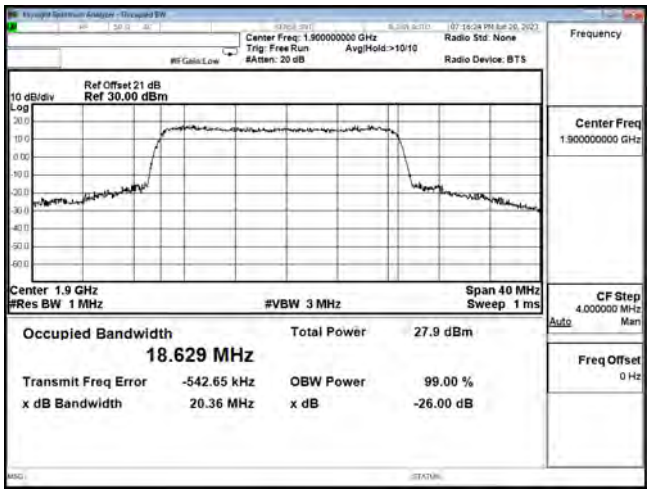

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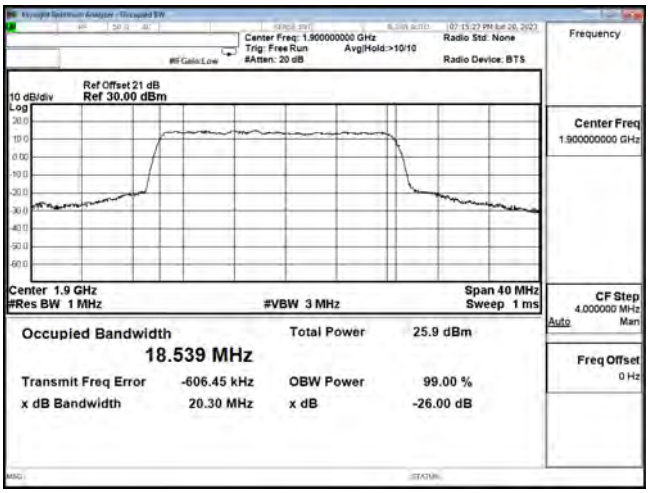

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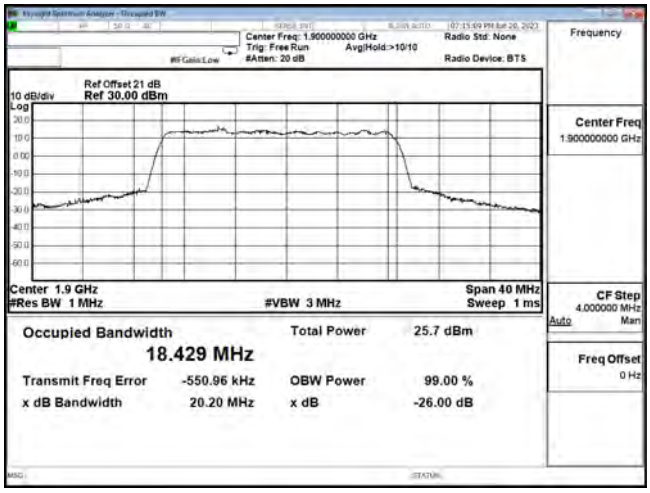

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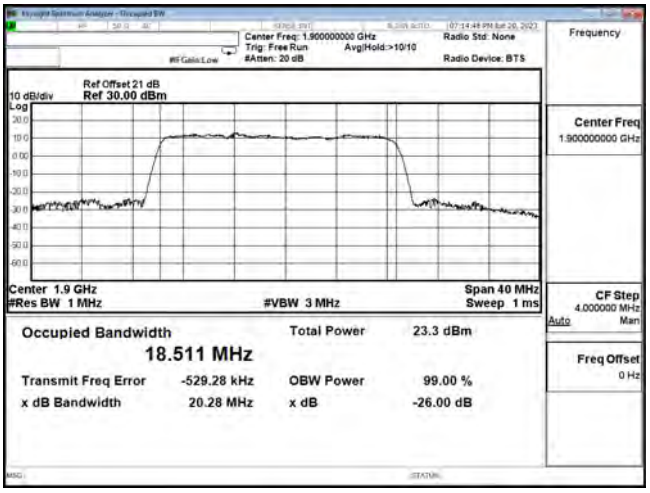


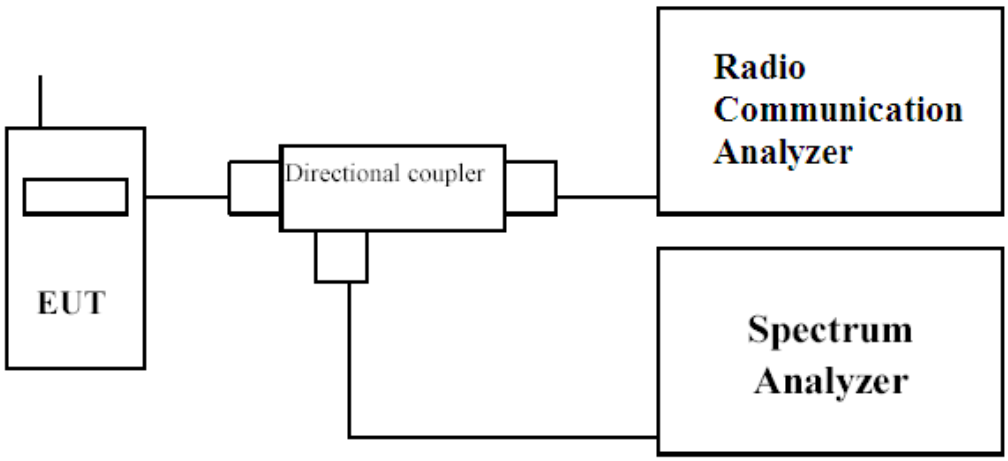
OCC N2 20M CH380000 256QAM

5. Spurious Emission At Antenna Terminals (+/-1MHz)

5.1 Test Specification

According to Part 24.238.

5.2 Setup



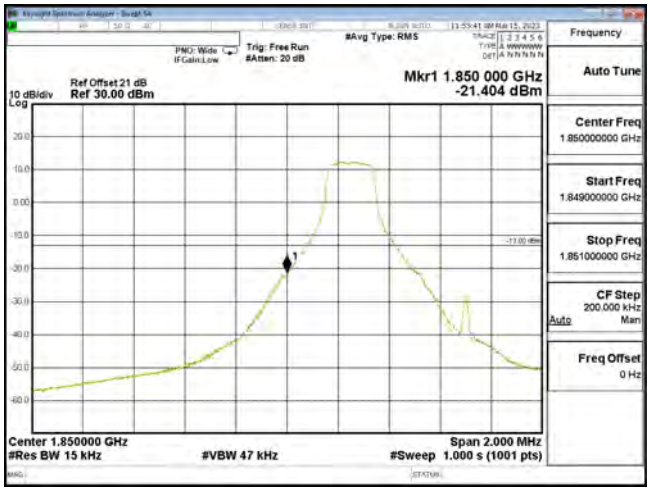
5.3 Limits

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. The unwanted emissions are required by the licensed rule parts to be attenuated below the transmitter power by a factor of at least 43 + 10 log (P) dB, where P represents the transmitter power expressed in watts

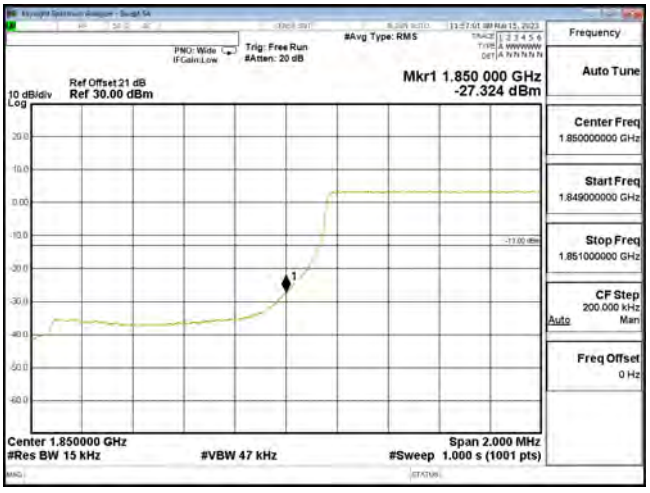
5.4 Test Procedure

In accordance with Part 24.238 at least 1 % of the emission bandwidth was used for the resolution and video bandwidths up to 1 MHz away from the Block Edge. At greater than 1 MHz, the resolution and video bandwidth were increased to 1 MHz / 3 MHz. The reference power and path losses of all channels used for testing in each frequency block were measured.

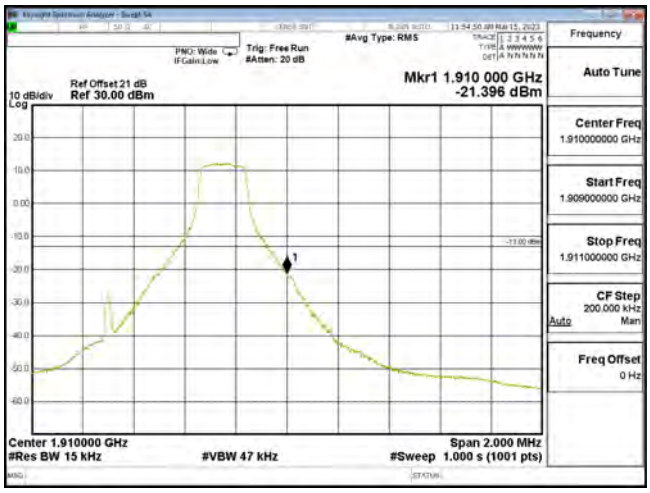
5.5 Test Result of Spurious Emission At Antenna Terminals (+/-1MHz)



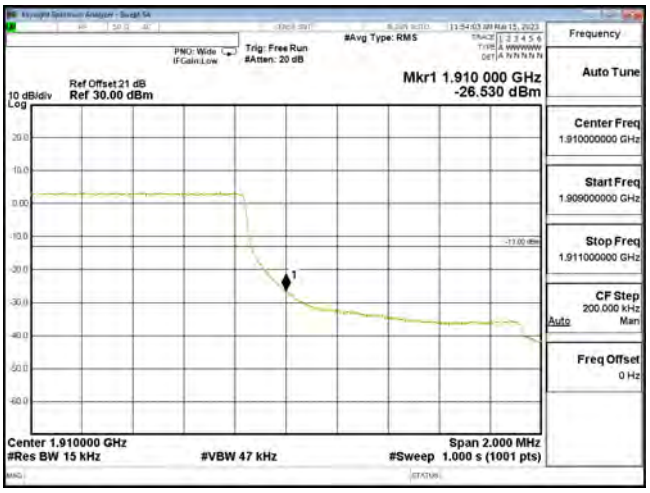
LTE BAND 2 1.4M CH18607 QPSK(1,0)



LTE BAND 2 1.4M CH18607 QPSK(6,0)

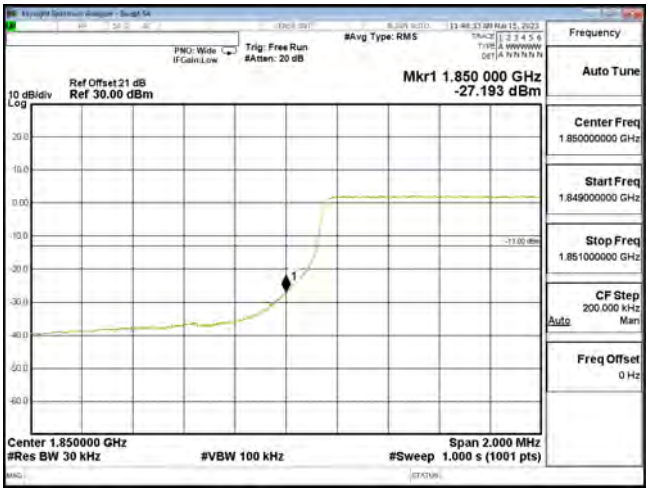


LTE BAND 2 1.4M CH19193 QPSK(1,5)

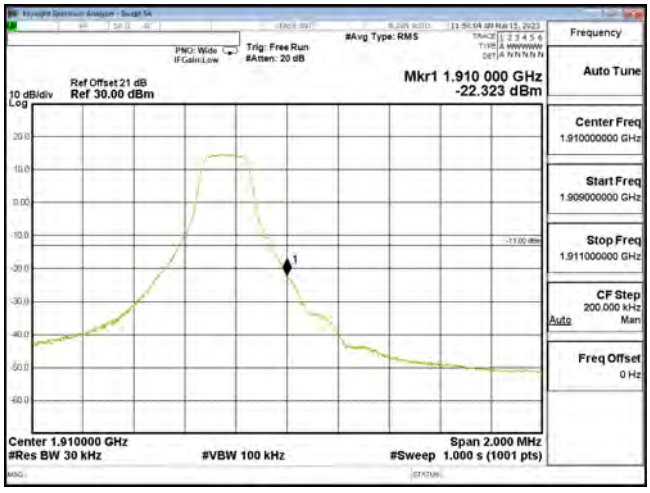


LTE BAND 2 1.4M CH19193 QPSK(6,0)

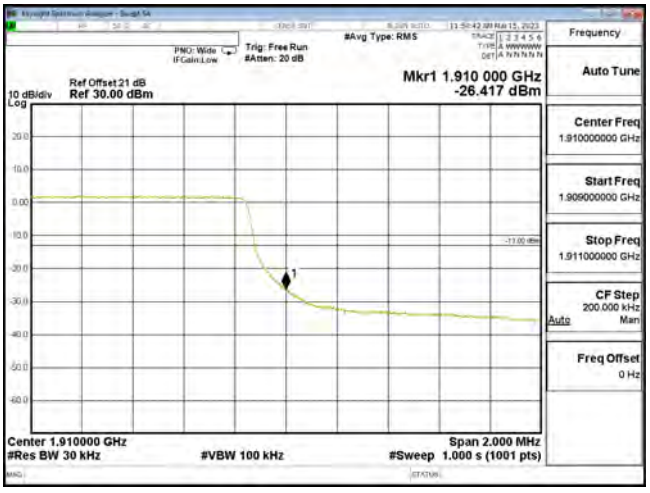
LTE BAND 2 3M CH18615 QPSK(1,0)



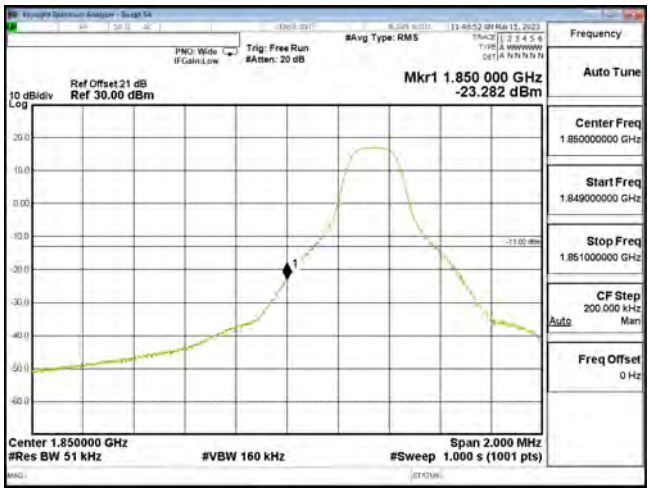
LTE BAND 2 3M CH18615 QPSK(15,0)



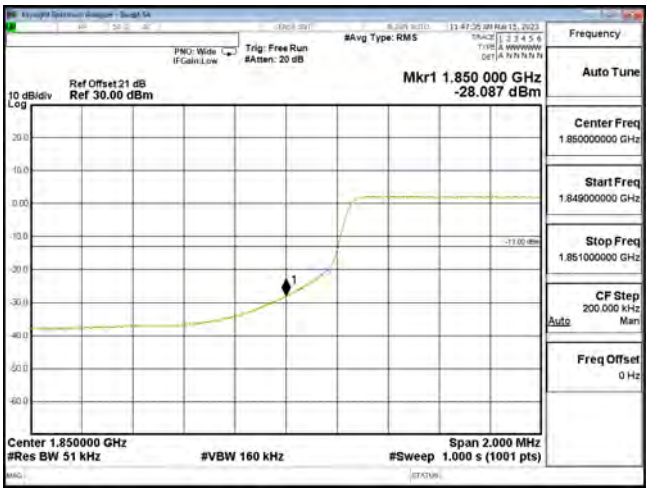
LTE BAND 2 3M CH19185 QPSK(1,5)



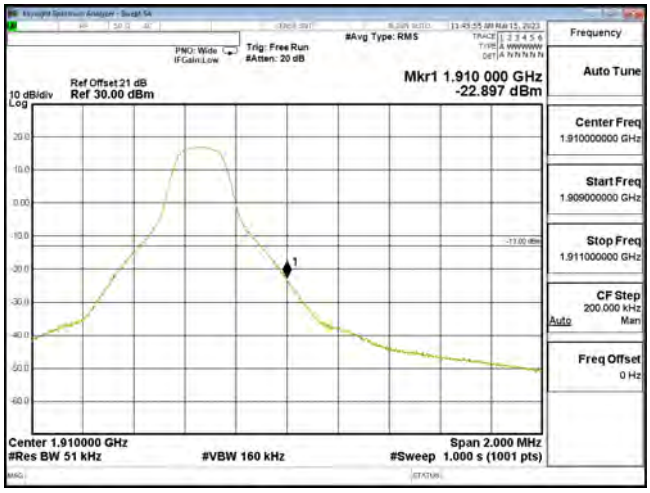
LTE BAND 2 3M CH19185 QPSK(15,0)



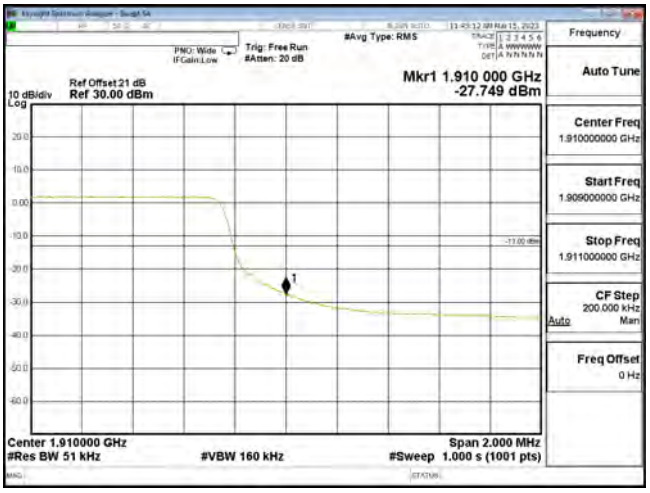
LTE BAND 2 5M CH18625 QPSK(1,0)



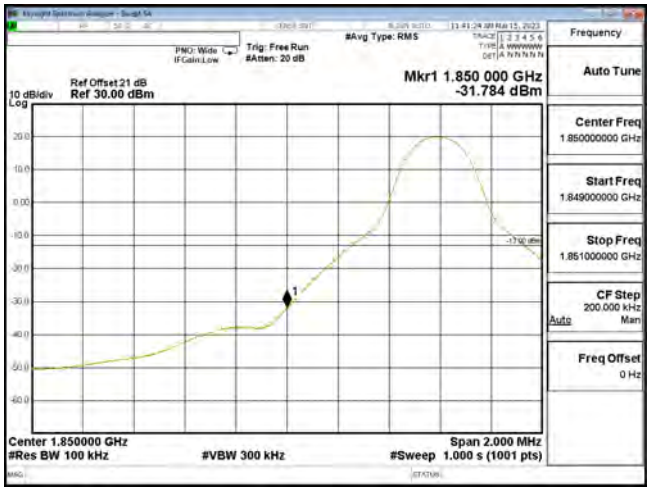
LTE BAND 2 5M CH18625 QPSK(25,0)



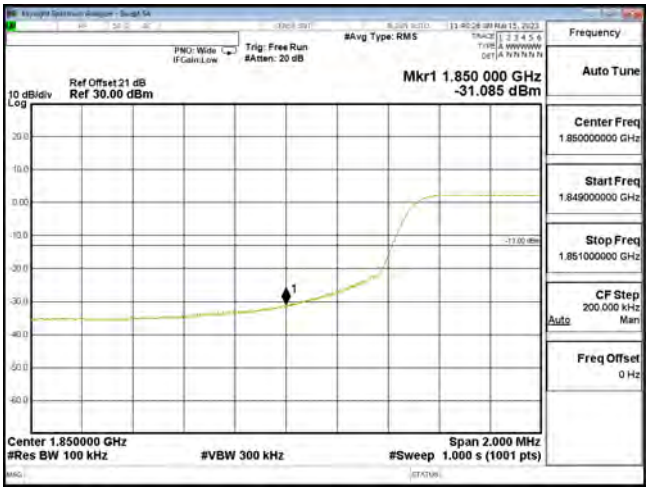
LTE BAND 2 5M CH19175 QPSK(1,5)



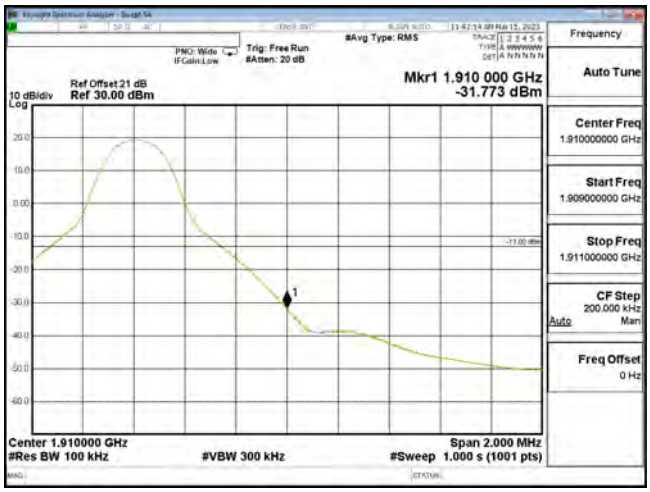
LTE BAND 2 5M CH19175 QPSK(25,0)



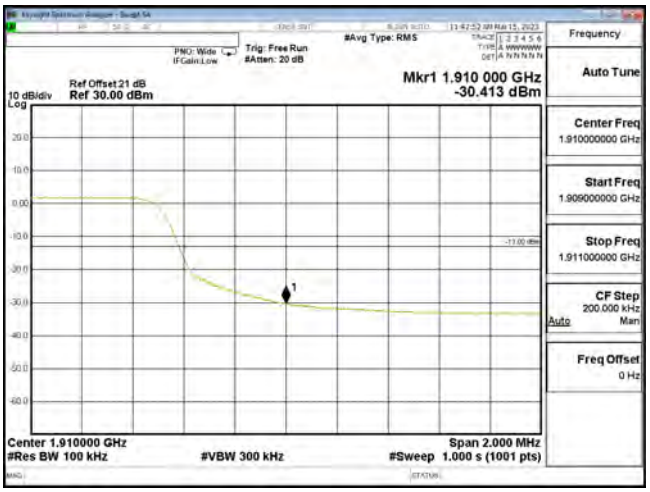
LTE BAND 2 10M CH18650 QPSK(1,0)



LTE BAND 2 10M CH18650 QPSK(50,0)

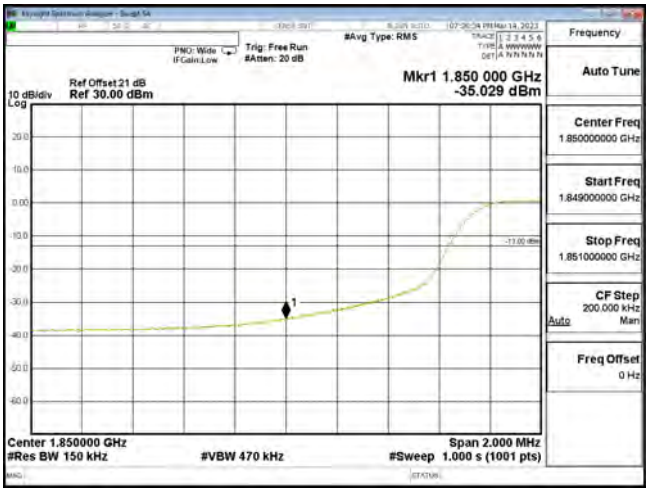


LTE BAND 2 10M CH19150 QPSK(1,5)



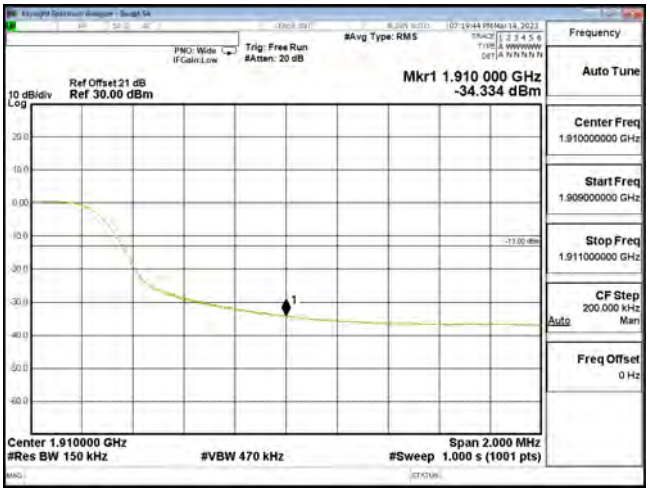
LTE BAND 2 10M CH19150 QPSK(50,0)

LTE BAND 2 15M CH18675 QPSK(1,0)



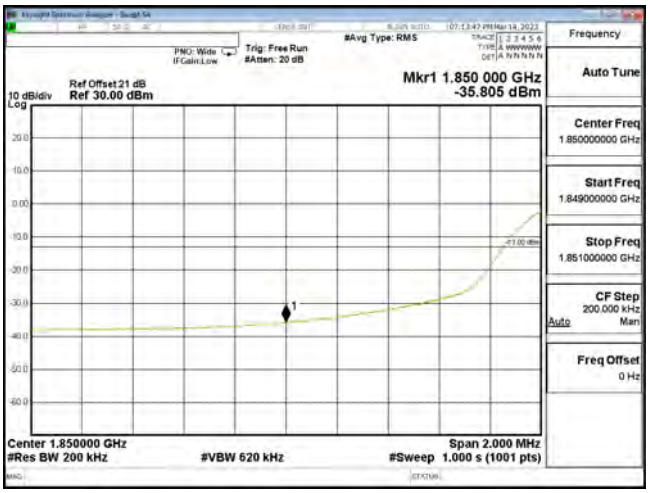
LTE BAND 2 15M CH18675 QPSK(75,0)

LTE BAND 2 15M CH19125 QPSK(1,5)

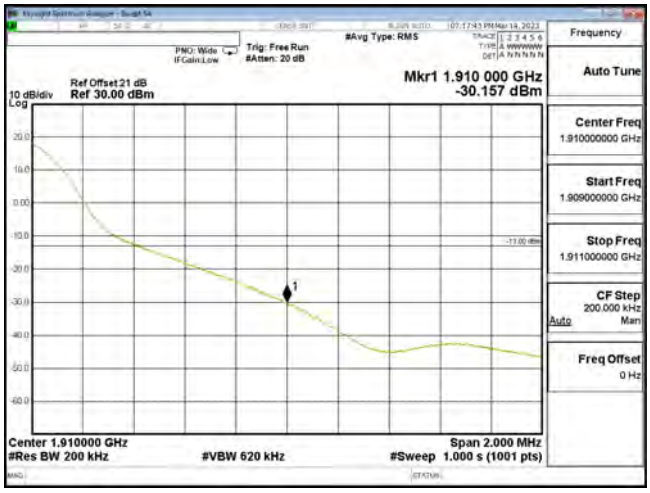


LTE BAND 2 15M CH19125 QPSK(75,0)

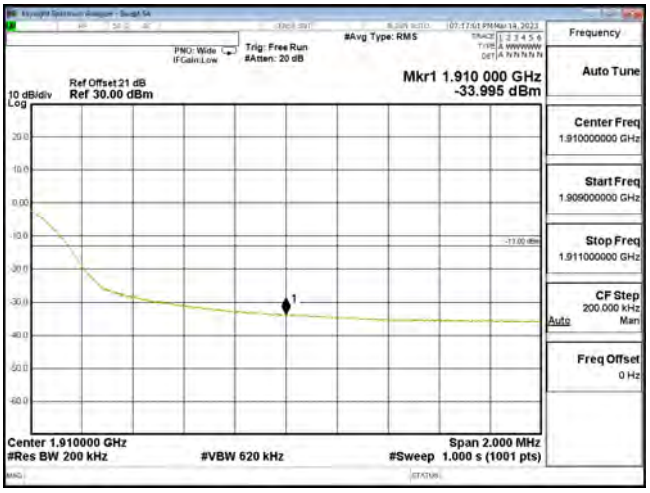
LTE BAND 2 20M CH18700 QPSK(1,0)



LTE BAND 2 20M CH18700 QPSK(100,0)



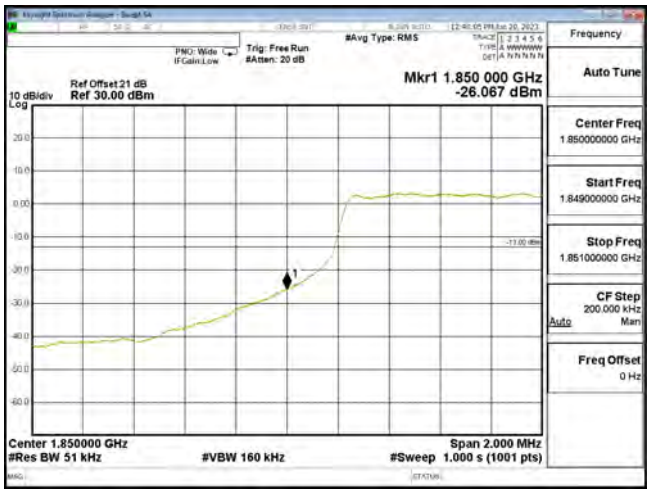
LTE BAND 2 20M CH19100 QPSK(1,5)



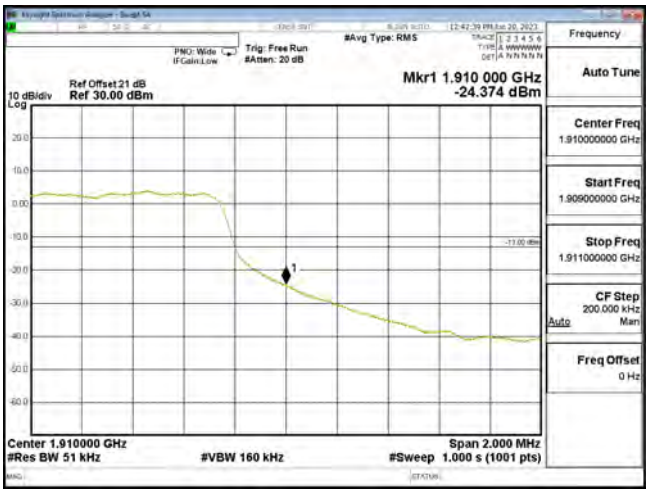
LTE BAND 2 20M CH19100 QPSK(100,0)

Bandedge n2 5M CH370500 BPSK(1,0)

Bandedge n2 5M CH381500 BPSK(1,24)



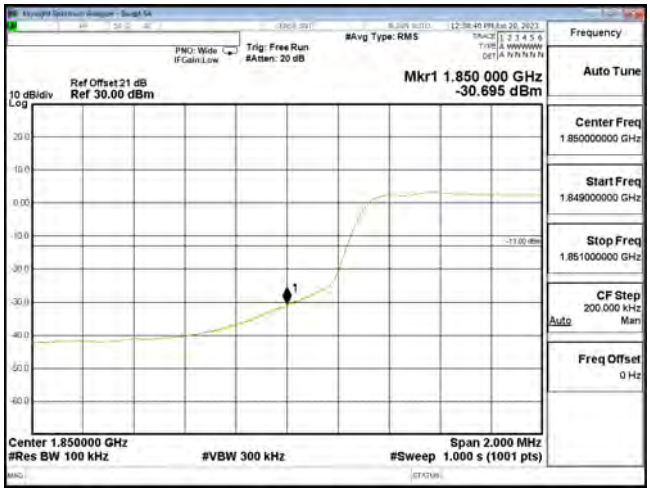
Bandedge n2 5M CH370500 BPSK(25,0)



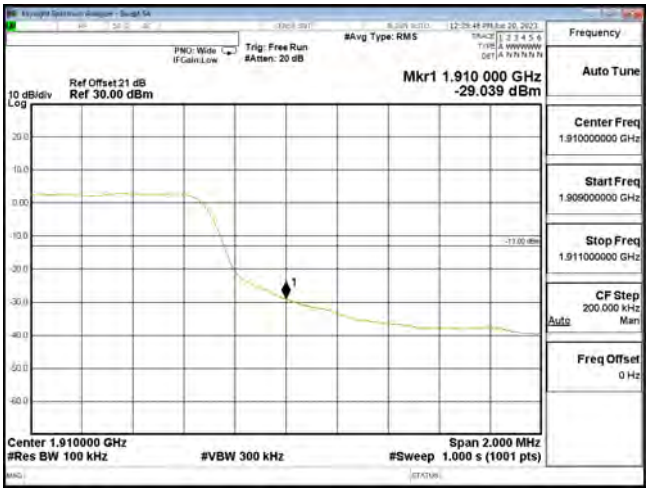
Bandedge n2 5M CH381500 BPSK(25,0)

Bandedge n2 10M CH371000 BPSK(1,0)

Bandedge n2 10M CH381000 BPSK(1,51)



Bandedge n2 10M CH371000 BPSK(50,0)

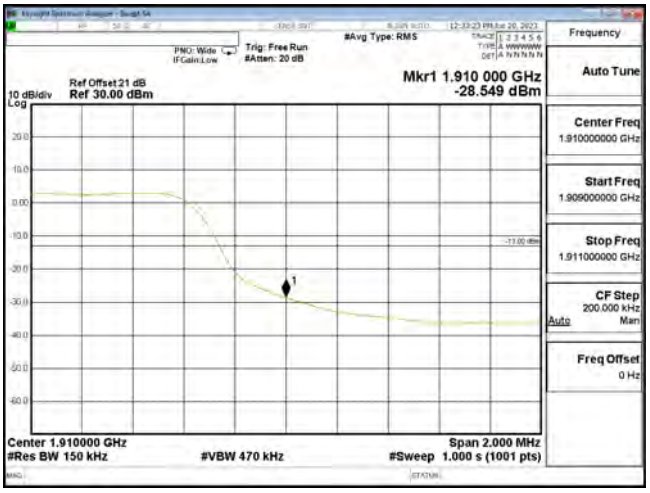


Bandedge n2 10M CH381000 BPSK(50,0)

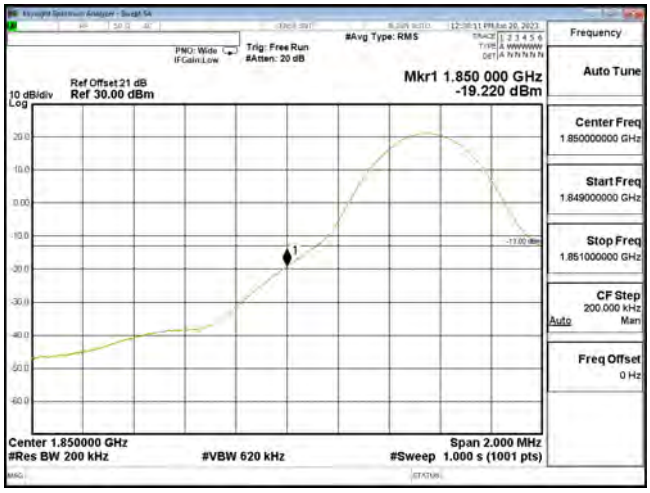
Bandedge n2 15M CH371500 BPSK(1,0)

Bandedge n2 15M CH380500 BPSK(1,78)

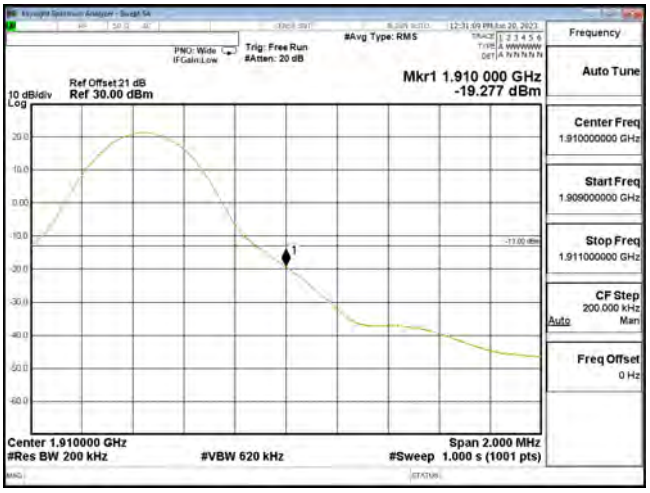
Bandedge n2 15M CH371500 BPSK(75,0)



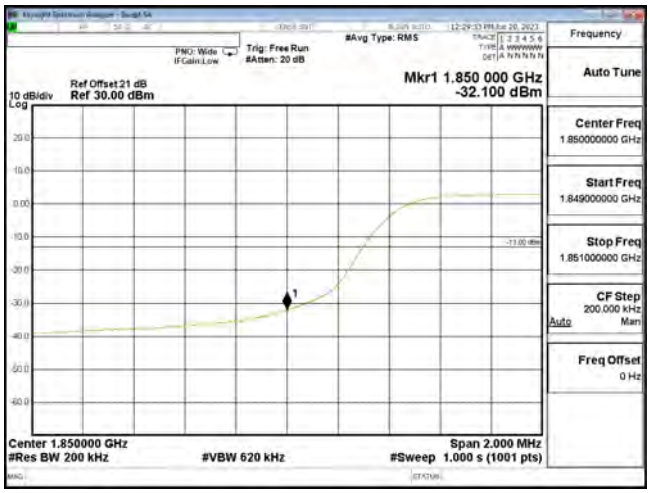
Bandedge n2 15M CH380500 BPSK(75,0)



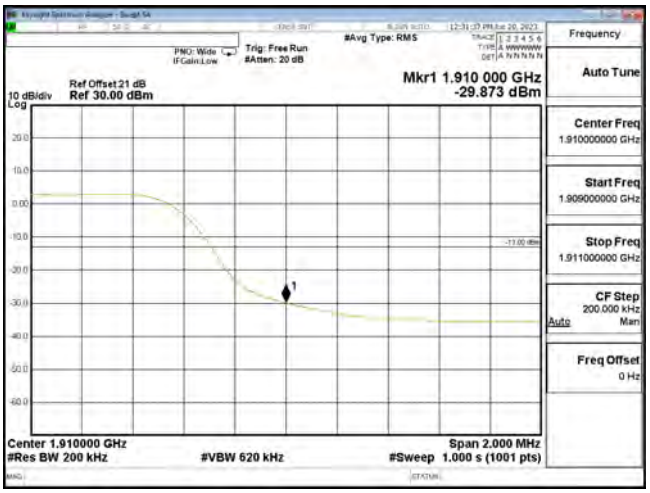
Bandedge n2 20M CH372000 BPSK(1,0)



Bandedge n2 20M CH380000 BPSK(1,105)



Bandedge n2 20M CH372000 BPSK(100,0)



Bandedge n2 20M CH380000 BPSK(100,0)

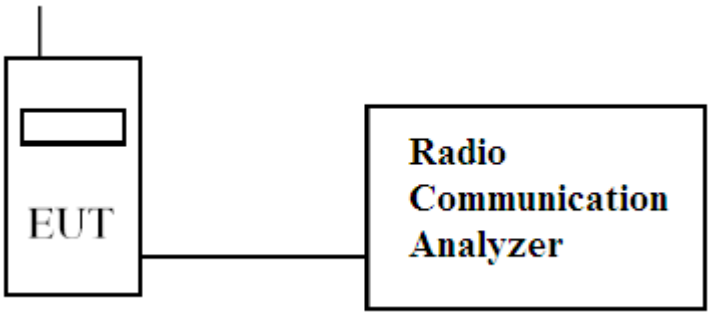
6. Spurious Emission

6.1 Test Specification

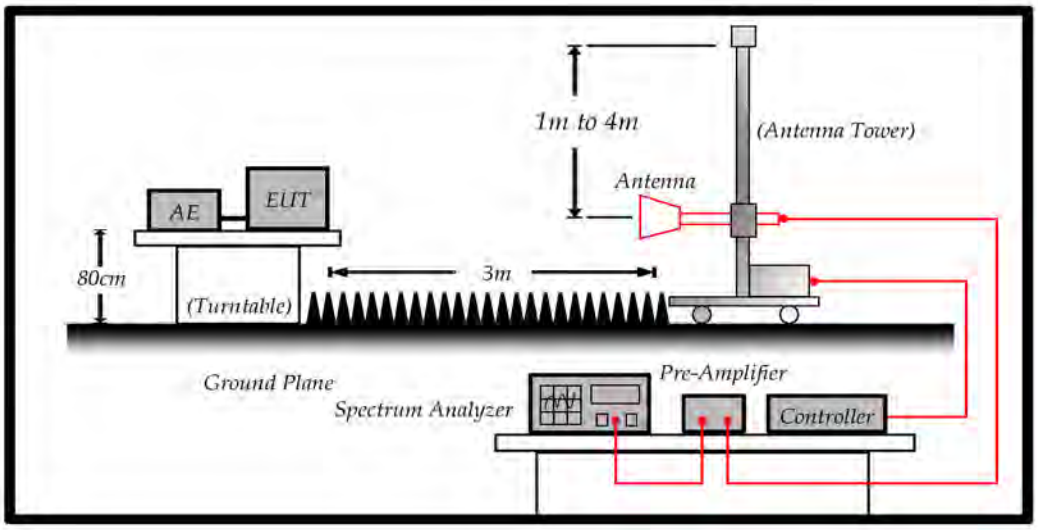
According to Part 2.1053, 24.238.

6.2 Test Setup

6.2.1 Spurious emissions at antenna terminals



6.2.2 Field strength of spurious radiation



6.3 Limits

Limit	< -13 dBm

43 + 10Log(P) down on the carrier where P is the power in Watts.

6.4 Test Procedure

In accordance with Part 2.1053, 24.238, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 30 MHz to 20 GHz. The EUT was set to transmit on full power. The EUT was tested on Low, middle and High channels for both power levels. The resolution and video bandwidth was set to 1 MHz/3 MHz in accordance with Part 2.1053, 24.238. The spectrum analyzer detector was set to Max Hold. In addition, measurements were made up to the 10th harmonic of the fundamental. The device was then replaced with a substitution antenna, which input signal was adjusted until the received level matched that of the previously detected emission.

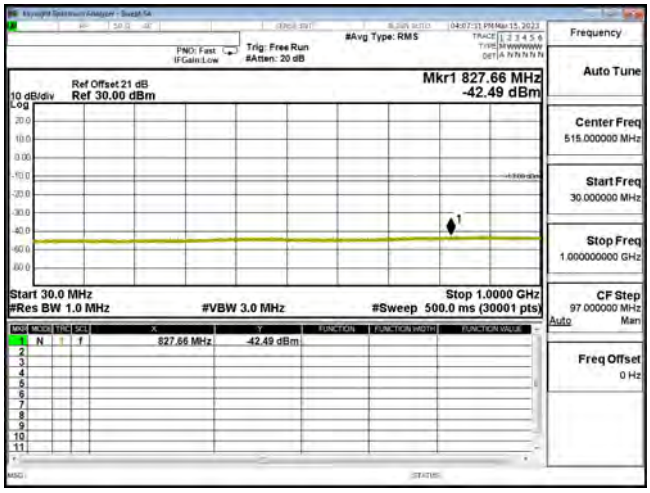
(1) The EUT is tested with maximum rated TX power via the Base Station simulator.
(2) The EUT is tested in three orthogonal planes, the worst case was showing in this report.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

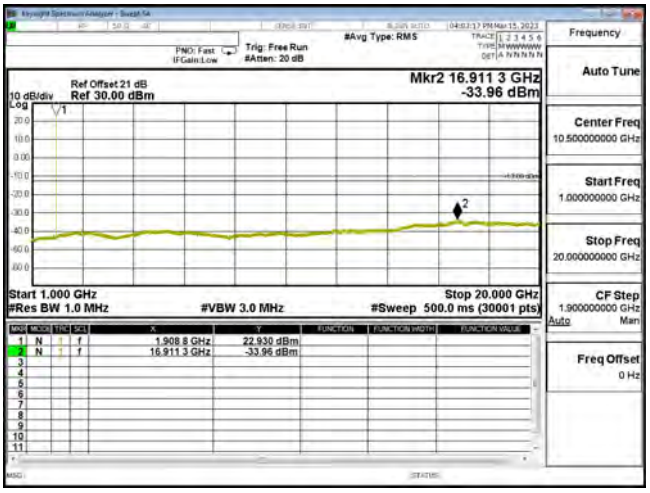
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to TIA/EIA 603-E on radiated measurement.

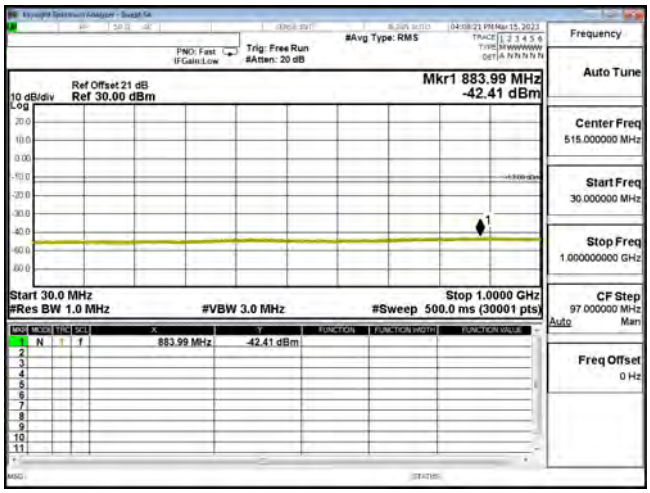
6.5 Test Result of Spurious Emission



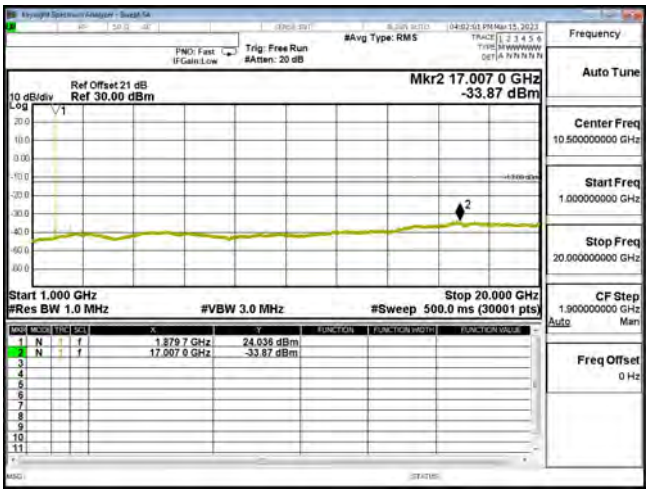
LTE BAND 2 1.4M CH19193 30M-1G



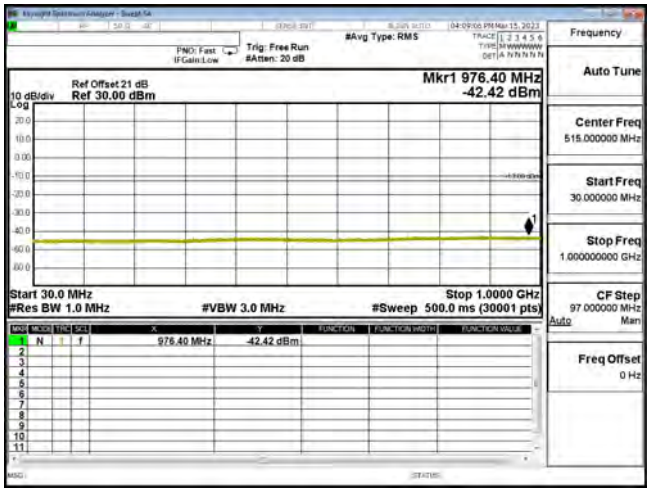
LTE BAND 2 1.4M CH19193 1G-20G



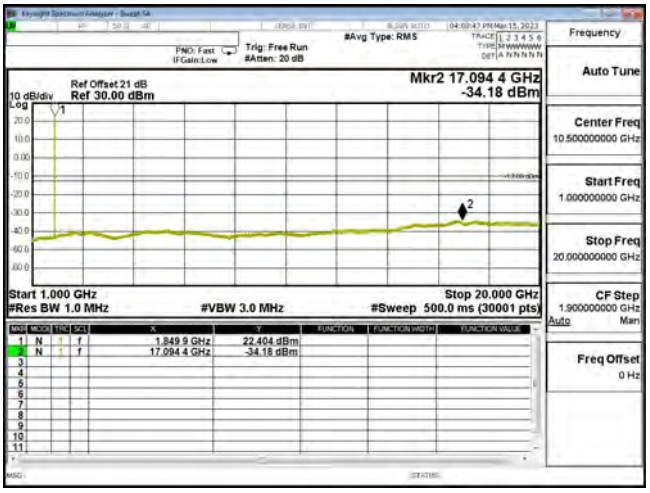
LTE BAND 2 1.4M CH18900 30M-1G



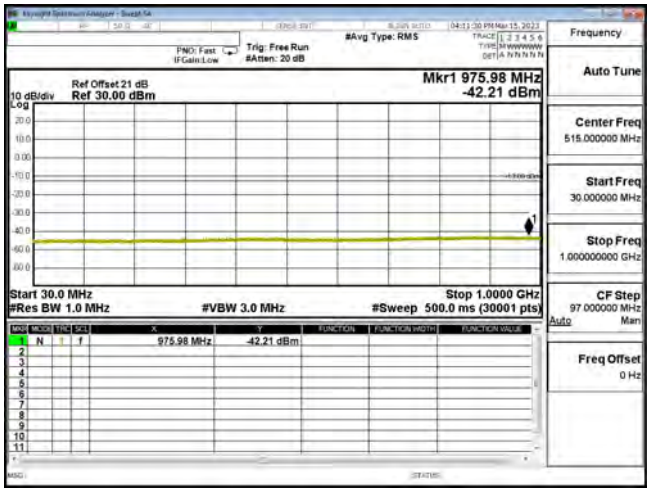
LTE BAND 2 1.4M CH18900 1G-20G



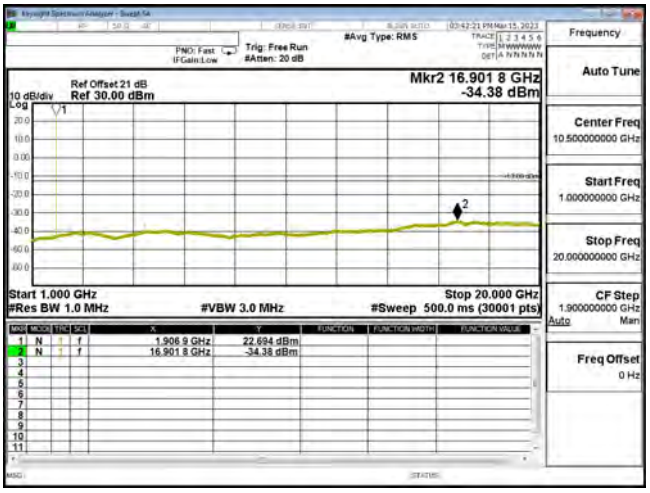
LTE BAND 2 1.4M CH18607 30M-1G



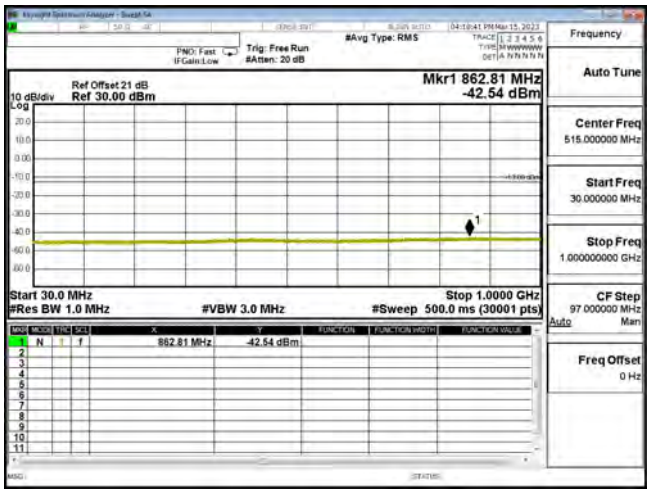
LTE BAND 2 1.4M CH18607 1G-20G



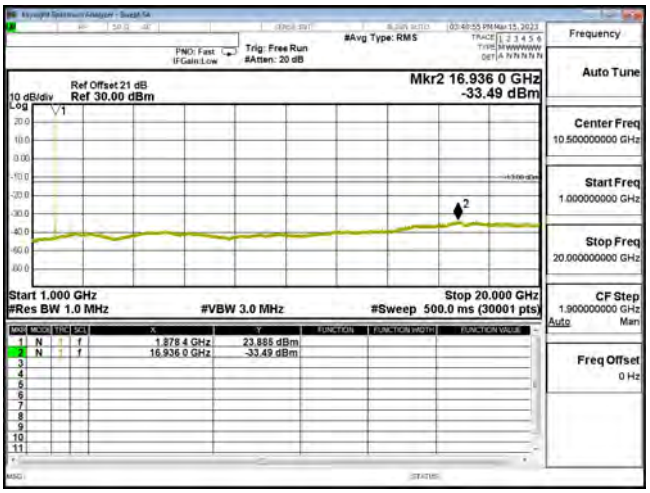
LTE BAND 2 3M CH19185 30M-1G



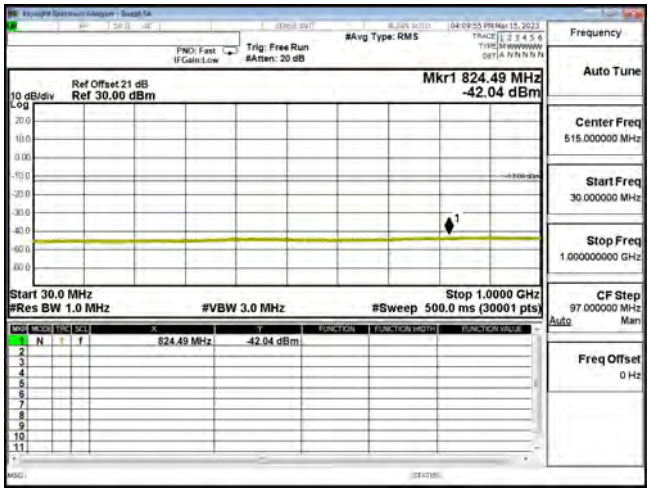
LTE BAND 2 3M CH19185 1G-20G



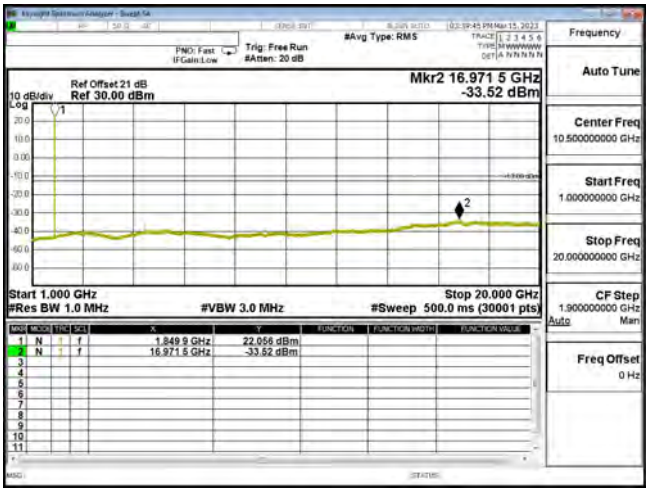
LTE BAND 2 3M CH18900 30M-1G



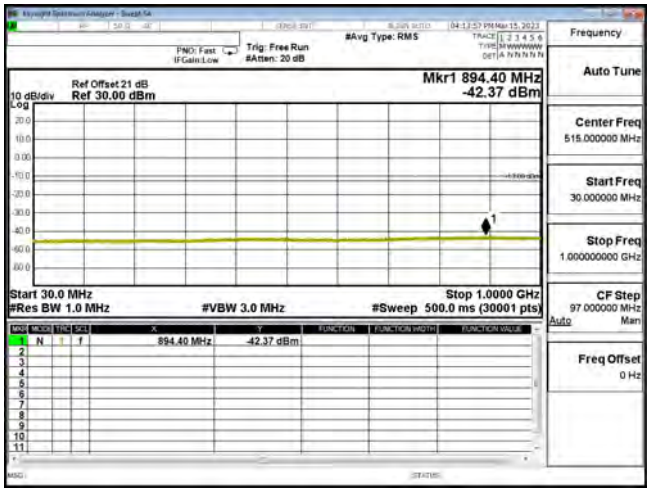
LTE BAND 2 3M CH18900 1G-20G



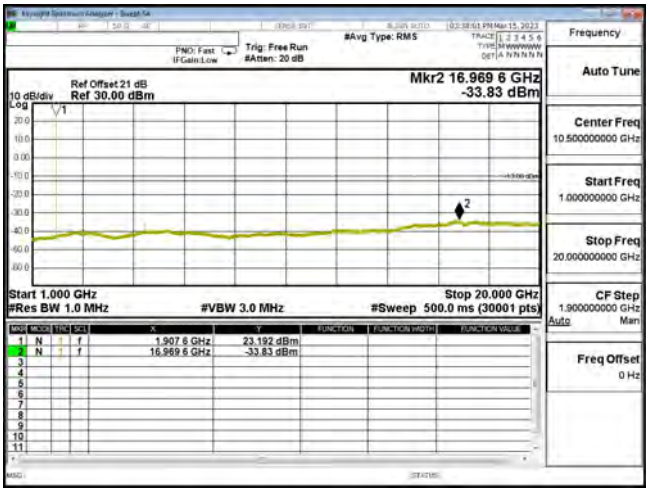
LTE BAND 2 3M CH18615 30M-1G



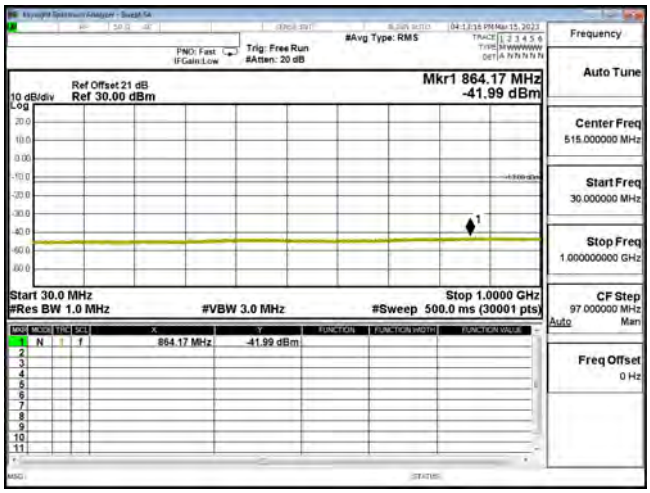
LTE BAND 2 3M CH18615 1G-20G



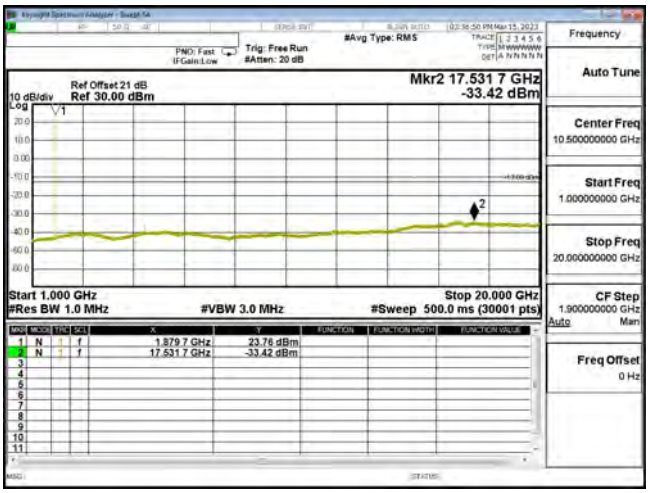
LTE BAND 2 5M CH19175 30M-1G



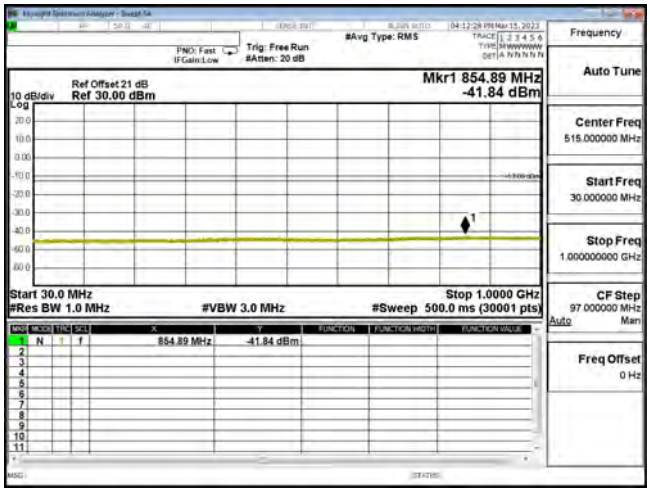
LTE BAND 2 5M CH19175 1G-20G



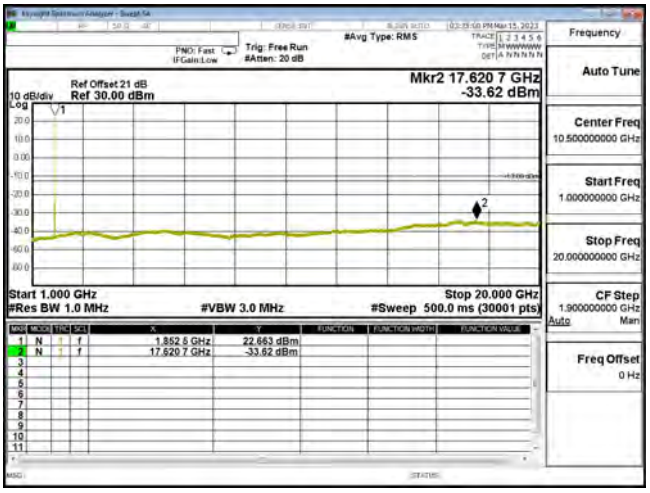
LTE BAND 2 5M CH18900 30M-1G



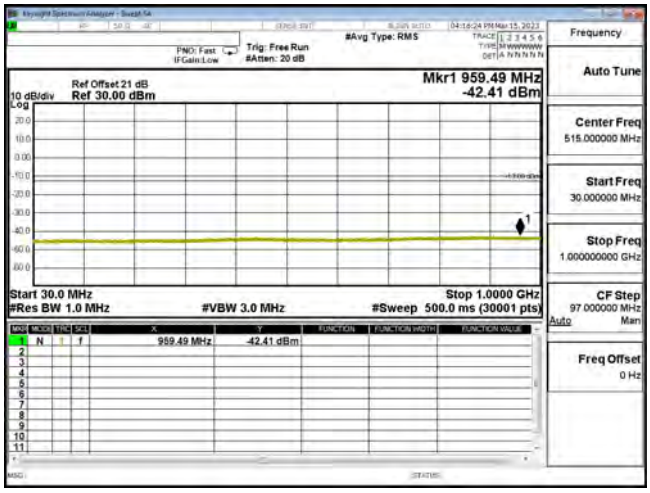
LTE BAND 2 5M CH18900 1G-20G



LTE BAND 2 5M CH18625 30M-1G



LTE BAND 2 5M CH18625 1G-20G



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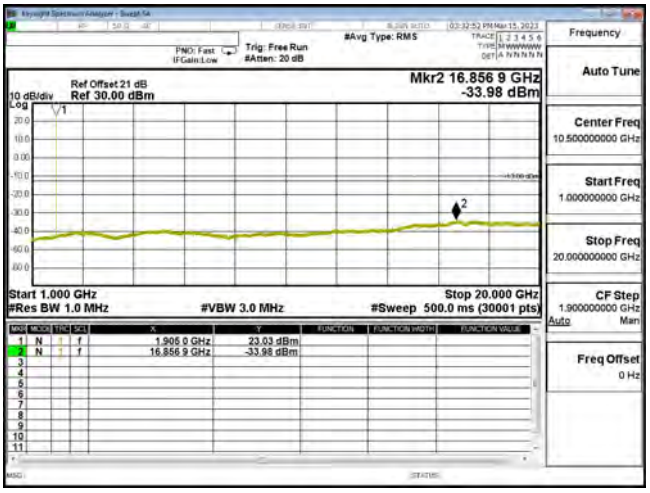
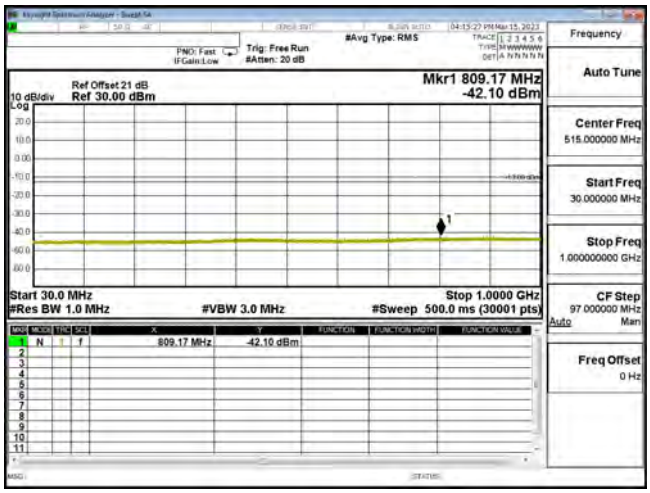
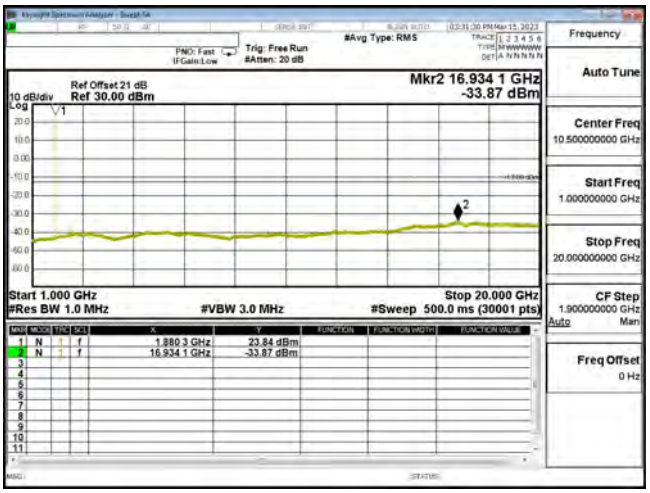


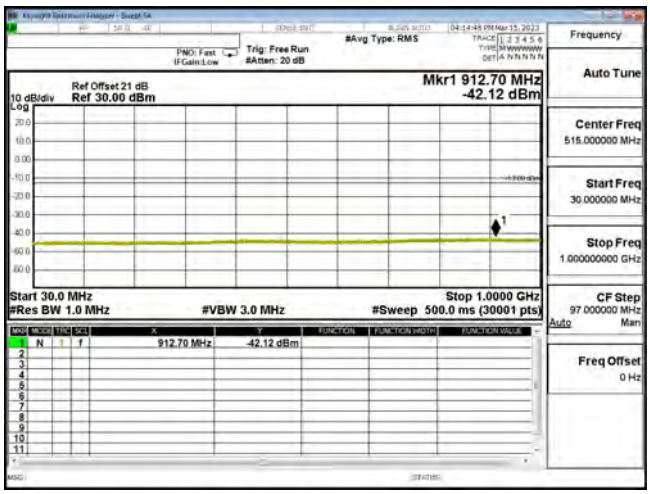
LTE BAND 2 10M CH19150 1G-20G



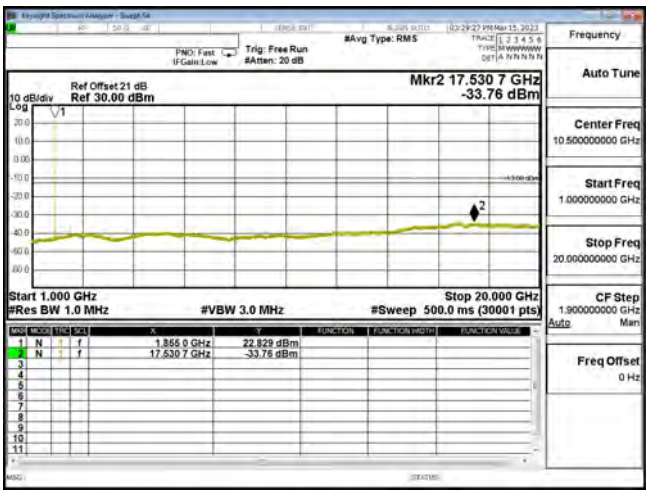
LTE BAND 2 10M CH18900 30M-1G



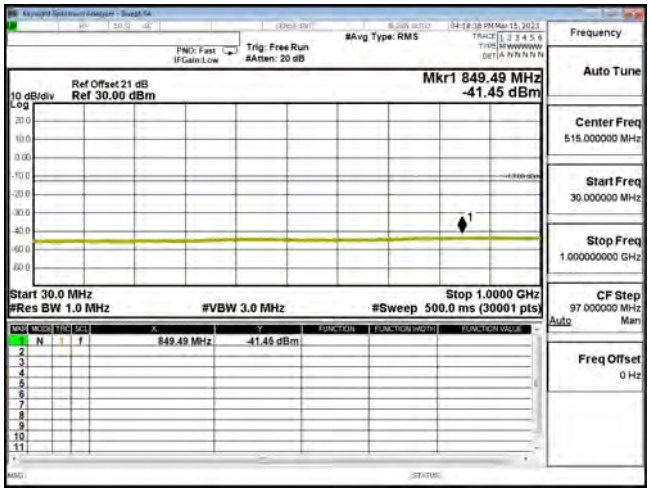
LTE BAND 2 10M CH18900 1G-20G



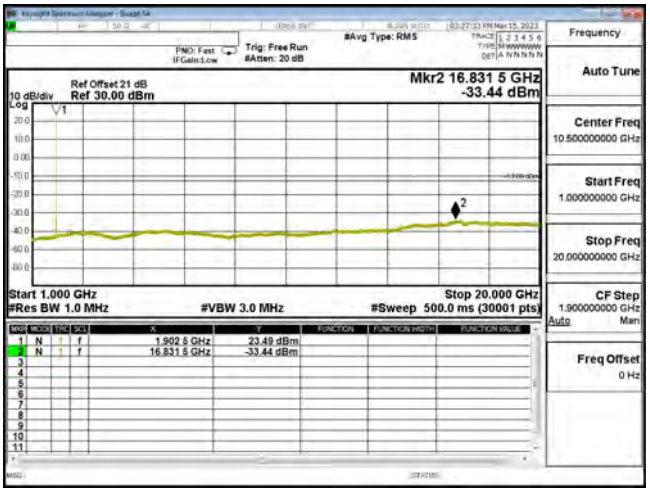
LTE BAND 2 10M CH18650 30M-1G



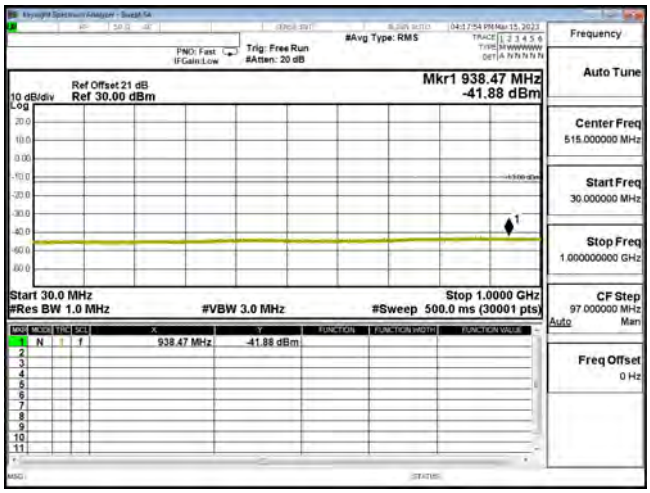
LTE BAND 2 10M CH18650 1G-20G



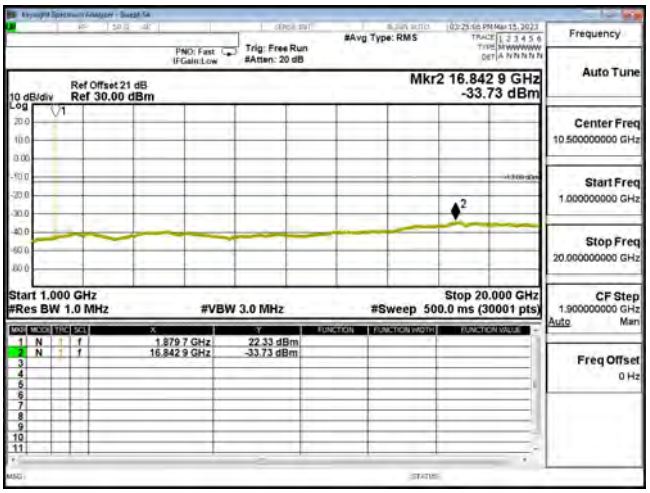
LTE BAND 2 15M CH19125 30M-1G



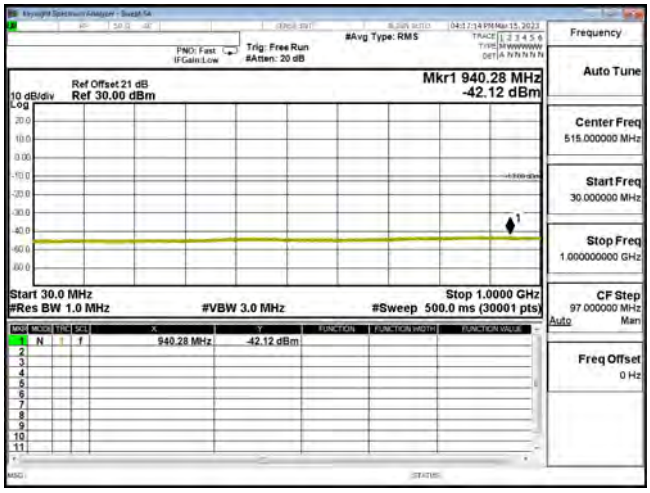
LTE BAND 2 15M CH19125 1G-20G



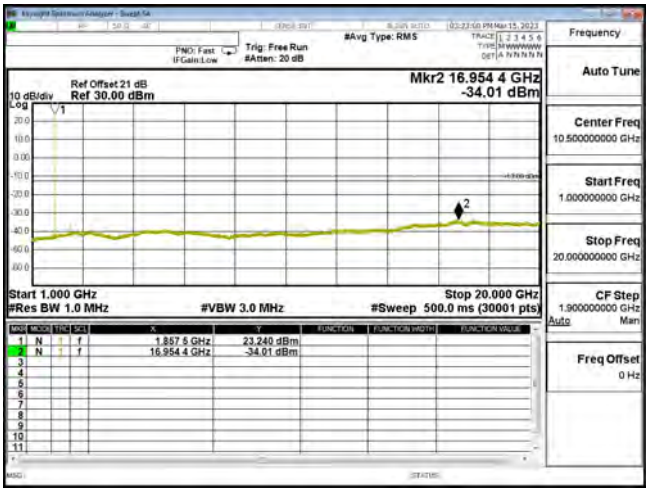
LTE BAND 2 15M CH18900 30M-1G



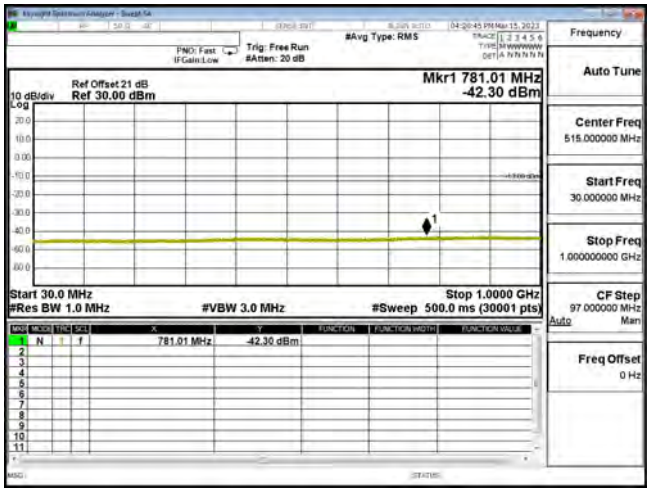
LTE BAND 2 15M CH18900 1G-20G



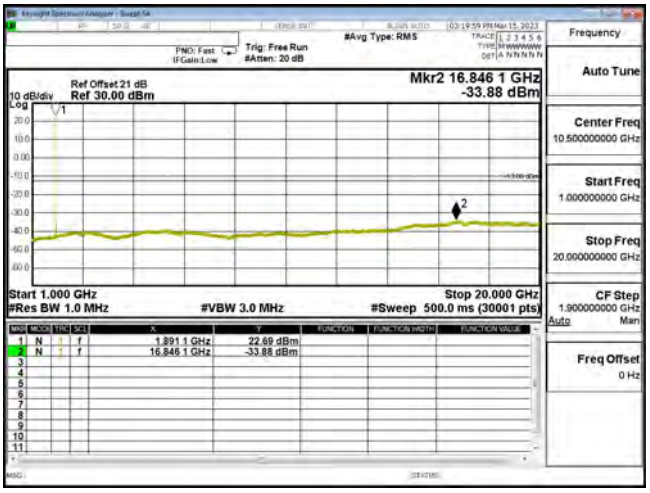
LTE BAND 2 15M CH18675 30M-1G



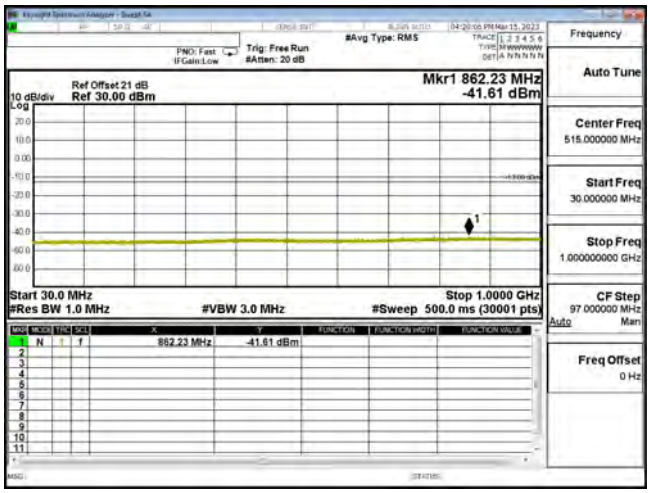
LTE BAND 2 15M CH18675 1G-20G



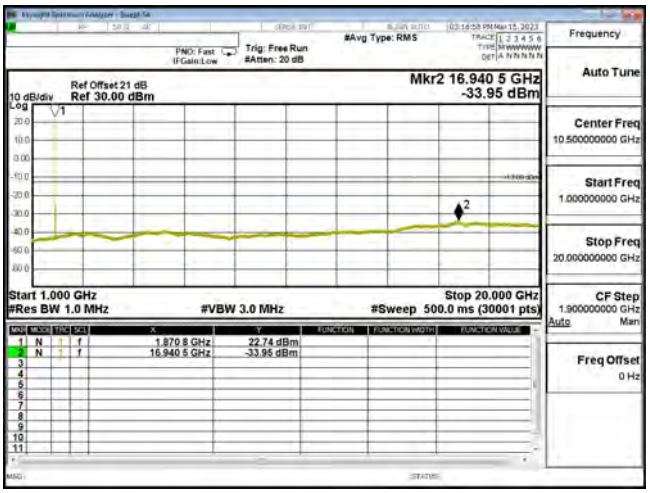
LTE BAND 2 20M CH19100 30M-1G



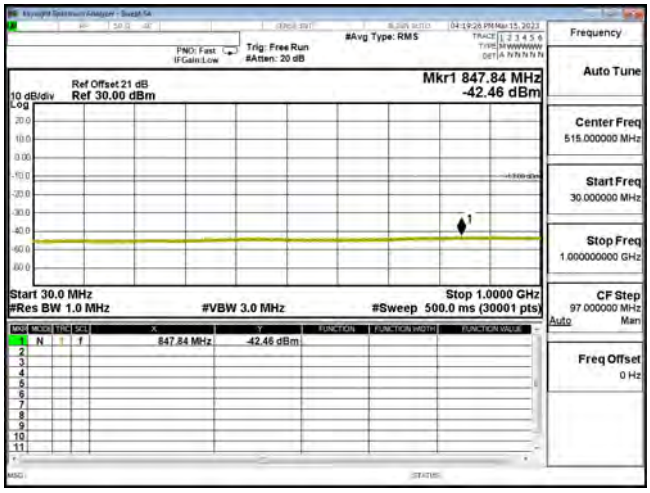
LTE BAND 2 20M CH19100 1G-20G



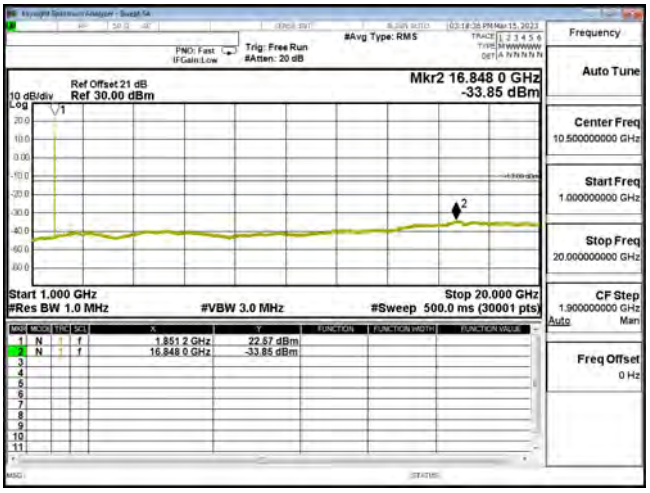
LTE BAND 2 20M CH18900 30M-1G



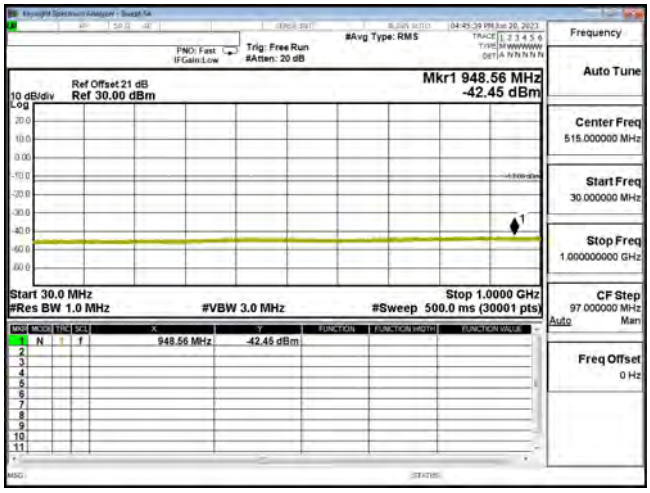
LTE BAND 2 20M CH18900 1G-20G



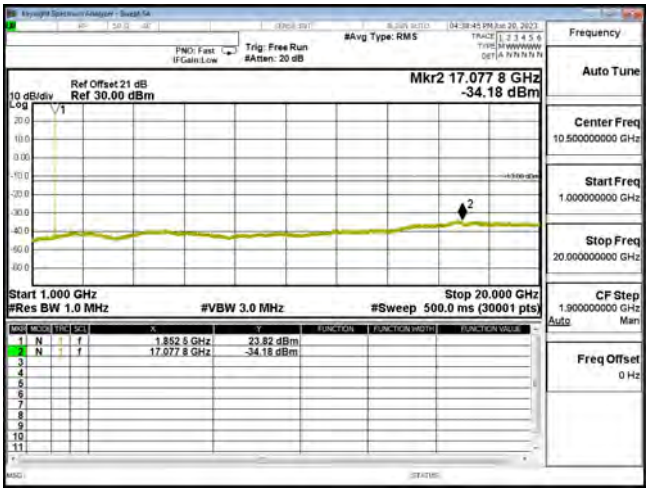
LTE BAND 2 20M CH18700 30M-1G



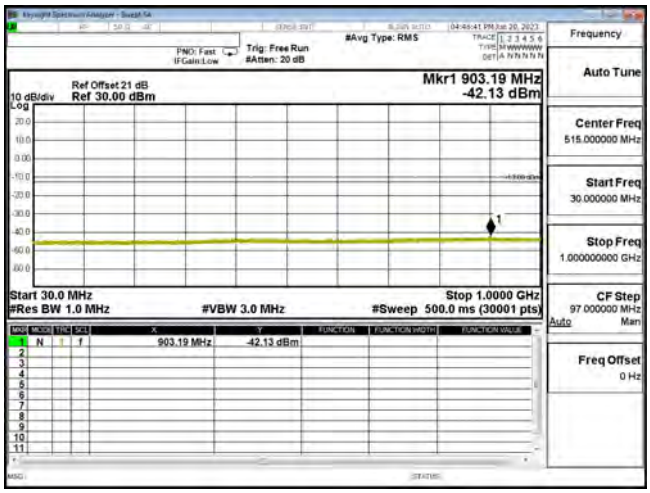
LTE BAND 2 20M CH18700 1G-20G



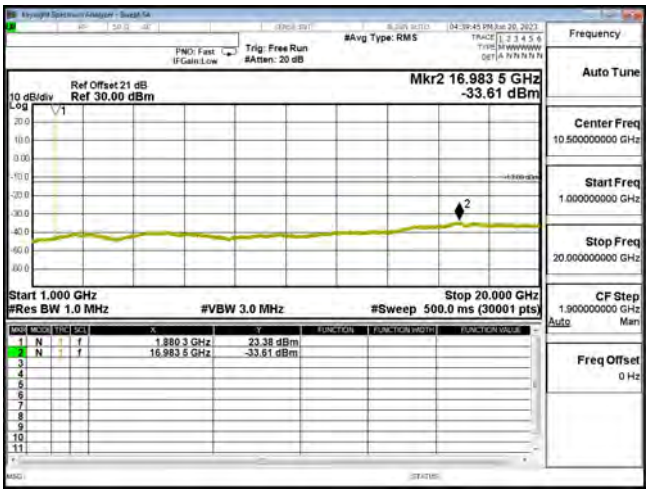
CSE n2 5M CH370500 BPSK(1,13) 30M-1G



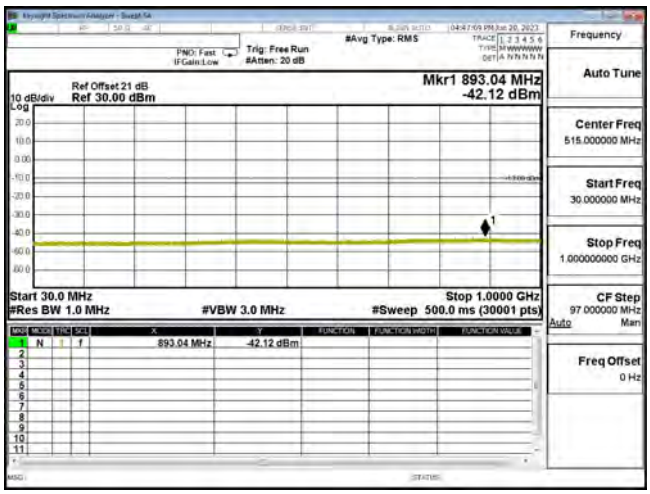
CSE n2 5M CH370500 BPSK(1,13) 1G-20G



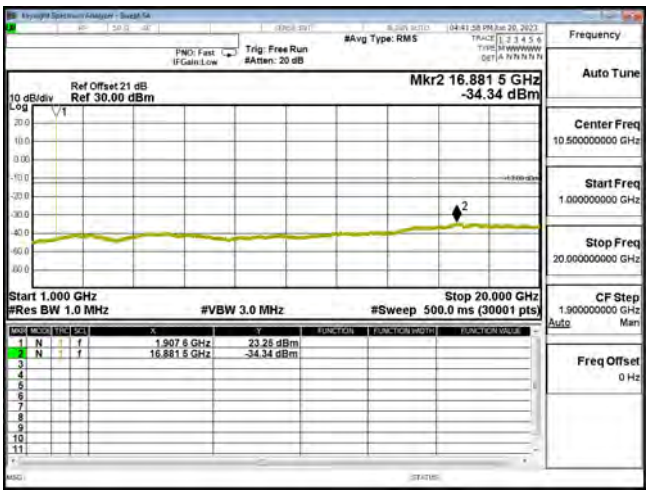
CSE n2 5M CH376000 BPSK(1,13) 30M-1G



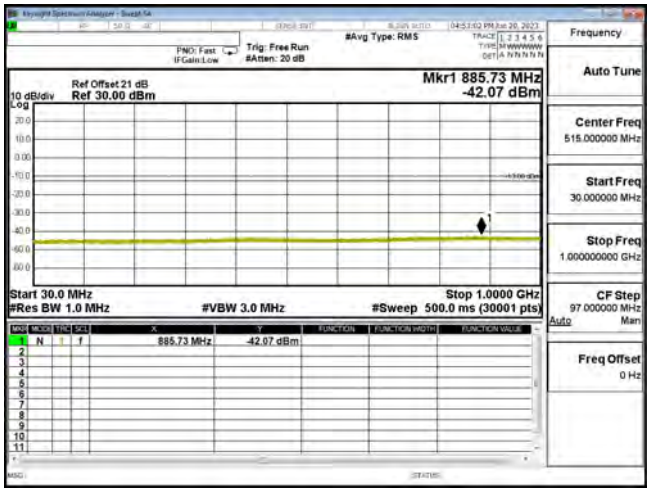
CSE n2 5M CH376000 BPSK(1,13) 1G-20G



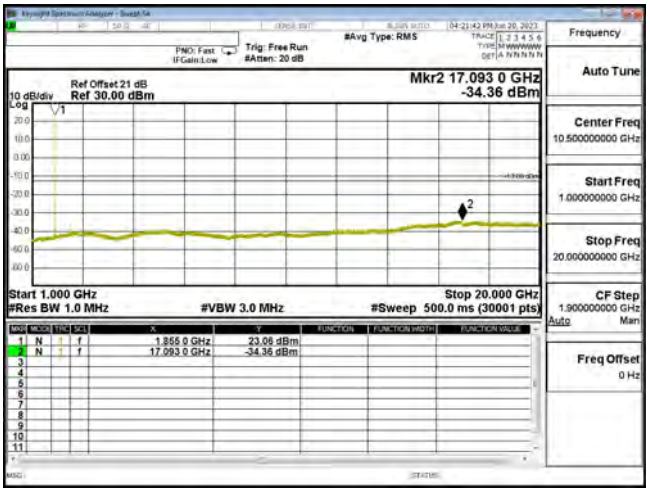
CSE n2 5M CH381500 BPSK(1,13) 30M-1G



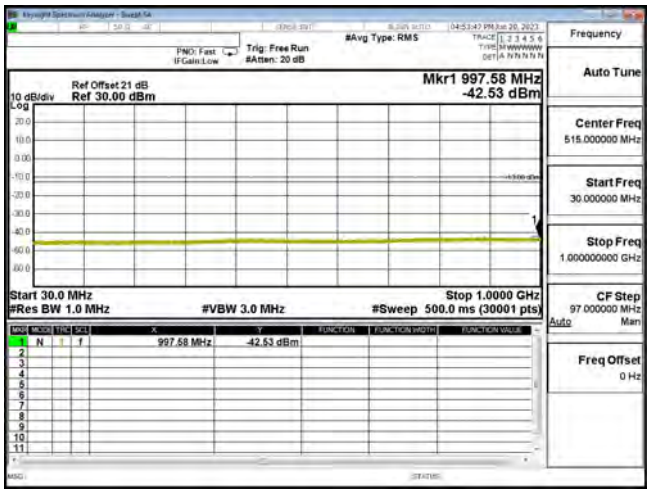
CSE n2 5M CH381500 BPSK(1,13) 1G-20G



CSE n2 10M CH371000 BPSK(1,26) 30M-1G

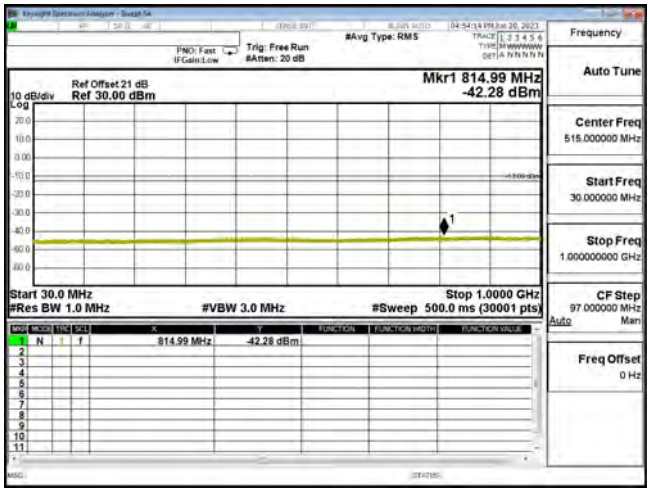


CSE n2 10M CH371000 BPSK(1,26) 1G-20G



CSE n2 10M CH376000 BPSK(1,26) 30M-1G

CSE n2 10M CH376000 BPSK(1,26) 1G-20G



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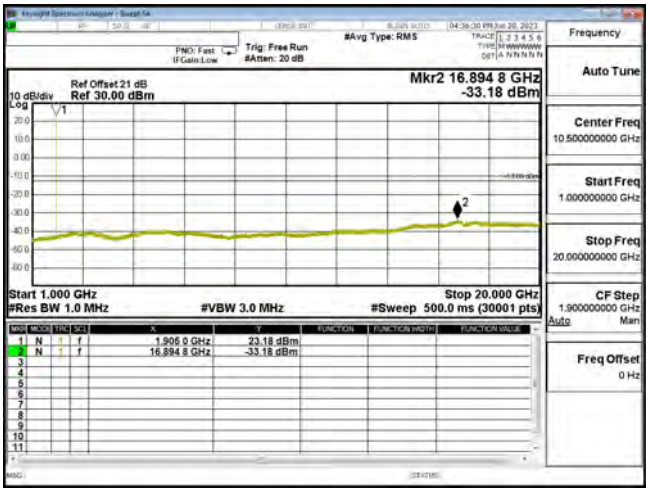
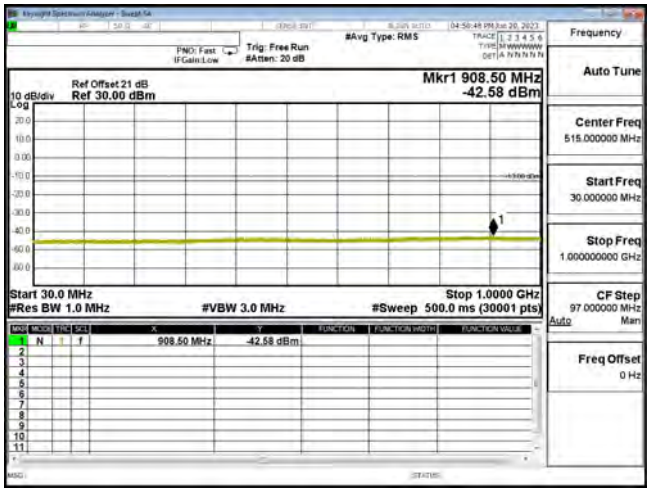
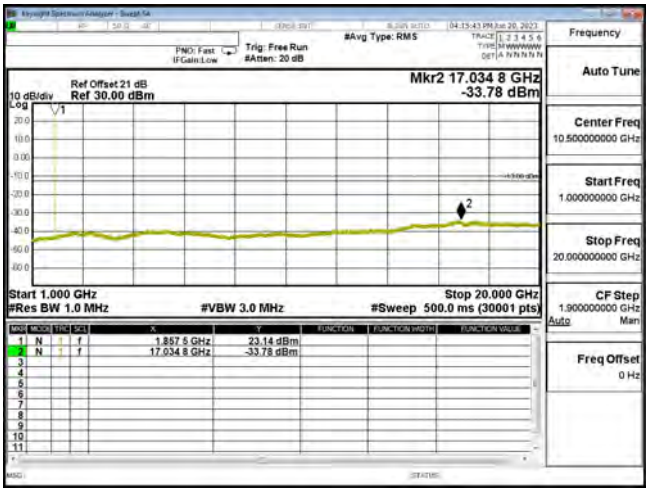


CSE n2 10M CH381000 BPSK(1,26) 1G-20G



CSE n2 15M CH371500 BPSK(1,39) 30M-1G



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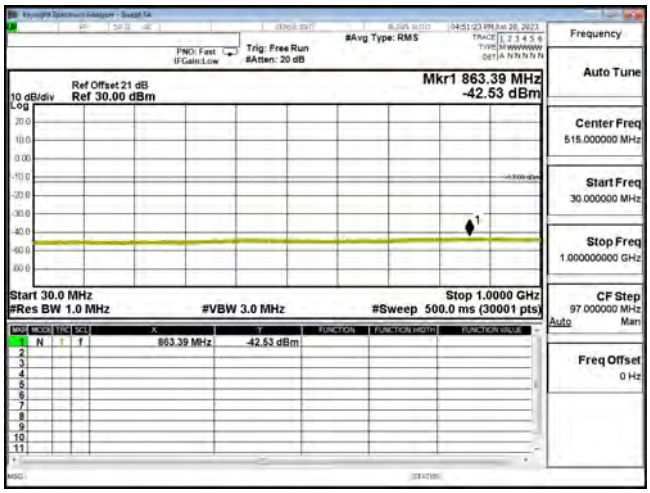
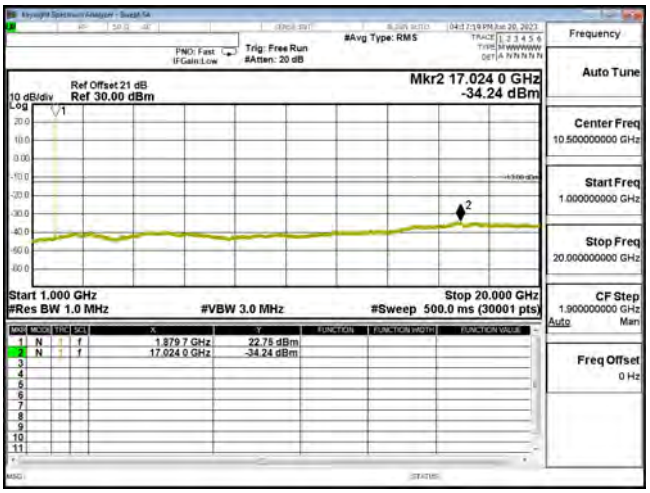
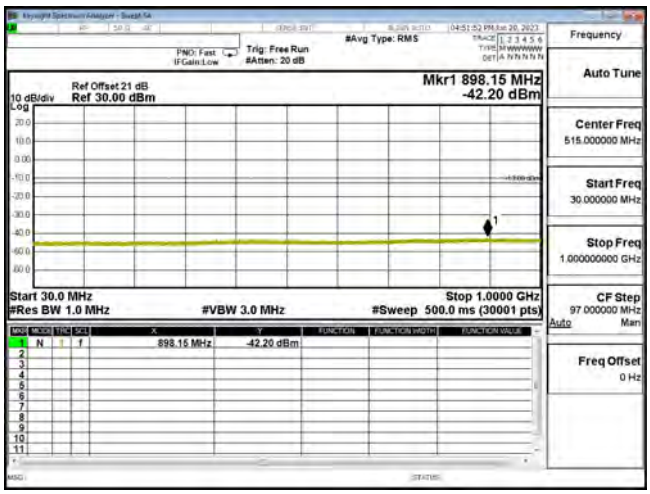


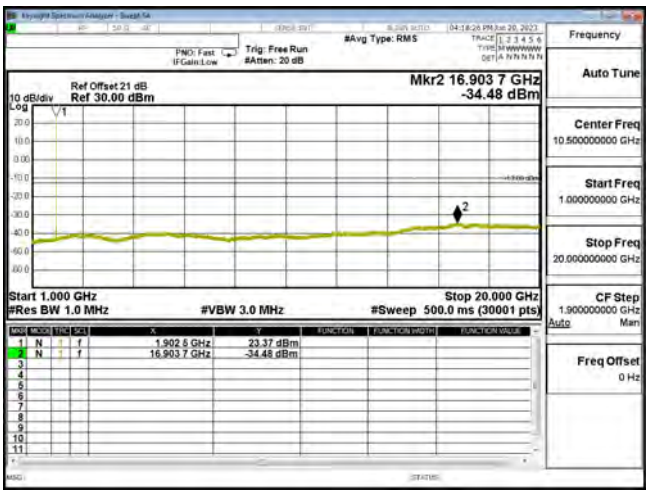
CSE n2 15M CH376000 BPSK(1,39) 30M-1G



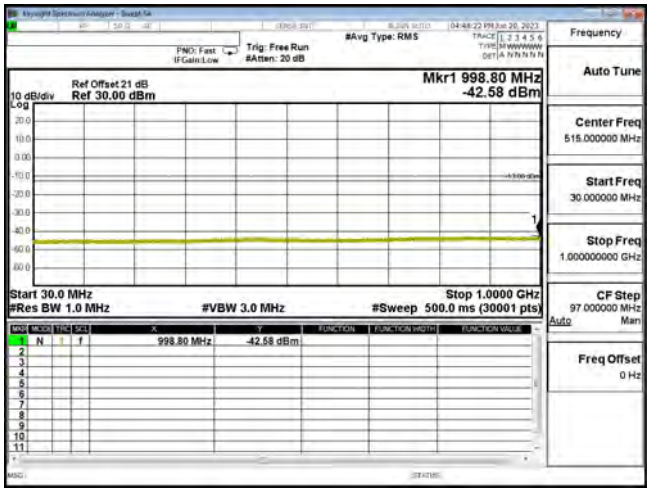
CSE n2 15M CH376000 BPSK(1,39) 1G-20G



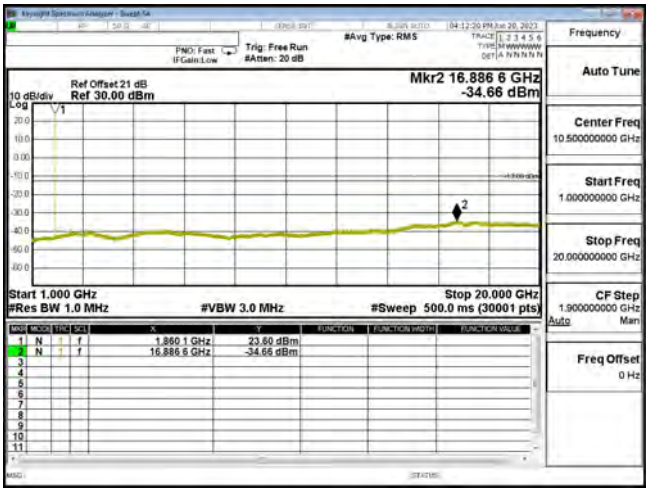
CSE n2 15M CH380500 BPSK(1,39) 30M-1G



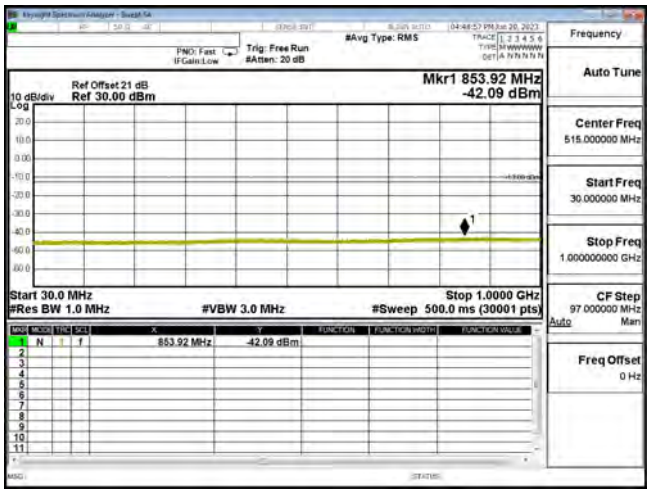
CSE n2 15M CH380500 BPSK(1,39) 1G-20G



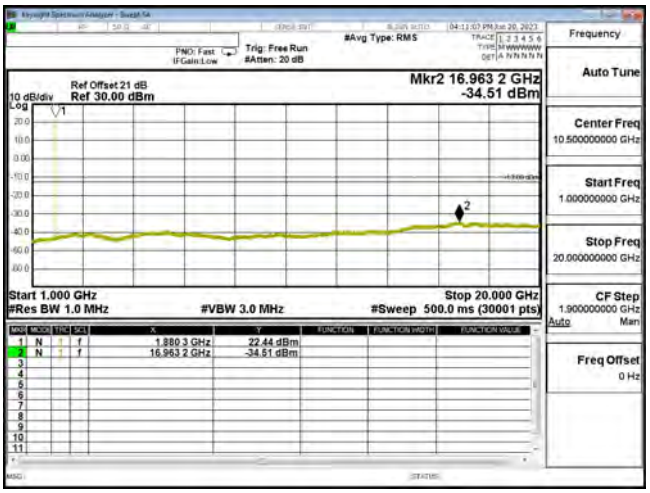
CSE n2 20M CH372000 BPSK(1,53) 30M-1G



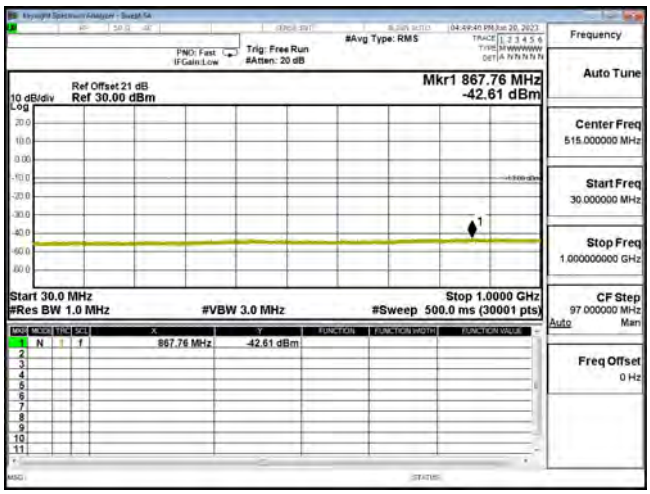
CSE n2 20M CH372000 BPSK(1,53) 1G-20G



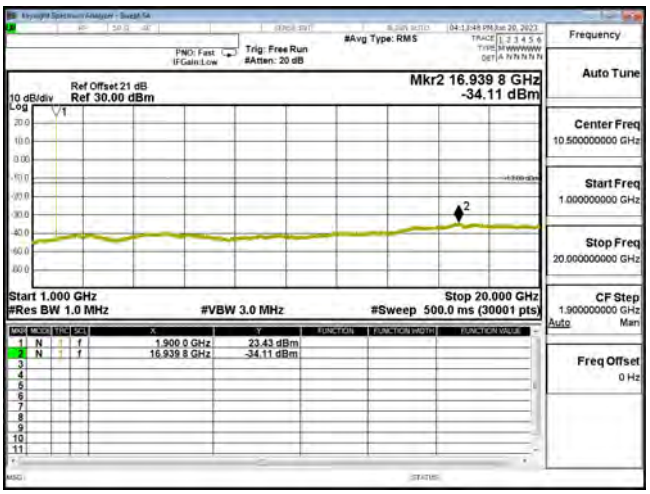
CSE n2 20M CH376000 BPSK(1,53) 30M-1G



CSE n2 20M CH376000 BPSK(1,53) 1G-20G

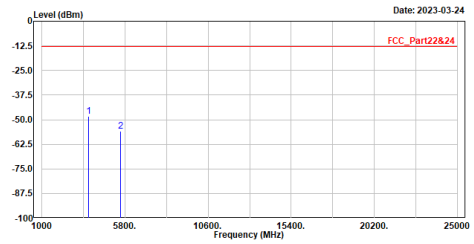


CSE n2 20M CH380000 BPSK(1,53) 30M-1G



CSE n2 20M CH380000 BPSK(1,53) 1G-20G

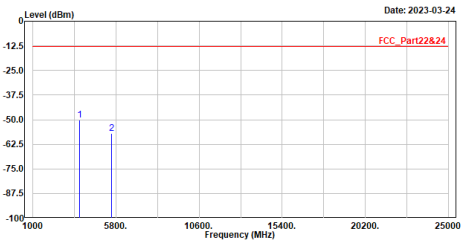
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B2_3M_QPSK_1RB7_CH18615
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3703.000	-48.45	-13.00	-35.45	-41.49	-6.96	Peak
2	5554.500	-55.68	-13.00	-42.68	-55.24	-0.44	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

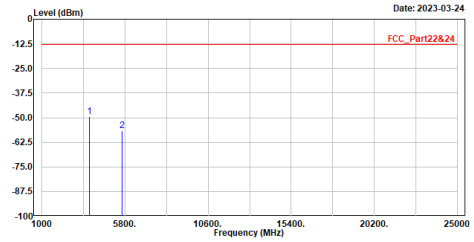
Site :HY-CB03
Condition :3m Vertical
Mode :LTE_B2_3M_QPSK_1RB7_CH18615
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3703.000	-50.12	-13.00	-37.12	-43.16	-6.96	Peak
2	5554.500	-56.87	-13.00	-43.87	-56.43	-0.44	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

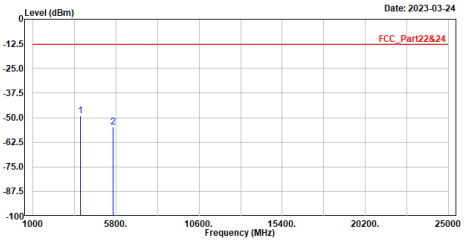
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B2_3M_QPSK_1RB7_CH18900
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.000	-49.36	-13.00	-36.36	-42.77	-6.59	Peak
2	5640.000	-56.55	-13.00	-43.55	-56.51	-0.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

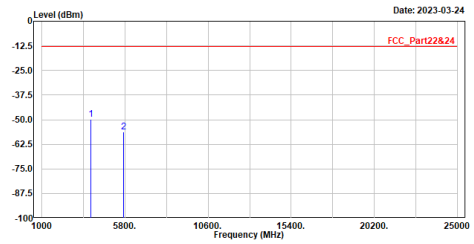
Site :HY-CB03
Condition :3m Vertical
Mode :LTE_B2_3M_QPSK_1RB7_CH18900
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.000	-48.92	-13.00	-35.92	-42.33	-6.59	Peak
2	5640.000	-54.75	-13.00	-41.75	-54.71	-0.04	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

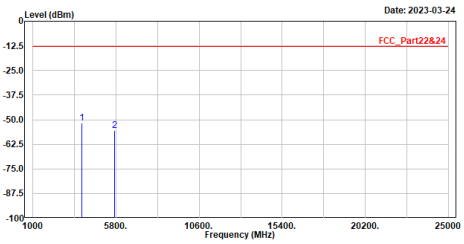
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B2_3M_QPSK_1RB7_CH19185
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3817.000	-49.94	-13.00	-36.94	-43.64	-6.30	Peak
2	5725.500	-56.37	-13.00	-43.37	-56.69	0.32	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

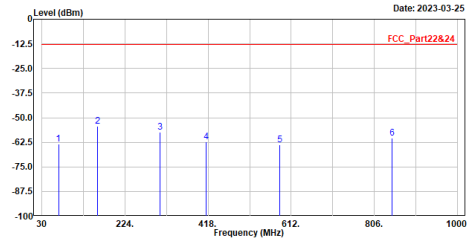
Site :HY-CB03
Condition :3m Vertical
Mode :LTE_B2_3M_QPSK_1RB7_CH19185
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3817.000	-51.69	-13.00	-38.69	-45.39	-6.30	Peak
2	5725.500	-55.50	-13.00	-42.50	-55.82	0.32	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

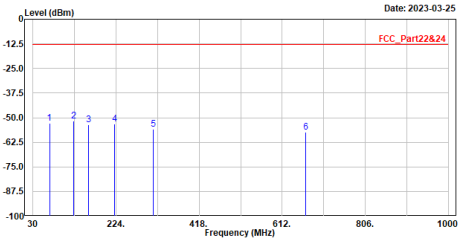
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B2_3M_QPSK_1RB7_CH18615
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	68.800	-63.35	-13.00	-50.35	-46.67	-16.68	Peak
2	159.980	-54.35	-13.00	-41.35	-40.00	-14.35	Peak
3	305.480	-57.28	-13.00	-44.28	-43.34	-13.94	Peak
4	413.150	-62.28	-13.00	-49.28	-51.04	-11.24	Peak
5	584.840	-63.69	-13.00	-50.69	-56.66	-7.03	Peak
6	847.710	-60.41	-13.00	-47.41	-57.13	-3.28	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

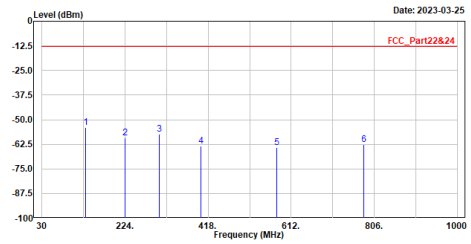
Site :HY-CB03
Condition :3m Vertical
Mode :LTE_B2_3M_QPSK_1RB7_CH18615
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	68.800	-52.89	-13.00	-39.89	-36.21	-16.68	Peak
2	126.030	-51.56	-13.00	-38.56	-35.46	-16.10	Peak
3	159.980	-53.50	-13.00	-40.50	-39.15	-14.35	Peak
4	221.090	-53.03	-13.00	-40.03	-35.85	-17.18	Peak
5	310.330	-55.84	-13.00	-42.84	-42.10	-13.74	Peak
6	666.320	-57.34	-13.00	-44.34	-51.57	-5.77	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

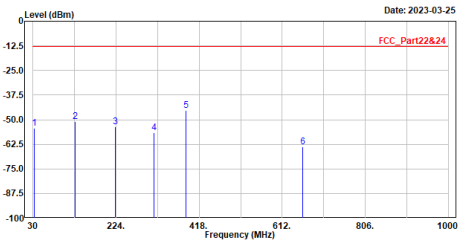
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B2_3M_QPSK_1RB7_CH18900
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	131.850	-53.81	-13.00	-40.81	-38.32	-15.49	Peak
2	224.970	-59.17	-13.00	-46.17	-42.06	-17.11	Peak
3	304.510	-57.22	-13.00	-44.22	-43.25	-13.97	Peak
4	400.540	-63.33	-13.00	-50.33	-51.82	-11.51	Peak
5	579.020	-64.08	-13.00	-51.08	-56.89	-7.19	Peak
6	781.750	-62.72	-13.00	-49.72	-58.92	-3.80	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

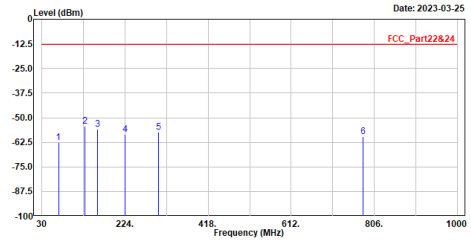
Site :HY-CB03
Condition :3m Vertical
Mode :LTE_B2_3M_QPSK_1RB7_CH18900
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	32.910	-54.29	-13.00	-41.29	-38.60	-15.69	Peak
2	127.970	-50.88	-13.00	-37.88	-34.88	-16.00	Peak
3	222.060	-53.71	-13.00	-40.71	-36.55	-17.16	Peak
4	312.270	-56.54	-13.00	-43.54	-42.89	-13.65	Peak
5	386.960	-45.32	-13.00	-32.32	-33.49	-11.83	Peak
6	659.530	-63.80	-13.00	-50.80	-58.09	-5.71	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

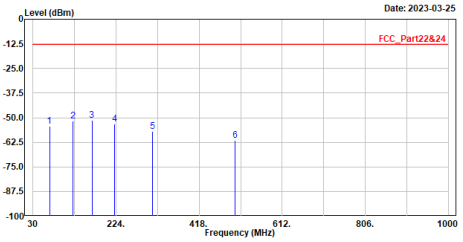
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B2_3M_QPSK_1RB7_CH19185
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	68.800	-62.65	-13.00	-49.65	-45.97	-16.68	Peak
2	130.880	-54.36	-13.00	-41.36	-38.85	-15.51	Peak
3	159.980	-55.69	-13.00	-42.69	-41.34	-14.35	Peak
4	224.000	-58.49	-13.00	-45.49	-41.36	-17.13	Peak
5	301.600	-57.25	-13.00	-44.25	-43.22	-14.03	Peak
6	779.810	-59.77	-13.00	-46.77	-55.97	-3.80	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

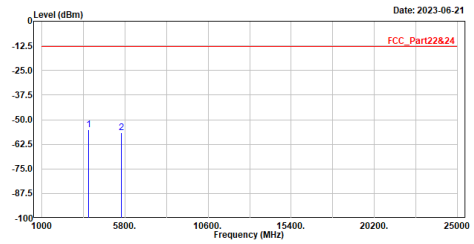
Site :HY-CB03
Condition :3m Vertical
Mode :LTE_B2_3M_QPSK_1RB7_CH19185
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	68.800	-54.40	-13.00	-41.40	-37.72	-16.68	Peak
2	123.120	-51.70	-13.00	-38.70	-35.28	-16.42	Peak
3	167.740	-51.46	-13.00	-38.46	-36.85	-14.61	Peak
4	221.090	-53.28	-13.00	-40.28	-36.10	-17.18	Peak
5	309.360	-57.11	-13.00	-44.11	-43.33	-13.78	Peak
6	502.390	-61.46	-13.00	-48.46	-52.65	-8.81	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

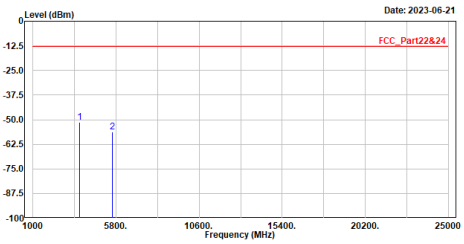
Site :HY-CB03
Condition :3m Horizontal
Mode :5GNR_N2_15M_1RB39_CH371500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3715.000	-55.01	-13.00	-42.01	-48.20	-6.81	Peak
2	5572.500	-56.77	-13.00	-43.77	-56.59	-0.18	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

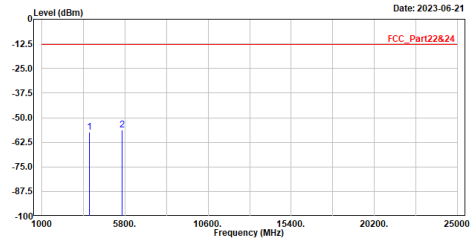
Site :HY-CB03
Condition :3m Vertical
Mode :5GNR_N2_15M_1RB39_CH371500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3715.000	-51.25	-13.00	-38.25	-44.44	-6.81	Peak
2	5572.500	-56.29	-13.00	-43.29	-56.11	-0.18	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

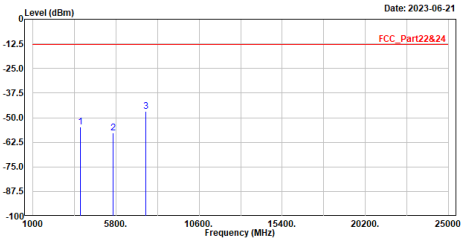
Site :HY-CB03
Condition :3m Horizontal
Mode :5GNR_N2_15M_1RB39_CH376000
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.000	-57.33	-13.00	-44.33	-50.86	-6.47	Peak
2	5640.000	-56.07	-13.00	-43.07	-55.97	-0.10	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

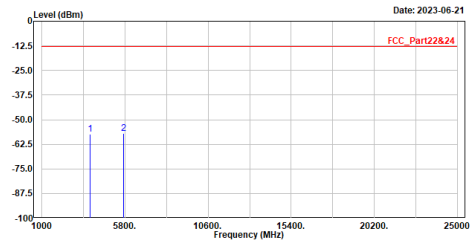
Site :HY-CB03
Condition :3m Vertical
Mode :5GNR_N2_15M_1RB39_CH376000
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.000	-54.69	-13.00	-41.69	-48.22	-6.47	Peak
2	5640.000	-57.81	-13.00	-44.81	-57.71	-0.10	Peak
3	7520.000	-46.66	-13.00	-33.66	-51.52	4.86	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

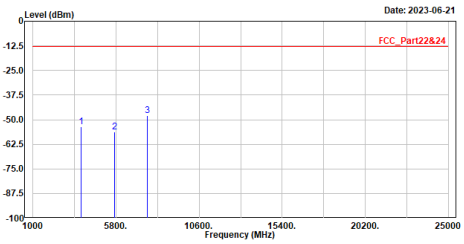
Site :HY-CB03
Condition :3m Horizontal
Mode :5GNR_N2_15M_1RB39_CH380500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3805.000	-57.36	-13.00	-44.36	-51.18	-6.18	Peak
2	5707.500	-57.08	-13.00	-44.08	-57.38	0.30	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

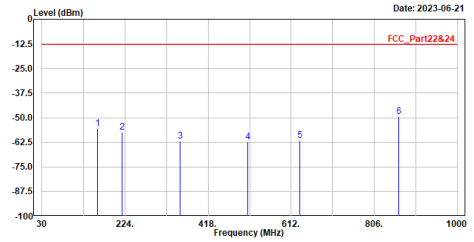
Site :HY-CB03
Condition :3m Vertical
Mode :5GNR_N2_15M_1RB39_CH380500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3805.000	-53.63	-13.00	-40.63	-47.45	-6.18	Peak
2	5707.500	-56.14	-13.00	-43.14	-56.44	0.30	Peak
3	7610.000	-47.84	-13.00	-34.84	-52.48	4.64	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

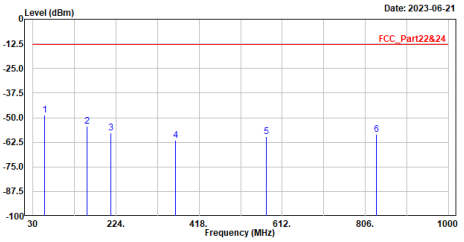
Site :HY-CB03
Condition :3m Horizontal
Mode :5GNR_N2_15M_1RB39_CH371500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	159.980	-55.48	-13.00	-42.48	-41.13	-14.35	Peak
2	217.210	-57.31	-13.00	-44.31	-40.09	-17.22	Peak
3	353.010	-61.78	-13.00	-48.78	-48.97	-12.81	Peak
4	510.150	-62.23	-13.00	-49.23	-53.54	-8.69	Peak
5	632.370	-61.46	-13.00	-48.46	-55.33	-6.13	Peak
6	863.230	-49.44	-13.00	-36.44	-46.26	-3.18	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

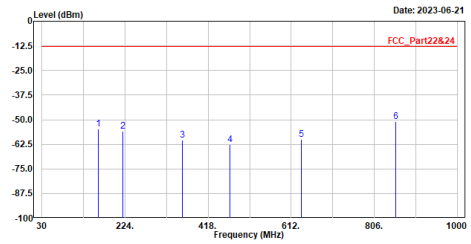
Site :HY-CB03
Condition :3m Vertical
Mode :5GNR_N2_15M_1RB39_CH371500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	57.160	-48.66	-13.00	-35.66	-33.62	-15.04	Peak
2	156.100	-54.38	-13.00	-41.38	-39.92	-14.46	Peak
3	211.390	-57.61	-13.00	-44.61	-40.29	-17.32	Peak
4	363.680	-61.35	-13.00	-48.35	-48.96	-12.39	Peak
5	574.170	-59.64	-13.00	-46.64	-52.25	-7.39	Peak
6	831.220	-58.32	-13.00	-45.32	-54.86	-3.46	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

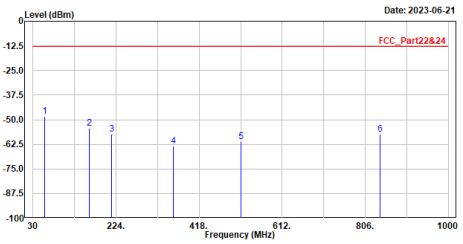
Site :HY-CB03
Condition :3m Horizontal
Mode :5GNR_N2_15M_1RB39_CH376000
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	160.950	-54.55	-13.00	-41.55	-40.10	-14.45	Peak
2	219.150	-55.69	-13.00	-42.69	-38.49	-17.20	Peak
3	357.860	-60.47	-13.00	-47.47	-47.89	-12.58	Peak
4	468.440	-62.52	-13.00	-49.52	-52.93	-9.59	Peak
5	635.280	-60.16	-13.00	-47.16	-54.09	-6.07	Peak
6	855.470	-50.93	-13.00	-37.93	-47.75	-3.18	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

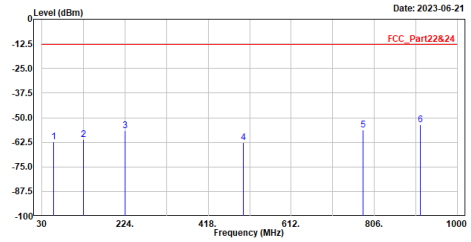
Site :HY-CB03
Condition :3m Vertical
Mode :5GNR_N2_15M_1RB39_CH376000
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	57.160	-48.45	-13.00	-35.45	-33.41	-15.04	Peak
2	161.920	-54.30	-13.00	-41.30	-39.94	-14.36	Peak
3	214.300	-57.28	-13.00	-44.28	-40.04	-17.24	Peak
4	357.860	-63.21	-13.00	-50.21	-50.63	-12.58	Peak
5	515.970	-61.22	-13.00	-48.22	-52.56	-8.66	Peak
6	839.950	-57.27	-13.00	-44.27	-53.99	-3.28	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

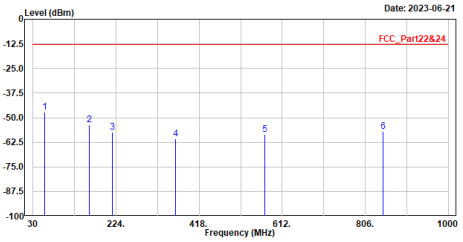
Site :HY-CB03
Condition :3m Horizontal
Mode :5GNR_N2_15M_1RB39_CH380500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	57.160	-62.18	-13.00	-49.18	-47.14	-15.04	Peak
2	127.000	-61.10	-13.00	-48.10	-45.10	-16.00	Peak
3	224.970	-56.47	-13.00	-43.47	-39.36	-17.11	Peak
4	500.450	-62.58	-13.00	-49.58	-53.85	-8.73	Peak
5	779.810	-56.36	-13.00	-43.36	-52.56	-3.80	Peak
6	913.670	-53.74	-13.00	-40.74	-51.41	-2.33	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

Site :HY-CB03
Condition :3m Vertical
Mode :5GNR_N2_15M_1RB39_CH380500
Test BY :Ashton



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	57.160	-47.27	-13.00	-34.27	-32.23	-15.04	Peak
2	160.950	-53.74	-13.00	-40.74	-39.29	-14.45	Peak
3	215.270	-57.44	-13.00	-44.44	-40.21	-17.23	Peak
4	362.710	-60.63	-13.00	-47.63	-48.21	-12.42	Peak
5	572.230	-58.40	-13.00	-45.40	-50.91	-7.49	Peak
6	846.740	-57.15	-13.00	-44.15	-53.87	-3.28	Peak

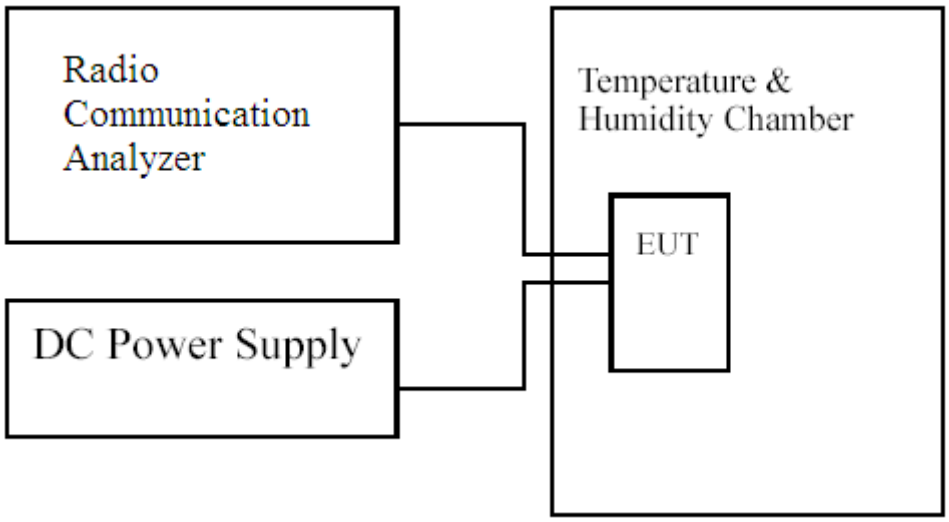
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) - 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission under 1GHz was not included since the emission levels are very low against the limit.

7. Frequency Stability Under Temperature & Voltage Variations

7.1 Test Specification

According to Part 2.1055, 24.235.

7.2 Test Setup



7.3 Limits

Limit	< ± 2.5 ppm

7.4 Test Procedure

The frequency stability of transmitter is measured by:

(a) Temperature: The temperature is varied from -30 °C to 50 °C in 10 °C increment using a standard temperature & Humidity chamber.

(b) Primary Supply Voltage: The primary supply voltage is varied 85 % to 115 % of the nominal value for non hand-carried equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating endpoint which shall be specified by the manufacturer.

The EUT was connected via the base station simulator. Universal Radio Communication Tester, was used to measure The Frequency Error. The maximum result of measurements was recorded.

7.5 Test Result of Frequency Stability Under Temperature Variations

LTE Band 2

Temperature Variations

Temperature Interval (℃)	Test Channel	Deviation (kHz)						Limit (kHz)
		1.4M	3M	5M	10M	15M	20M	
-30	Low	0.0098	0.0087	0.0095	0.0075	0.0072	0.0086	±4.63
-20	Low	0.0086	0.0088	0.0091	0.0077	0.0078	0.0072	±4.63
-10	Low	0.0068	0.0072	0.0065	0.0061	0.0068	0.0075	±4.63
0	Low	0.0035	0.058	0.0043	0.0051	0.0041	0.0048	±4.63
10	Low	0.0042	0.0068	0.0054	0.0055	0.0063	0.0069	±4.63
20	Low	0.0038	0.0054	0.0035	0.0043	0.0046	0.0051	±4.63
30	Low	0.0045	0.0065	0.0052	0.0072	0.0065	0.0044	±4.63
40	Low	0.0066	0.0058	0.0067	0.0085	0.0048	0.0069	±4.63
50	Low	0.0083	0.0089	0.0064	0.0059	0.0075	0.0058	±4.63

Temperature Interval (℃)	Test Channel	Deviation (kHz)						Limit (kHz)
		1.4M	3M	5M	10M	15M	20M	
-30	High	0.0065	0.0075	0.0051	0.0068	0.0066	0.0052	±4.63
-20	High	0.0058	0.0072	0.0053	0.0066	0.0072	0.0074	±4.63
-10	High	0.0052	0.0054	0.0044	0.0072	0.0088	0.0065	±4.63
0	High	0.0063	0.0066	0.0049	0.0063	0.0075	0.0077	±4.63
10	High	0.0055	0.0073	0.0068	0.0054	0.0064	0.0063	±4.63
20	High	0.0061	0.0051	0.0053	0.0066	0.0059	0.0057	±4.63
30	High	0.0048	0.0058	0.0047	0.0060	0.0068	0.0064	±4.63
40	High	0.0046	0.0063	0.0053	0.0057	0.0052	0.0055	±4.63
50	High	0.0053	0.0067	0.0058	0.0065	0.0066	0.0062	±4.63

Voltage Variations

DC Voltage (V)	Test Channel	Deviation (kHz)						Limit (kHz)
		1.4M	3M	5M	10M	15M	20M	
138	Low	0.0051	0.0062	0.0061	0.0052	0.0063	0.066	±4.63
120	Low	0.0038	0.0054	0.0035	0.0043	0.0046	0.0051	±4.63
102	Low	0.0052	0.0075	0.0048	0.0061	0.0059	0.056	±4.63

DC Voltage (V)	Test Channel	Deviation (kHz)						Limit (kHz)
		1.4M	3M	5M	10M	15M	20M	
138	High	0.0054	0.0065	0.0058	0.0053	0.0063	0.0074	±4.63
120	High	0.0061	0.0051	0.0053	0.0066	0.0059	0.0057	±4.63
102	High	0.0072	0.0066	0.0049	0.0073	0.0068	0.0064	±4.63

5GNR n2

Temperature Variations

Temperature Interval (°C)	Test Channel	Deviation (kHz)				Limit (kHz)
		5M	10M	15M	20M	
-30	Low	0.0057	0.0066	0.0072	0.0062	±4.63
-20	Low	0.0084	0.0088	0.0075	0.0079	±4.63
-10	Low	0.0095	0.0085	0.0091	0.0075	±4.63
0	Low	0.0075	0.0042	0.0054	0.0065	±4.63
10	Low	0.0068	0.0074	0.0063	0.0052	±4.63
20	Low	0.0088	0.0077	0.0058	0.0062	±4.63
30	Low	0.0057	0.0055	0.0065	0.0060	±4.63
40	Low	0.0068	0.0074	0.0069	0.0072	±4.63
50	Low	0.0075	0.0085	0.0074	0.0069	±4.63

Temperature Interval (°C)	Test Channel	Deviation (kHz)				Limit (kHz)
		5M	10M	15M	20M	
-30	High	0.0088	0.0075	0.0085	0.0079	±4.63
-20	High	0.0068	0.0074	0.0078	0.0069	±4.63
-10	High	0.0074	0.0068	0.0071	0.0058	±4.63
0	High	0.0070	0.0073	0.0077	0.0061	±4.63
10	High	0.0065	0.0067	0.0073	0.0066	±4.63
20	High	0.0068	0.0072	0.0066	0.0074	±4.63
30	High	0.0072	0.0084	0.0074	0.0058	±4.63
40	High	0.0055	0.0068	0.0084	0.0069	±4.63
50	High	0.0062	0.0072	0.0071	0.0078	±4.63

Voltage Variations

DC Voltage (V)	Test Channel	Deviation (kHz)				Limit (kHz)
		5M	10M	15M	20M	
138	Low	0.0081	0.0078	0.0066	0.0068	±4.63
120	Low	0.0088	0.0077	0.0058	0.0062	±4.63
102	Low	0.0078	0.0068	0.0051	0.0058	±4.63

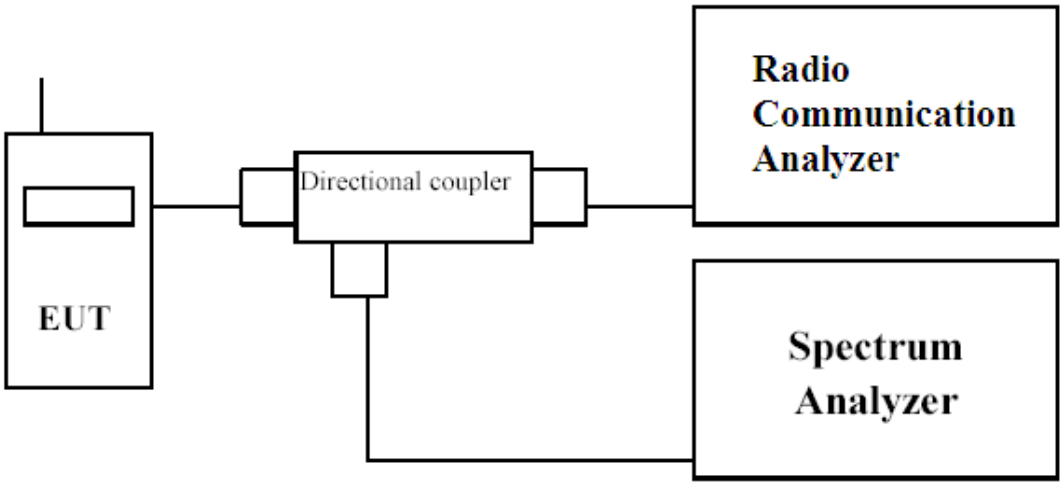
DC Voltage (V)	Test Channel	Deviation (kHz)				Limit (kHz)
		5M	10M	15M	20M	
138	High	0.0066	0.0075	0.0071	0.0068	±4.63
120	High	0.0068	0.0072	0.0066	0.0074	±4.63
102	High	0.0058	0.0061	0.0069	0.0066	±4.63

8. Peak to Average Ratio

8.1 Test Specification

According to Part 24.232.

8.2 Test Setup



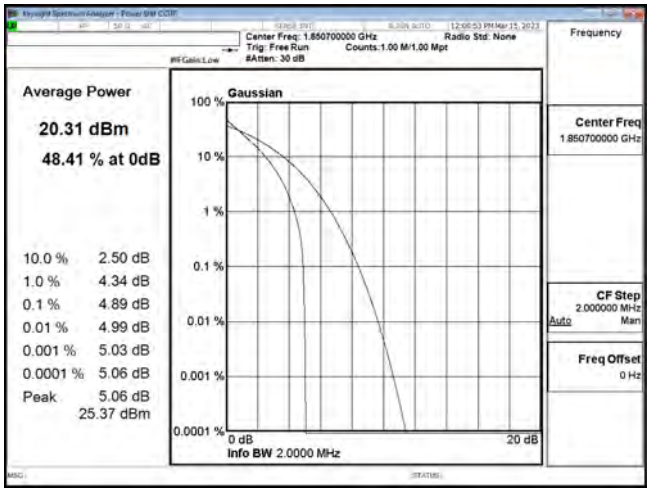
8.3 Limits

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure.

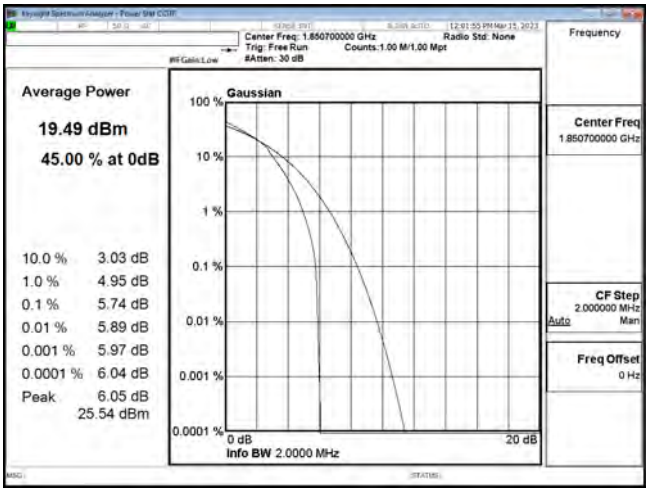
8.4 Test Procedure

a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
c) Set the number of counts to a value that stabilizes the measured CCDF curve;
d) Set the measurement interval as follows:
   1) for continuous transmissions, set to 1 ms,
   2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
e) Record the maximum PAPR level associated with a probability of 0.1 %.

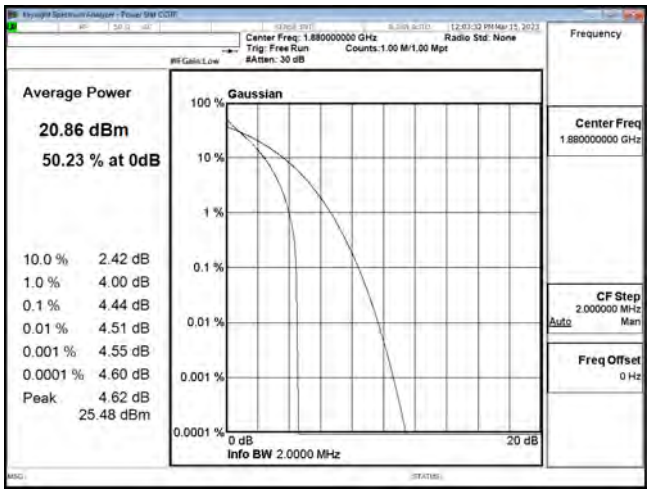
8.5 Test Result of Spurious Emission



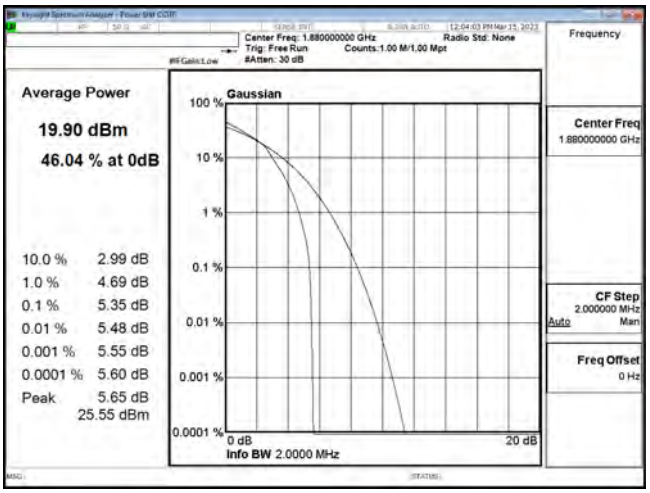
LTE BAND 2 1.4M CH18607 QPSK



LTE BAND 2 1.4M CH18607 16QAM



LTE BAND 2 1.4M CH18900 QPSK



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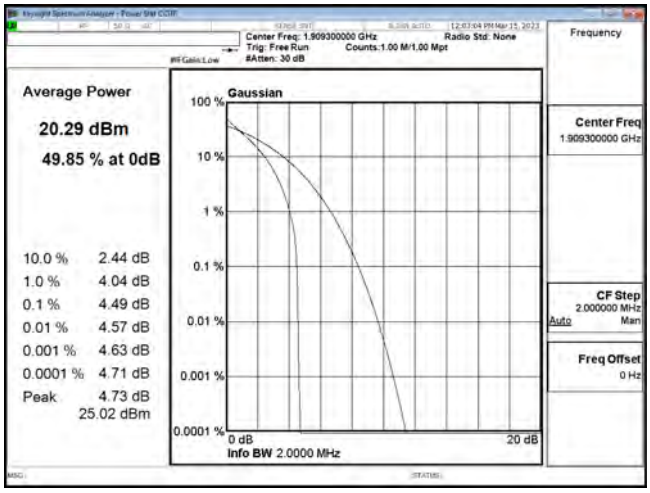
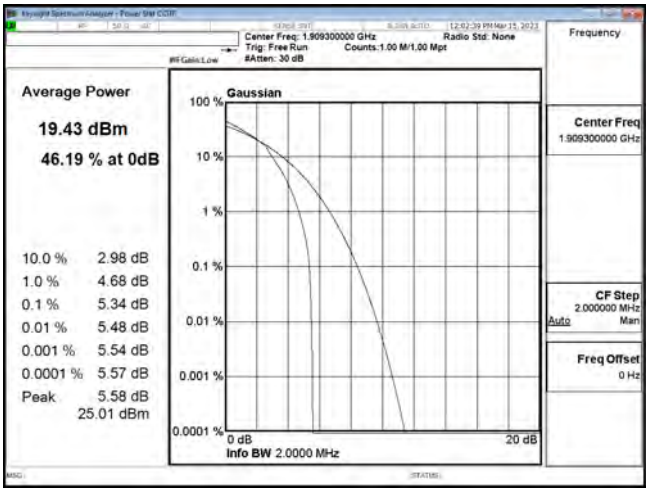


LTE BAND 2 1.4M CH19193 QPSK



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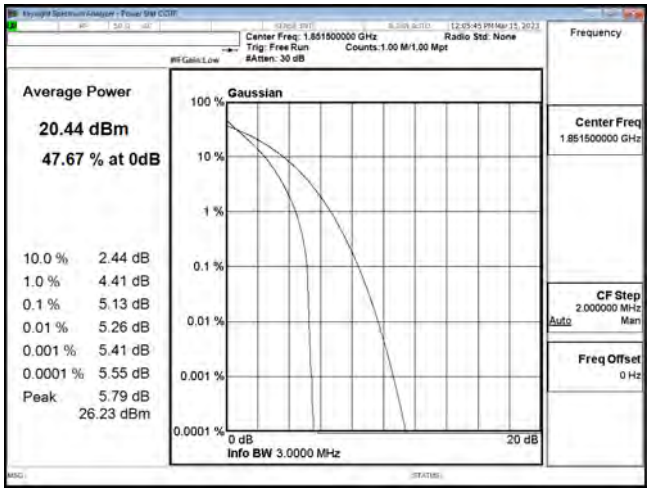
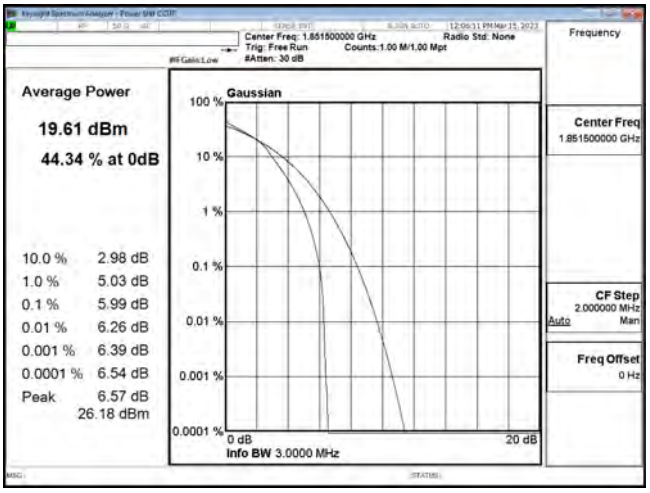
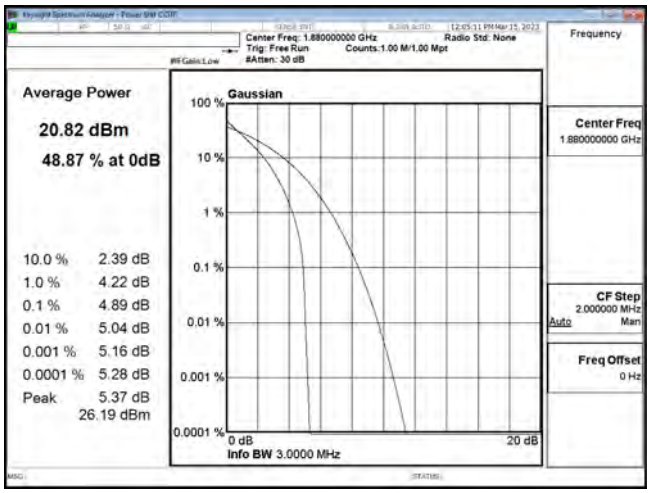


LTE BAND 2 3M CH18615 QPSK



LTE BAND 2 3M CH18615 16QAM



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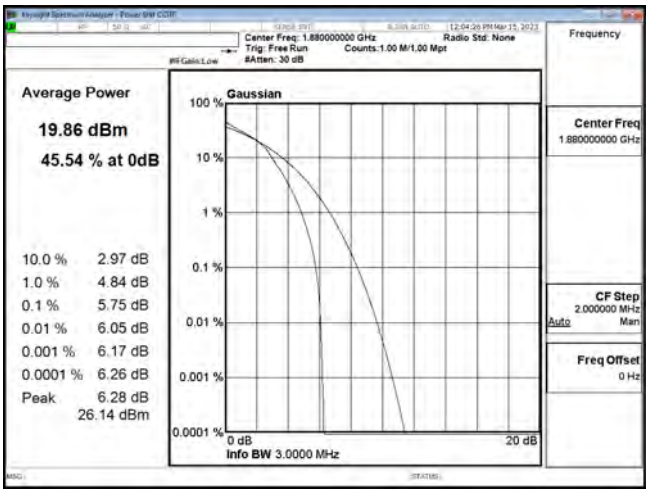

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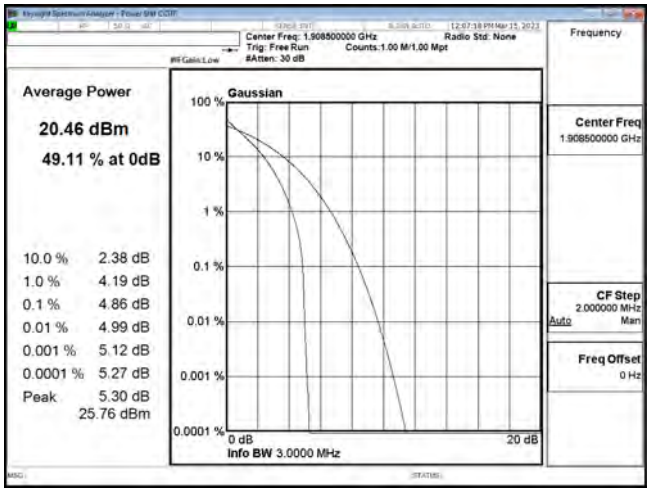
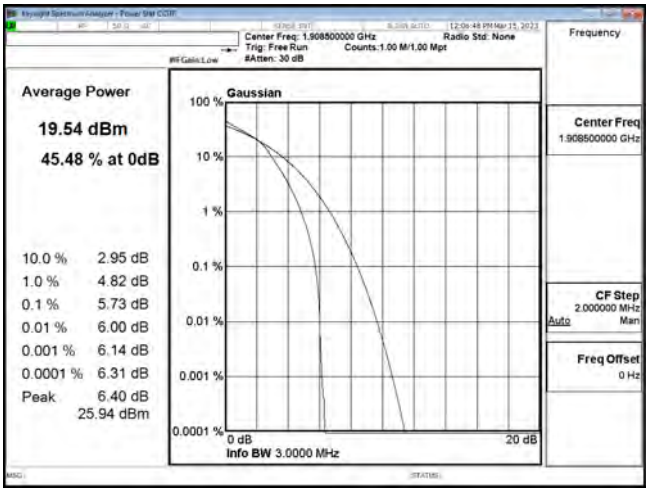


LTE BAND 2 3M CH19185 QPSK



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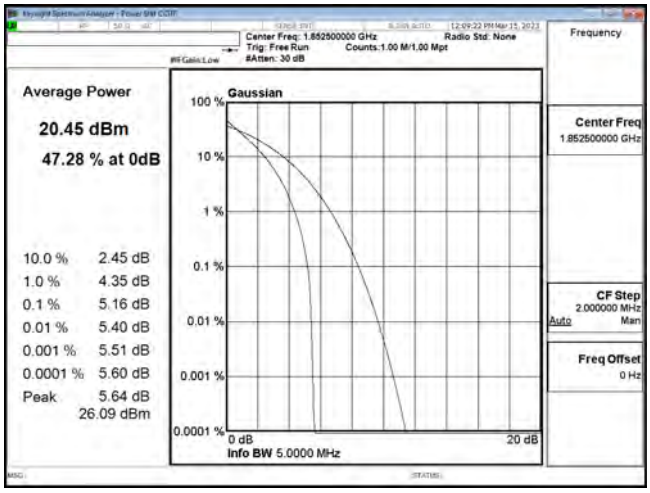
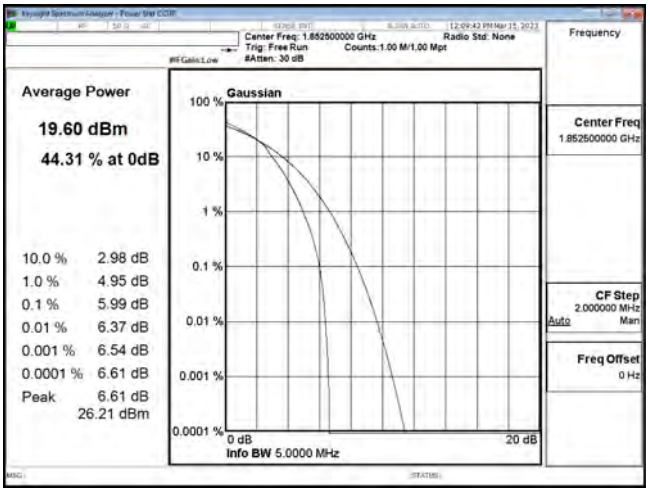
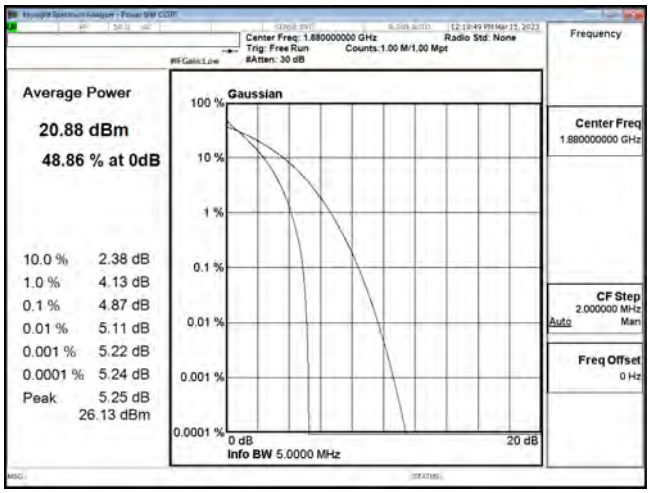


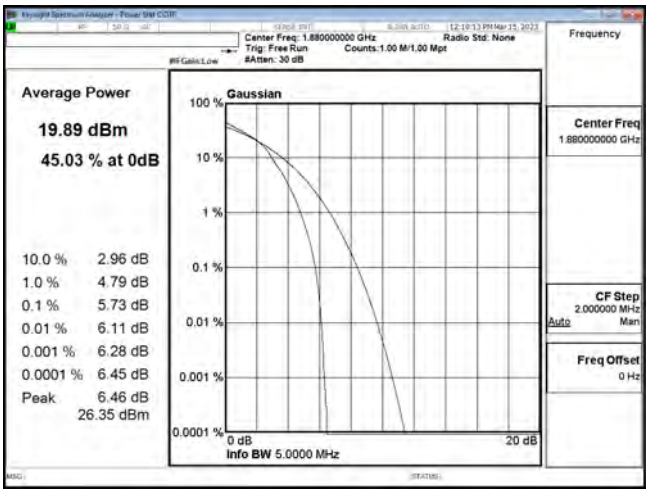
LTE BAND 2 5M CH18625 QPSK



LTE BAND 2 5M CH18625 16QAM



LTE BAND 2 5M CH18900 QPSK



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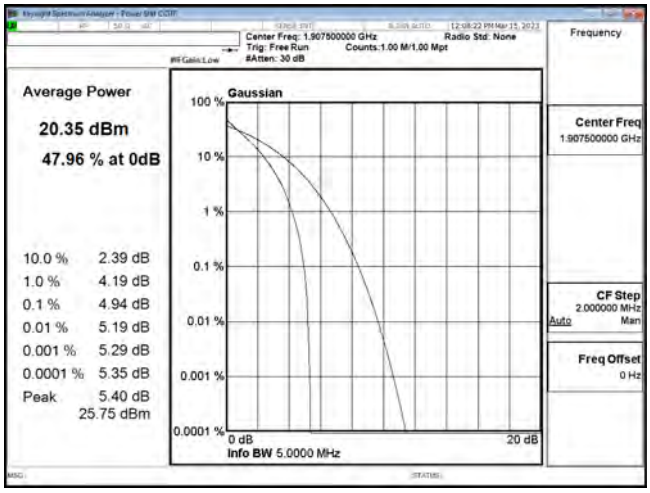
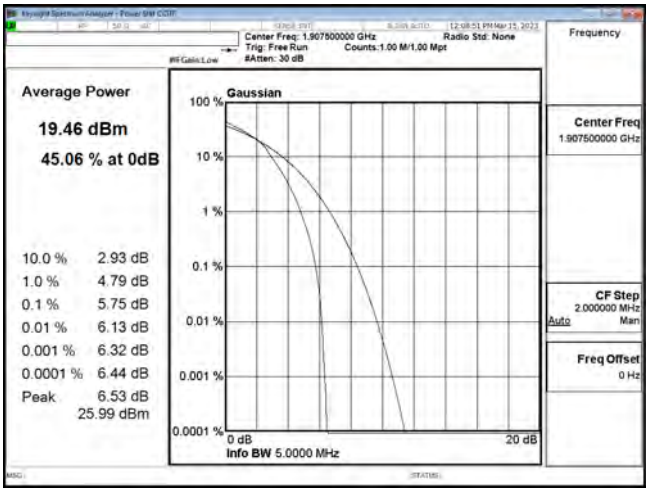
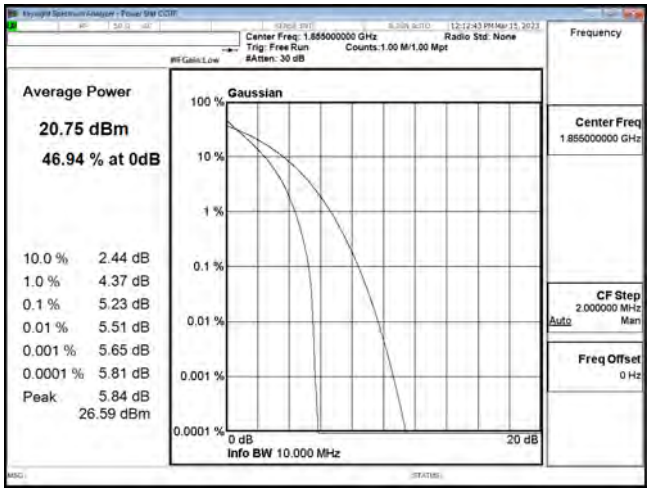


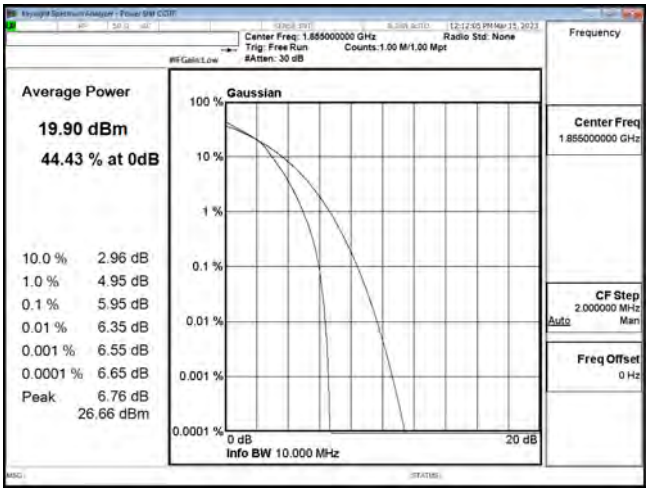
LTE BAND 2 5M CH19175 QPSK



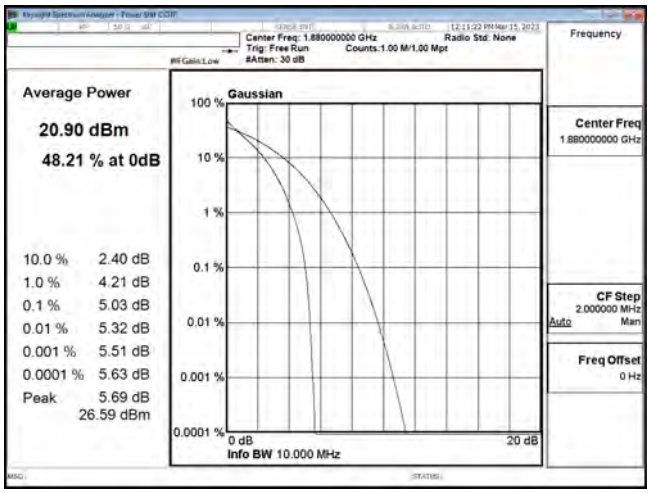
LTE BAND 2 5M CH19175 16QAM



LTE BAND 2 10M CH18650 QPSK



LTE BAND 2 10M CH18650 16QAM



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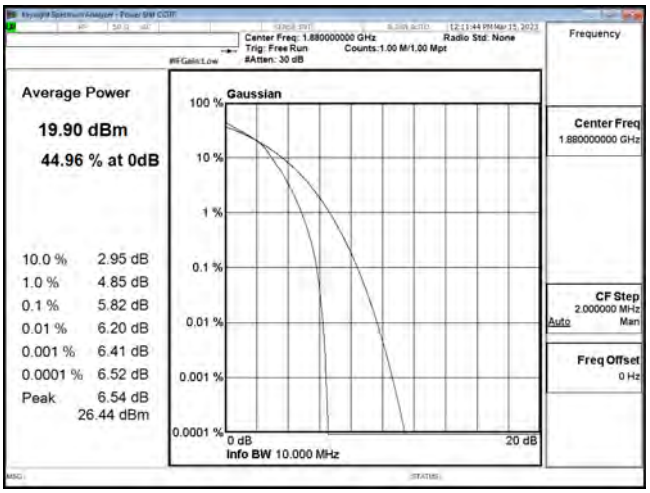

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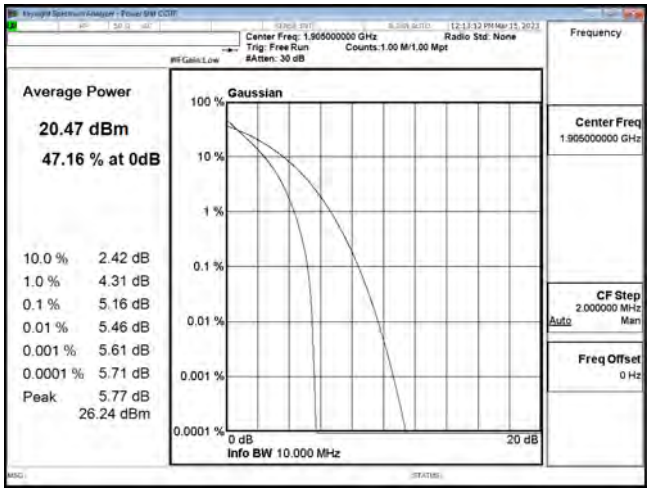
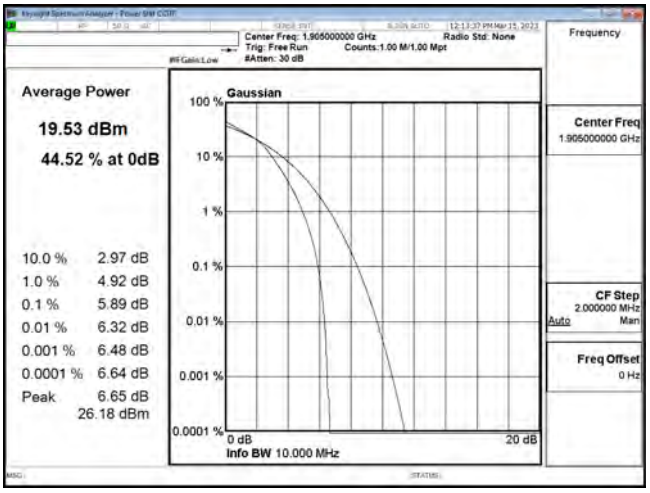
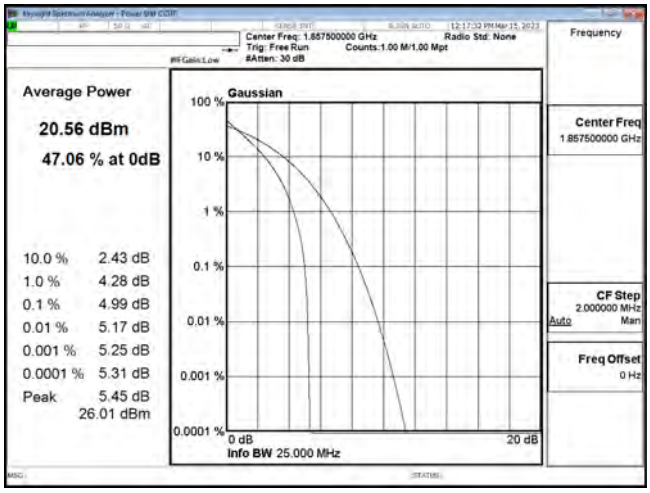


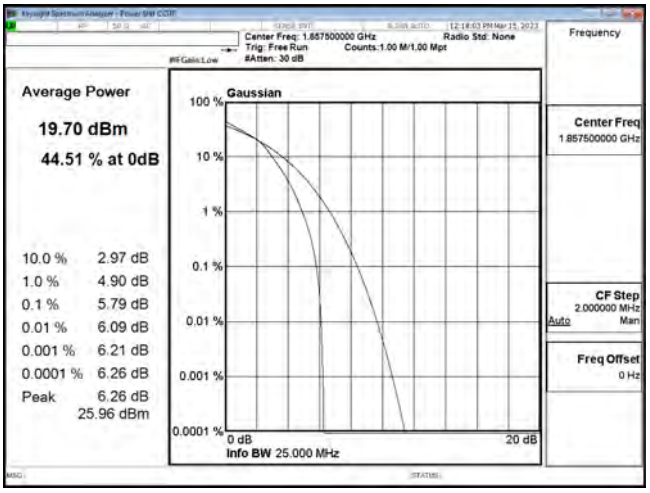
LTE BAND 2 10M CH19150 QPSK



LTE BAND 2 10M CH19150 16QAM



LTE BAND 2 15M CH18675 QPSK



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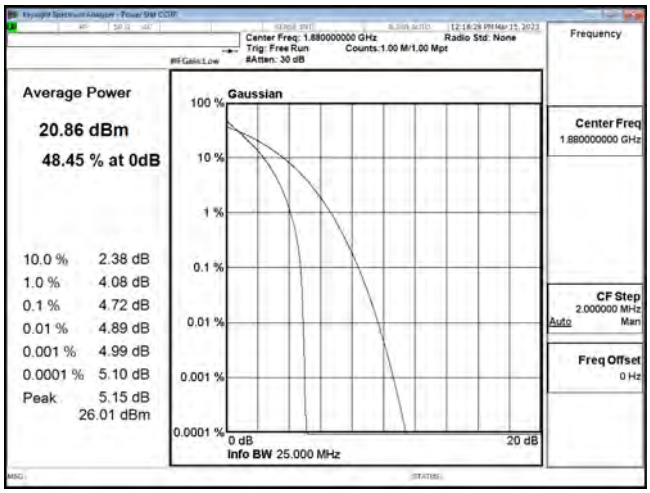

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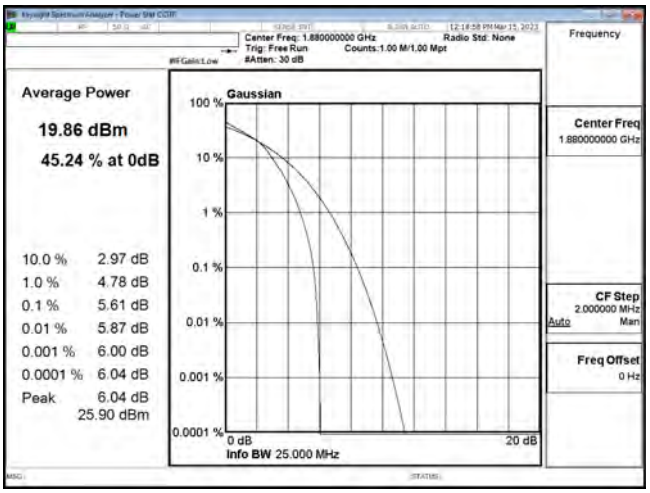

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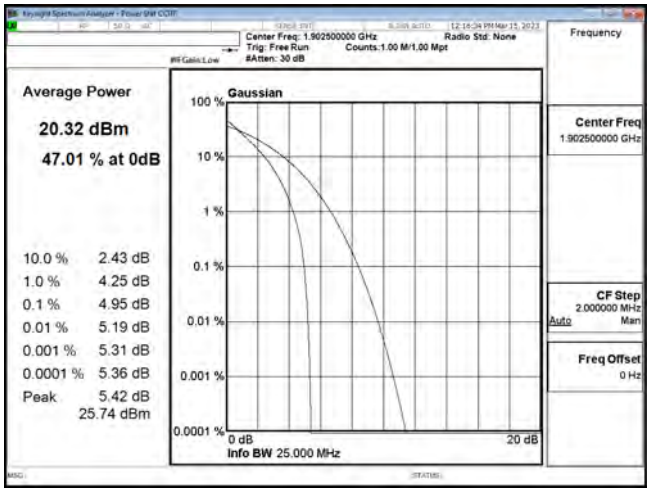

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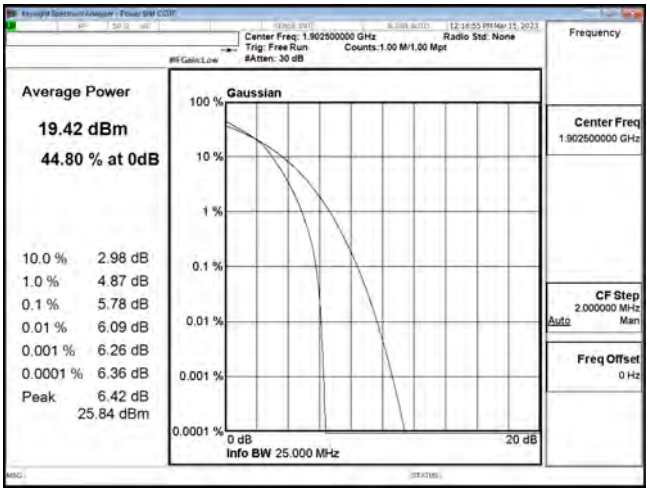

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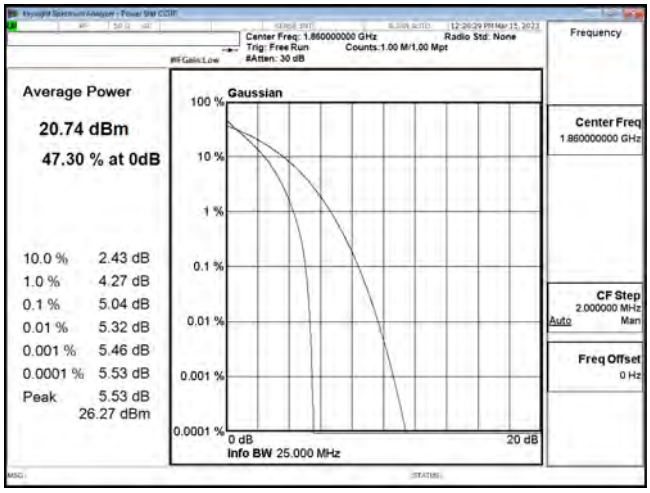

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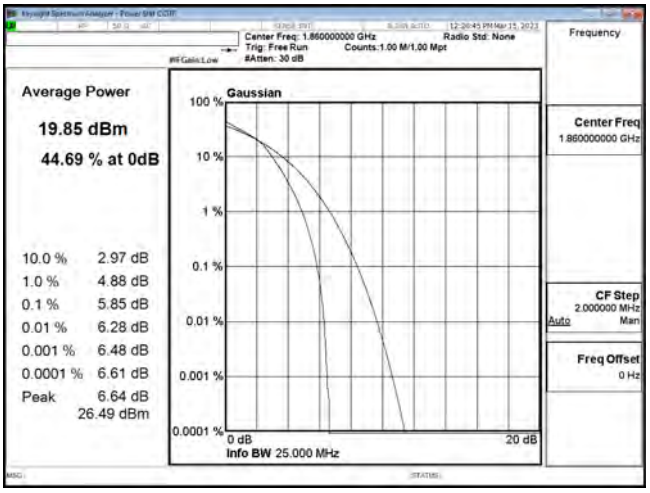

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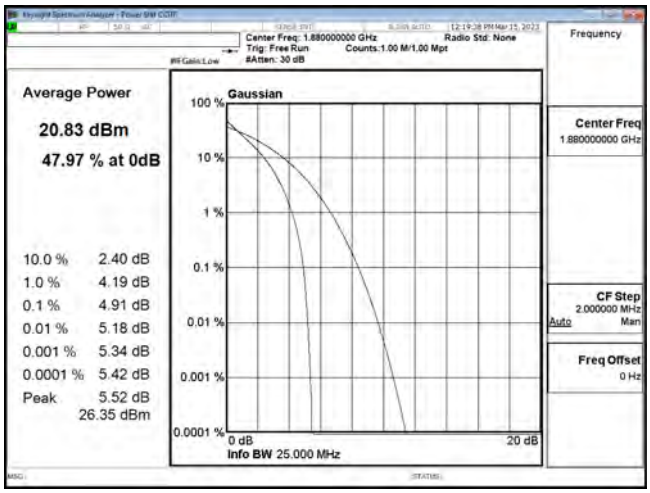

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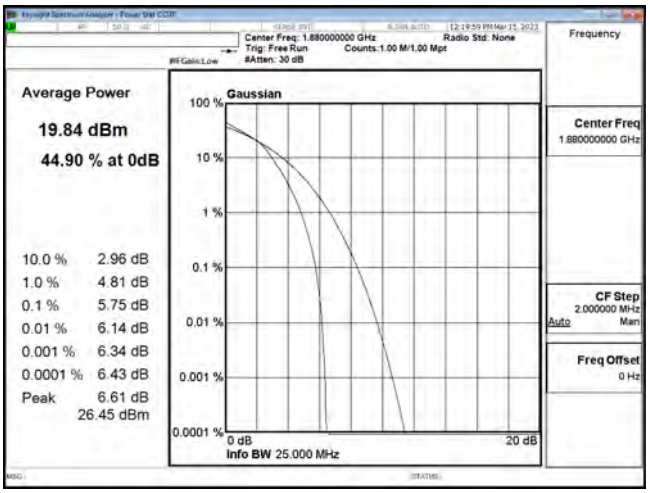

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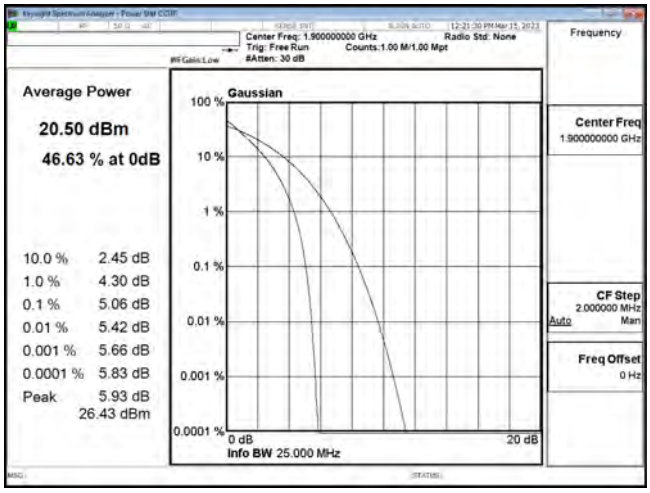

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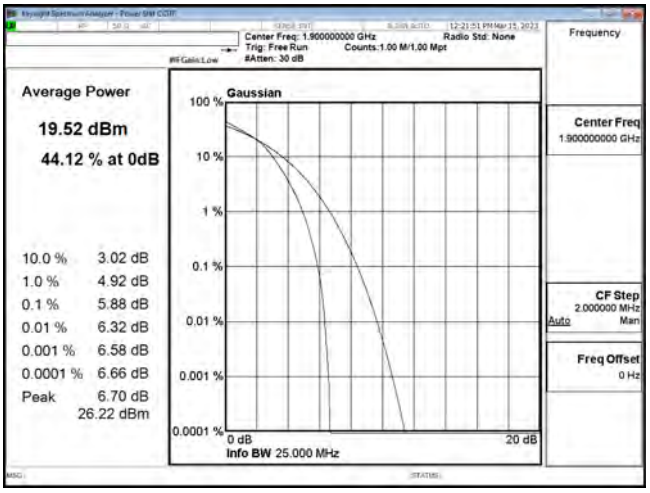

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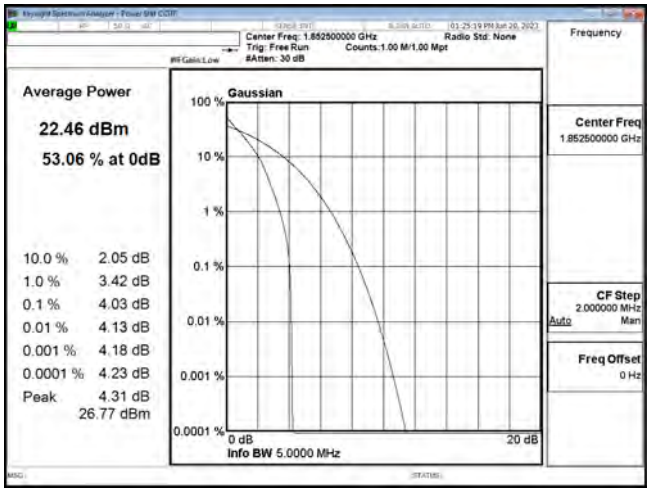

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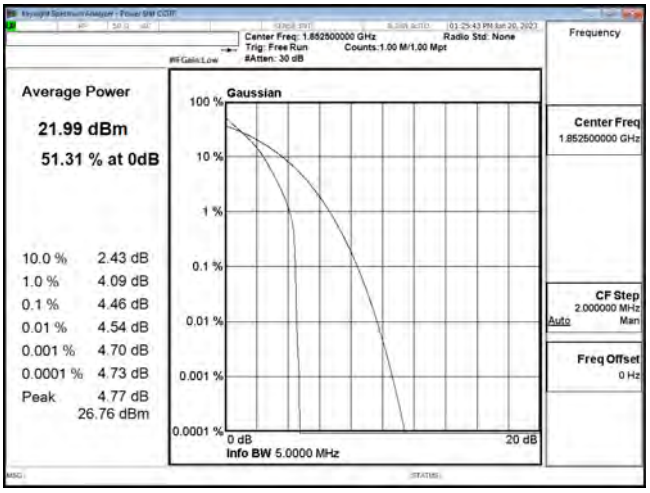

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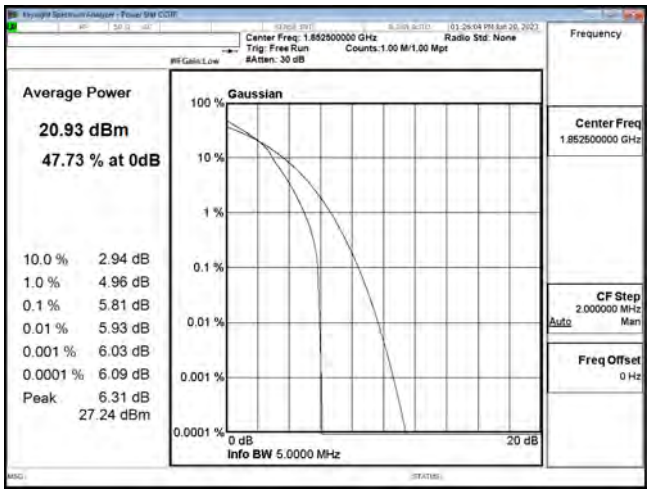

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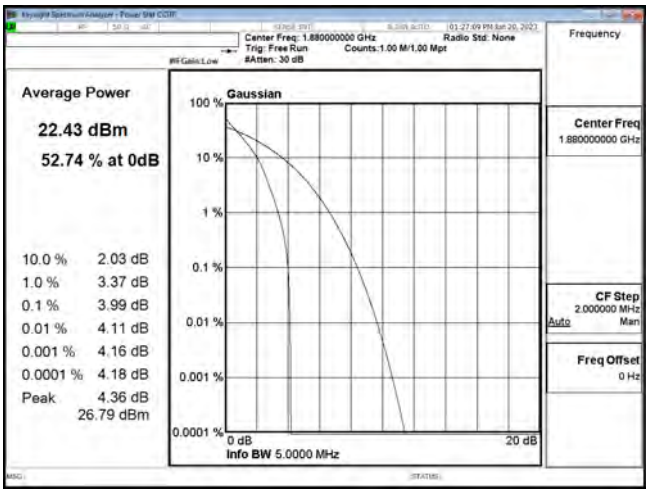

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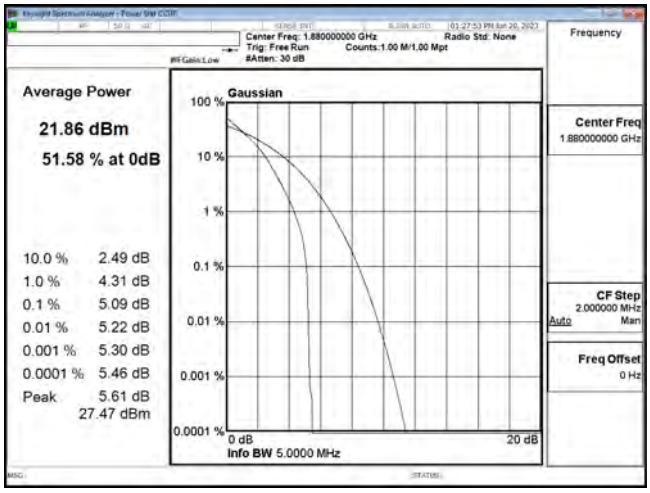

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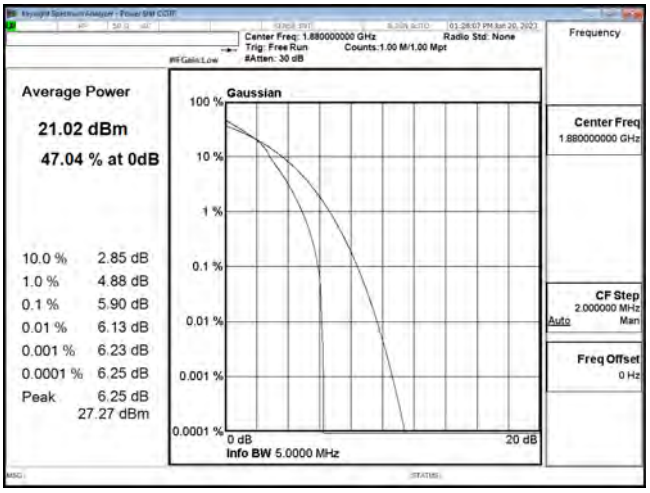

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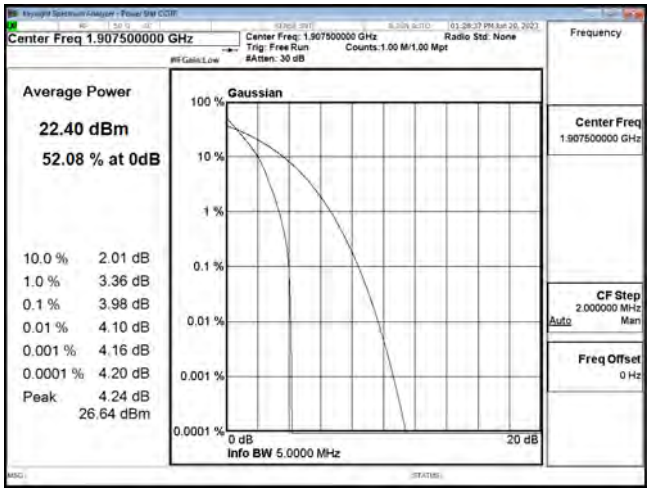

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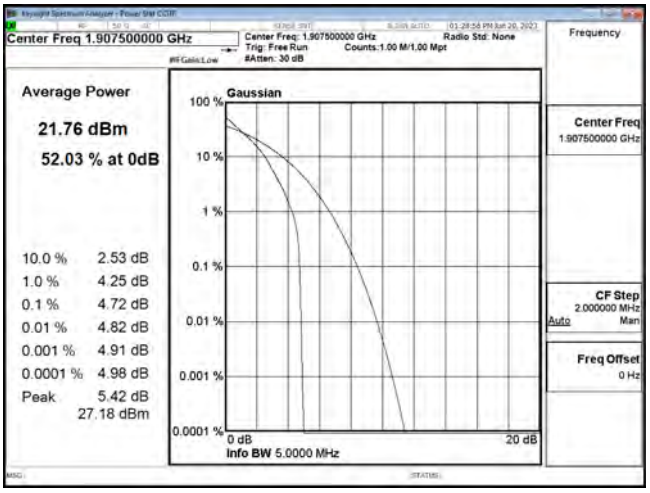

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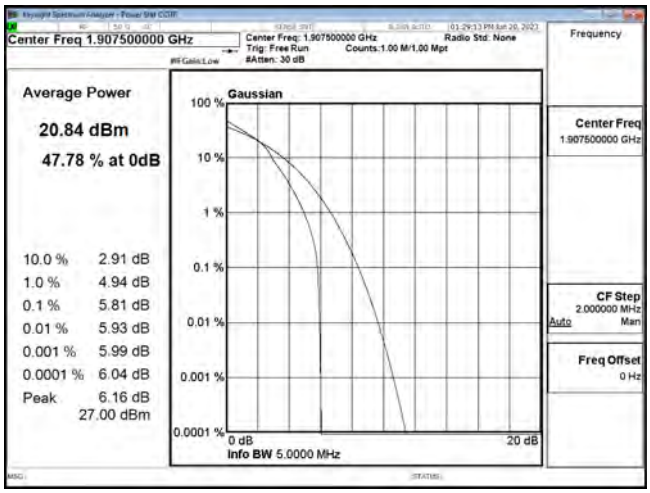

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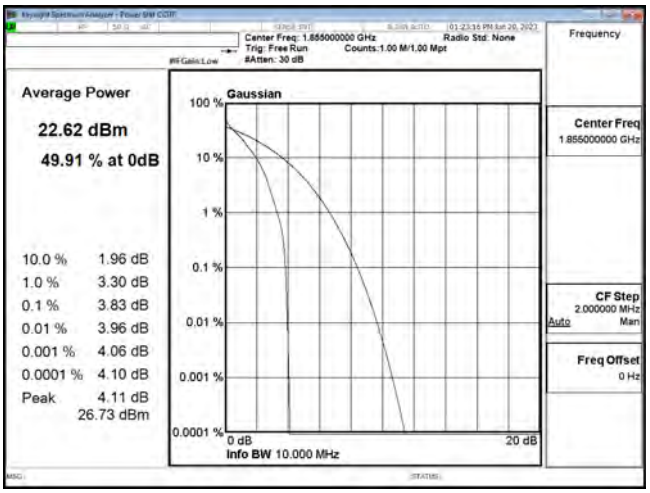

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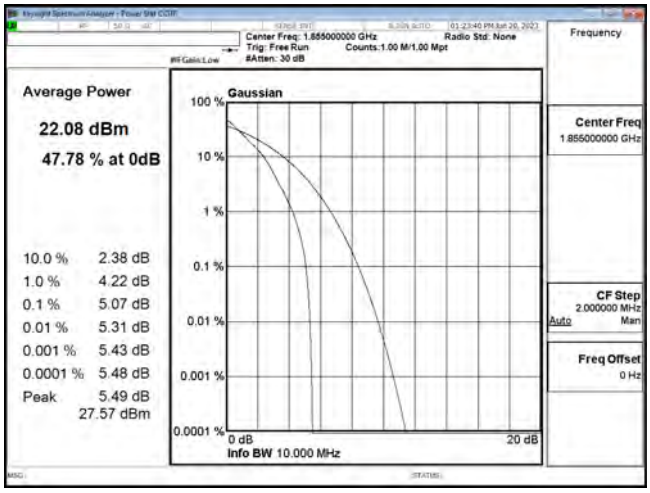

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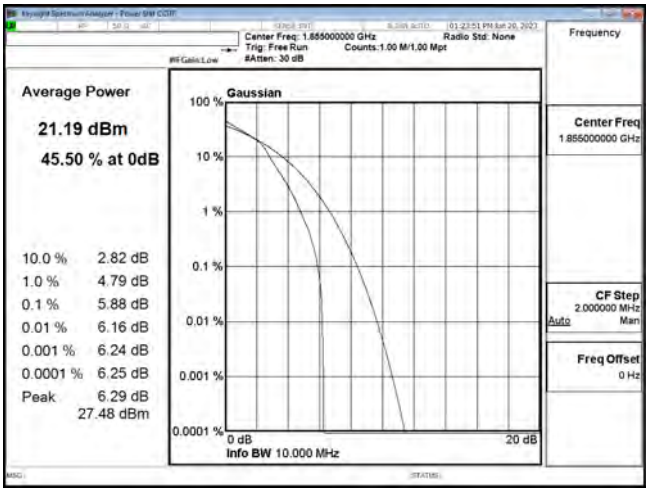

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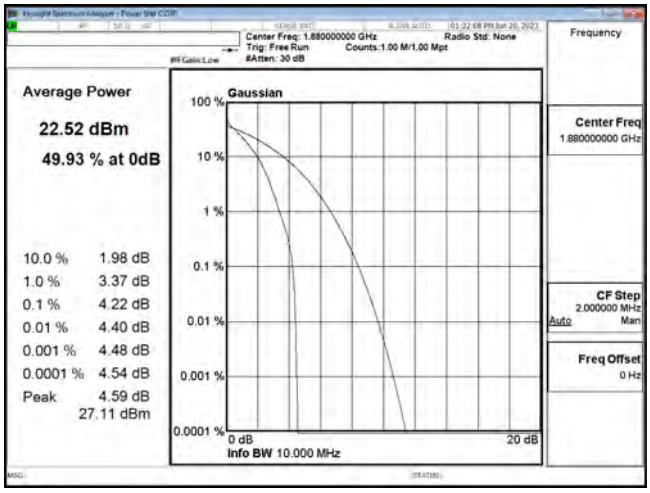

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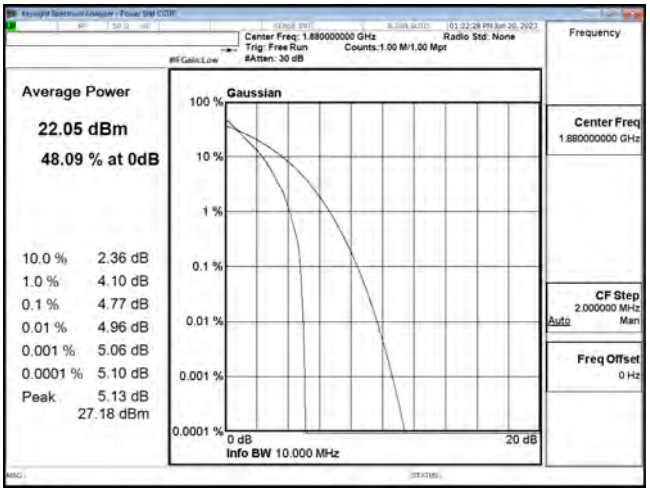

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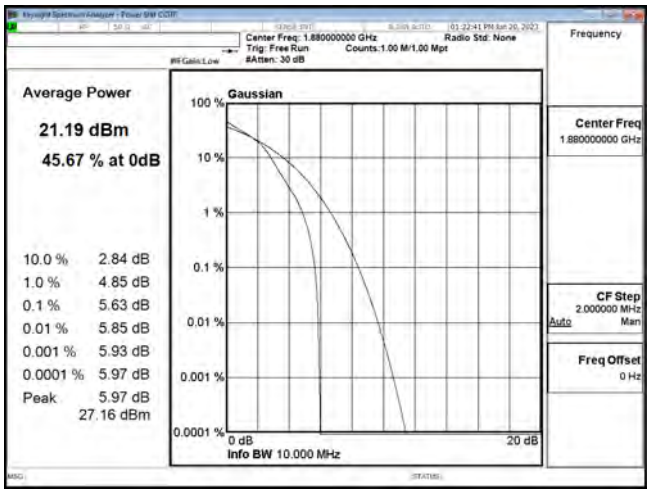

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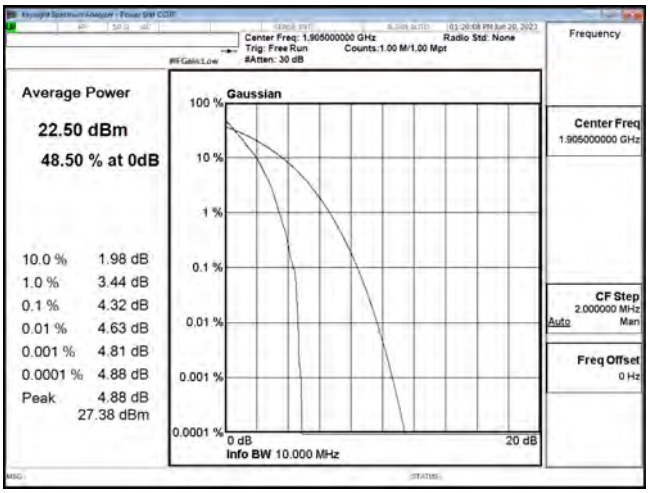

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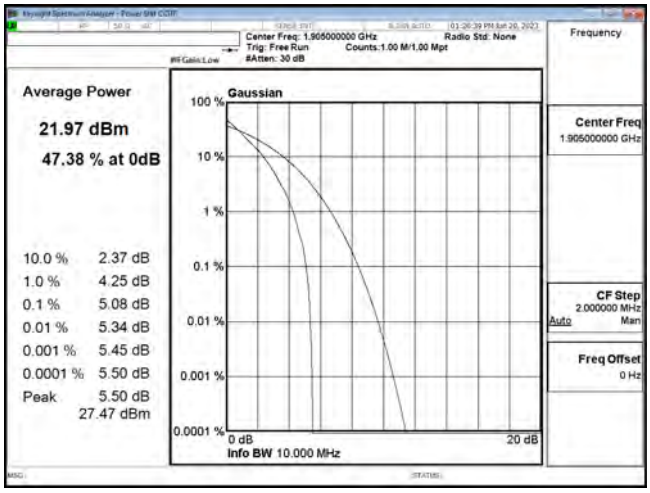

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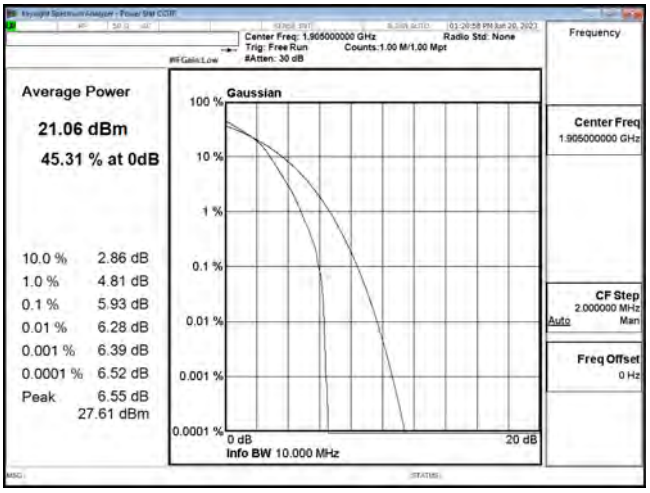

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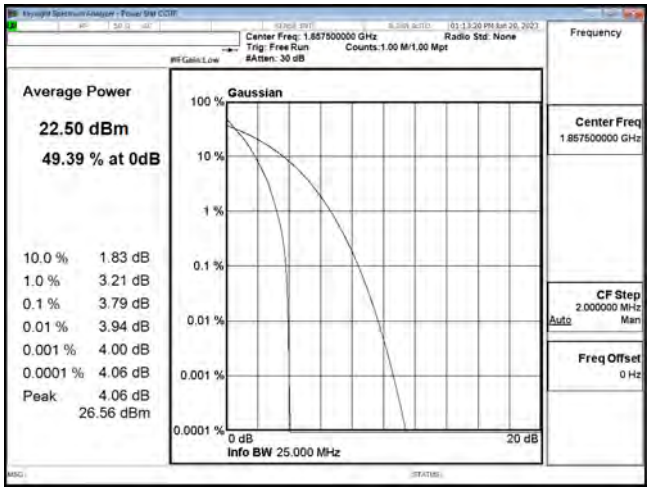

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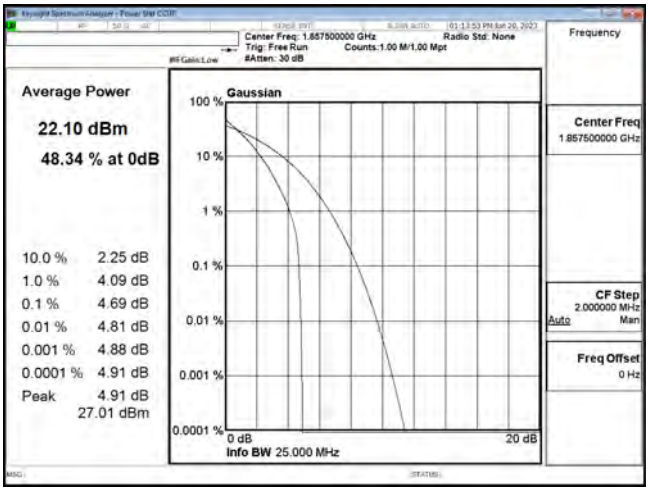

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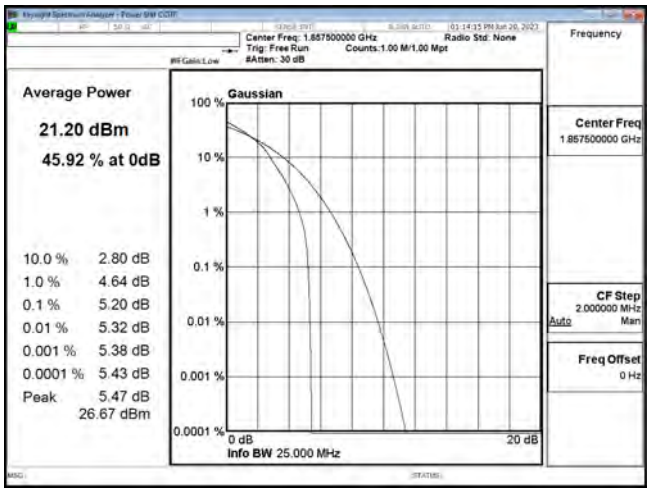

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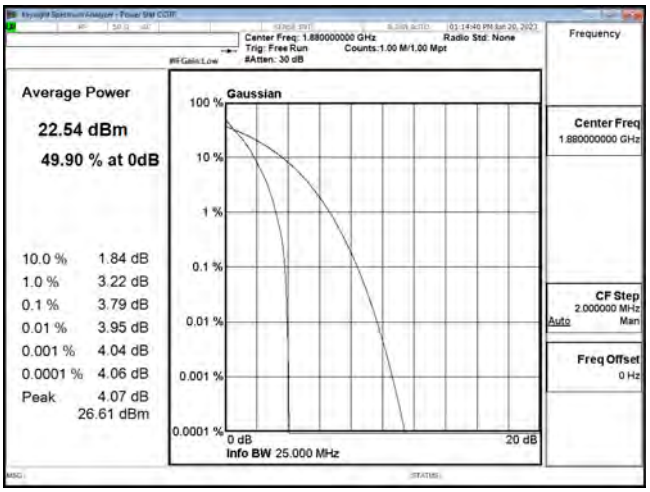

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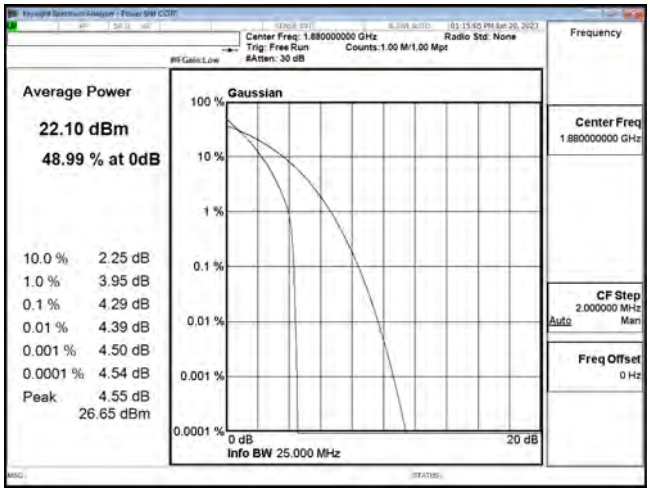

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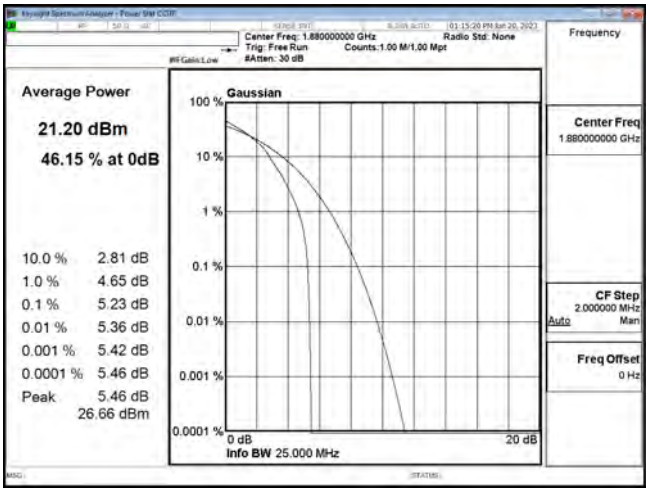

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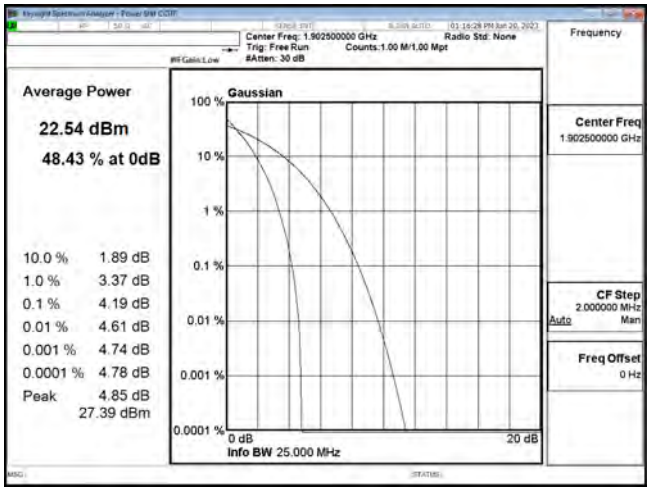

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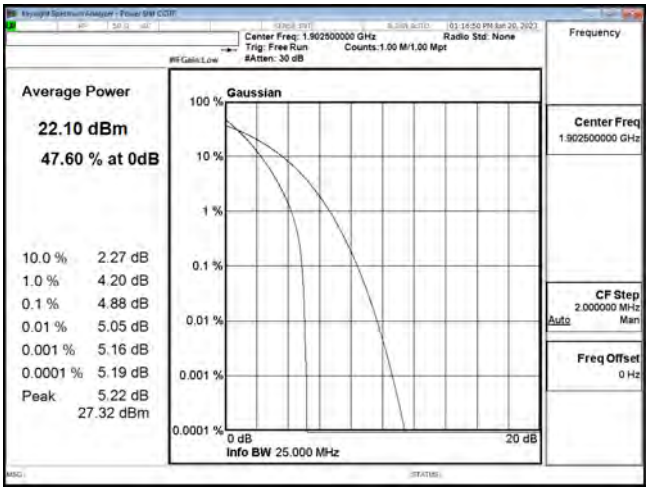

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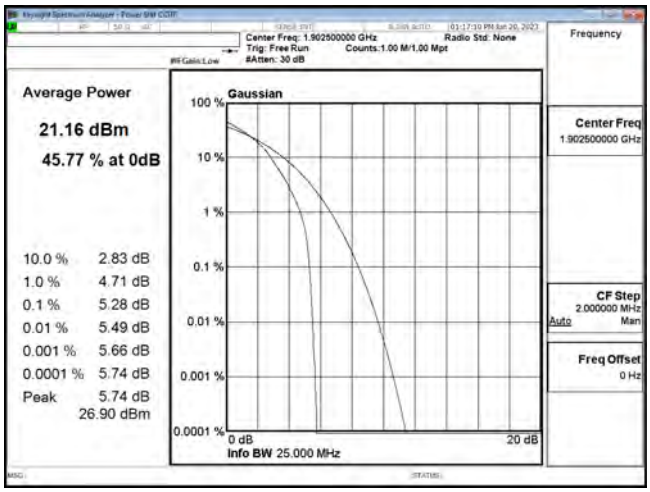

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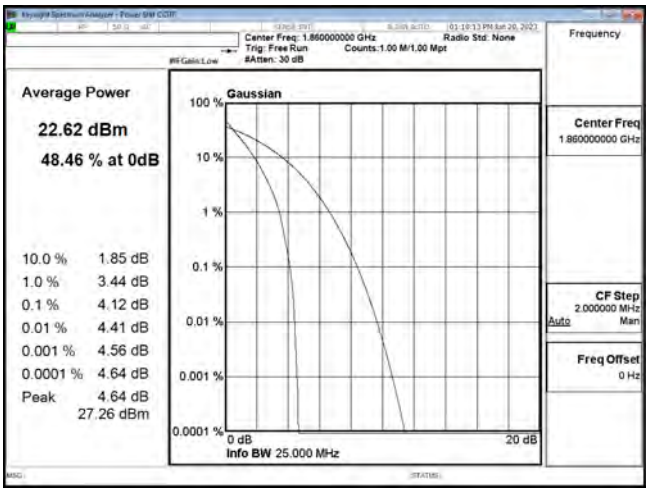

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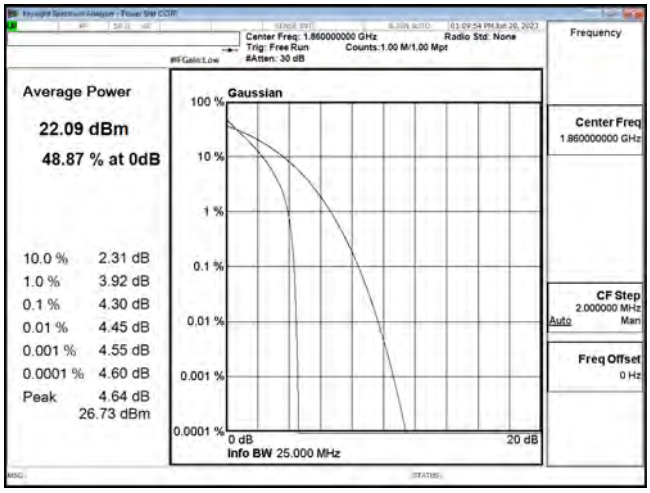

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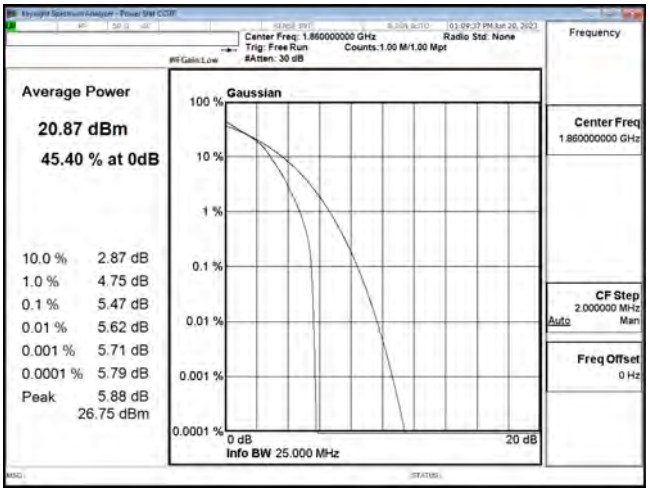

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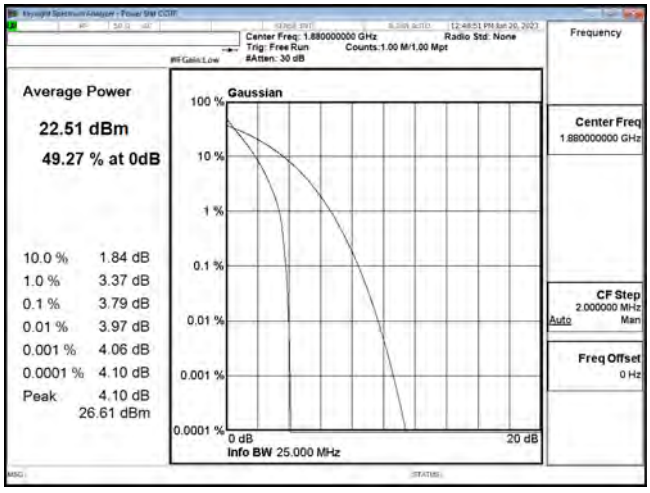

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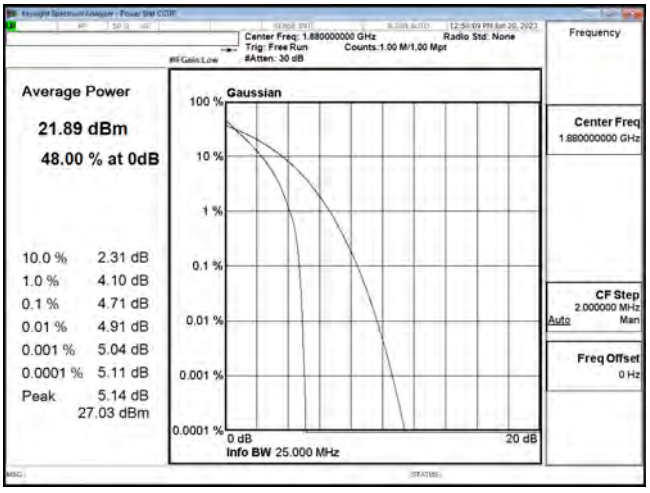

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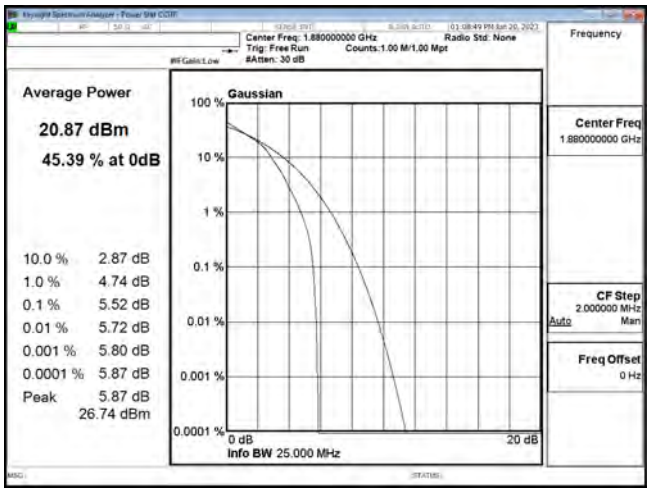

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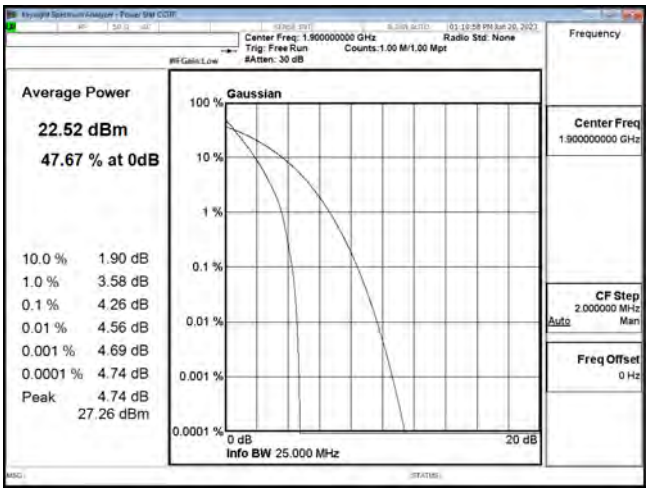

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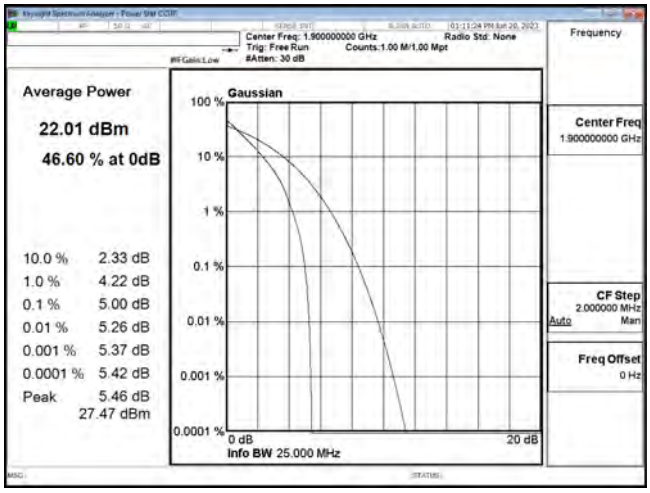

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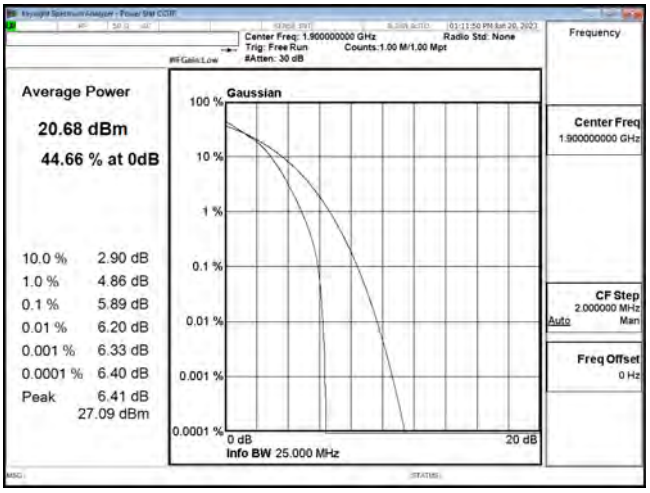

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