Test Report

Product Name : Mobile Computer
Model No. : RS36
FCC ID : Q3N-RS36

Applicant : CipherLab Co., Ltd.
Address : 12F, 333, Dunhua S.Rd., Sec.2, Taipei, Taiwan

Date of Receipt : 2022/10/13
Issued Date : 2023/03/28
Report No. : 22A0299R-RFUSV24S-A
Report Version : V1.0

Test Report

Product Name	:	Mobile Computer
Applicant	:	CipherLab Co., Ltd.
Address	:	12F, 333, Dunhua S.Rd., Sec.2, Taipei, Taiwan
Manufacturer	:	CIPHERLAB CO. LTD.
Trade Name	:	CIPHERLAB
Model No.	:	RS36
EUT Rated Voltage	:	DC 5V (adapter or host equipment) DC 3.85V for battery
EUT Test Voltage	:	DC 3.85V
Measurement Standard	:	FCC CFR Title 47 Part 90
Measurement Reference	:	FCC CFR Title 47 Part 2 TIA/EIA 603-E 2016 KDB 971168 D01V03R01 ANSI C63.26 2015
Test Result	:	Complied

Documented By : Ida Tung

(Project Specialist / Ida Tung)

Tested By : Daniel Wu

(Engineer / Daniel Wu)

Approved By : Tim Sung

(Manager / Tim Sung)

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Appendix 1: EUT Test Photographs
Appendix 2: Product Photos - Please refer to the file: 22A0299R-Product Photos

Revision History

Report No.	Version	Description	Issued Date
22A0299R-RFUSV24S-A	V1.0	Initial issue of report.	2023/03/28

1. General Information

1.1. EUT Description

Product Name	Mobile Computer
Model No.	RS36
Trade Name	CIPHERLAB
IMEI No.	35226598
FCC ID	Q3N-RS36
TX Frequency	LTE Band 26 : 814MHz ~ 824MHz (Part 90)
Rx Frequency	LTE Band 26 : 859MHz ~ 869MHz (Part 90)
Bandwidth	1.4 MHz / 3 MHz / 5 MHz / 10 MHz
Type of Modulation	QPSK / 16QAM / 64QAM
Power Cable (Optional)	Trade Name: CIPHERLAB, M/N: RS35 SNAP ON, Non-shielded, 1.5m
Adapter #1 (Optional)	Trade Name: Sunny, M/N: SYS1561-1005 Input: AC 100-240V~, 1.0A MAX, 50-60Hz Output: +5.0V⎓2.0A
Adapter #2 (Optional)	Trade Name: CWT, M/N: 2AEA010BC3D Input: AC 100-240V~ 50/60Hz 0.35A Output: 5.0V⎓2.0A 10.0W

Supported Unit	
Type C Cable	Trade Name: SUNCA, M/N: 1Q11512211-XJ, Shielded, 1m

1.2. Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Auden	KZWLSLSVS0001 (LTE Main, TX/RX)	PIFA	-0.1 dBi for Band 26 (Part 90)
2	Auden	KZWLSLSVS0001 (LTE Aux, TX/RX)	PIFA	-5.4 dBi for Band 26 (Part 90)

Note: The above EUT information is declared by the manufacturer

1.3. 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:

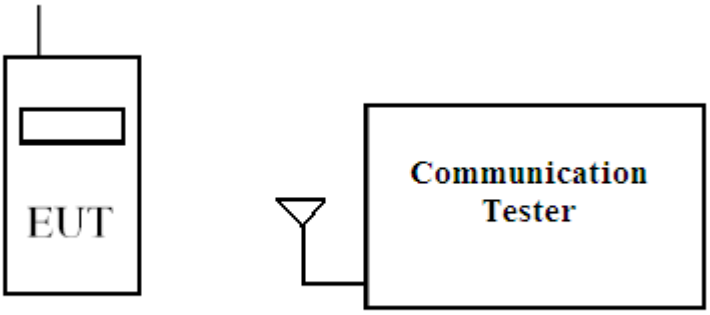
Test Mode	Mode 1: LTE Band 26 (Part 90)

Note:

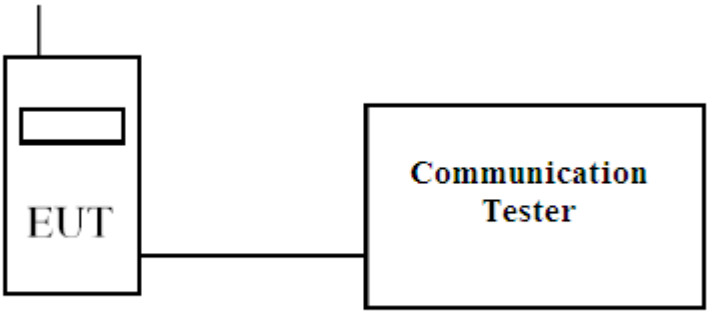
1. Regards to the frequency band operation; the lowest, middle and highest frequency of channel were selected to perform the test, and then shown on this report.
2. This device was tested under all configurations, combinations, bandwidths, RB configurations and modulations, and the worst case was found in QPSK modulation, therefore the “Conducted Band Edge” & “Spurious Emission” test items perform QPSK modulation in this report.
3. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
4. The EUT was performed at X axis, Y axis and Z axis position for radiated spurious emission tests. The worst case was found at Z axis, so the measurement will follow this same test configuration

1.4. Configuration of tested System

(a) Configuration of Radiated measurement



(b) Configuration of Conducted measurement



1.5. EUT Setup Procedures

(1) Setup the EUT and simulators as shown on 1.4.
(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).

1.6. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Actual	Test Date
Radiated Emission	Temperature (°C)	25.3 °C	2022/11/29 ~ 2022/12/16
	Humidity (%RH)	69.9 %	
Conductive	Temperature (°C)	24.2 °C	
	Humidity (%RH)	50.0 %	

USA	**:**	**FCC Registration Number: TW0033**
Canada	**:**	**CAB Identifier Number: TW3023 / Company Number: 26930**

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
Email address : info.tw@dekra.com
Website : http://www.dekra.com.tw

2. Technical Test

2.1. Summary of test result

Test Item	FCC Reference section	FCC Limit	Result
RF Output Power	§2.1046 §90.635(b)	<100 Watts	Pass
Occupied Bandwidth	§2.1049 §90.209(b)	Within the frequency range	Pass
Spurious Emission at Antenna Terminals	§2.1051 §90.691	<-20 dBm for less than 37.5 kHz <-13 dBm for greater than 37.5 kHz	Pass
Conducted Emission	§2.1051 §90.691	<-13 dBm	Pass
Field Strength of Spurious Radiation	§2.1053 §90.691	<-13 dBm	Pass
Frequency Stability for Temperature & Voltage	§2.1055 §90.213	<±2.5 ppm	Pass
Peak to Average Ratio	N/A	N/A	N/A

2.2. List of test Equipment

Conducted / HY-SR03

Instrument Description	Manufacturer	Model No.	Serial No.	Last Calibration	Next Calibration
Spectrum Analyzer	Agilent	N9010A	MY51440132	2022/01/07	2023/01/06
Standard Temperature & Humidity Chamber	K SON	THS-D4T-100	A0606	2022/08/23	2023/08/22
DC Power Supply	Keysight	E36234A	MY59001234	2022/10/31	2023/10/30
Radio Communication Analyzer	Anritsu	MT8820C	6201465467	2022/08/10	2023/08/09

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
Pre-Amplifier	SGH	0301	20211007-10	2022/02/22	2023/02/21
Pre-Amplifier	SGH	PRAMP118	20200701	2022/07/28	2023/07/27
Pre-Amplifier	EMCI	EMC05820SE	980310	2022/07/28	2023/07/27
Pre-Amplifier	EMCI	EMC184045SE	980369	2022/05/12	2023/05/11
Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314		
Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
Spectrum Analyzer	R&S	FSV3044	101114	2022/02/11	2023/02/10
Coaxial Cable	SGH	SGH18	2021005-1	2022/3/18	2023/03/17
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).

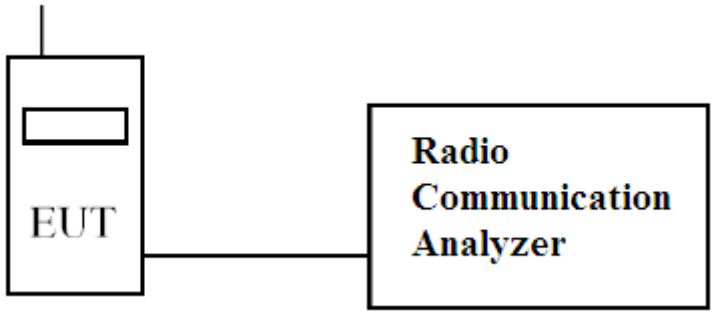
Test Item	Uncertainty
Conducted Output Power	± 1.52 dB
Occupied Bandwidth	± 5.32 Hz
Conducted Band Edge	± 1.52 dB
Conducted Spurious Emissions	± 1.52 dB
Radiated Spurious Emissions	± 4.05 dB below 1 GHz ± 4.10 dB above 1 GHz
Frequency Stability	± 220.92 Hz

3. Conducted Output Power Measurment

3.1. Test Specification

According to FCC Part 2.1046, 90.635

3.2. Test Setup



3.3. Limits

Band	Limit
LTE Band 26/850	**ERP < 100 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

Channel	Modulation	LTE Band 26 (Part 90)					
		RB	RB	Maximum Conducted Output Power			
		No.	Offset	1.4 M	3 M	5 M	10 M
Low	QPSK	1	#0	22.35	23.48	22.56	--
		1	#Mid	**22.38**	**23.63**	**23.64**	--
		1	#Max	22.34	22.58	22.54	--
		50%	#0	22.37	22.30	22.31	--
		50%	#Mid	22.33	22.45	22.40	--
		50%	#Max	22.30	22.37	22.28	--
		100%	--	21.29	22.30	22.39	--
	16QAM	1	#0	22.25	22.77	22.25	--
		1	#Mid	**22.29**	**23.14**	**23.05**	--
		1	#Max	22.29	22.82	21.79	--
		50%	#0	22.09	21.66	21.37	--
		50%	#Mid	22.16	21.71	21.67	--
		50%	#Max	22.10	21.65	21.33	--
		100%	--	21.01	21.55	21.44	--
	64QAM	1	#0	21.96	21.75	21.27	--
		1	#Mid	**22.06**	**22.13**	**22.06**	--
		1	#Max	22.00	21.82	20.84	--
		50%	#0	21.93	20.69	20.45	--
		50%	#Mid	22.00	20.73	20.74	--
		50%	#Max	21.96	20.65	20.42	--
		100%	--	20.69	20.61	20.47	--

Channel	Modulation	LTE Band 26 (Part 90)					
		RB	RB	Maximum Conducted Output Power			
		No.	Offset	1.4 M	3 M	5 M	10 M
Mid	QPSK	1	#0	22.01	22.43	22.63	22.59
		1	#Mid	**22.45**	**23.37**	**23.34**	**23.68**
		1	#Max	22.22	22.35	22.74	22.68
		50%	#0	22.00	22.26	22.14	22.21
		50%	#Mid	20.52	22.51	22.50	22.41
		50%	#Max	21.90	22.09	22.19	22.16
		100%	--	21.37	22.38	22.16	22.09
	16QAM	1	#0	22.30	22.34	21.88	21.87
		1	#Mid	**22.42**	**22.70**	**22.65**	**22.97**
		1	#Max	22.37	22.59	22.07	22.01
		50%	#0	22.10	21.47	21.21	21.26
		50%	#Mid	22.40	21.62	21.56	21.45
		50%	#Max	22.37	21.50	21.26	21.20
		100%	--	21.51	21.48	21.21	21.13
	64QAM	1	#0	21.61	21.32	20.92	20.85
		1	#Mid	**21.86**	**21.69**	**21.64**	**21.99**
		1	#Max	21.82	21.59	21.04	20.94
		50%	#0	21.55	20.48	20.26	20.29
		50%	#Mid	21.85	20.64	20.64	20.50
		50%	#Max	21.83	20.52	20.32	20.26
		100%	--	20.46	20.54	20.24	20.16

Channel	Modulation	LTE Band 26 (Part 90)					
		RB	RB	Maximum Conducted Output Power			
		No.	Offset	1.4 M	3 M	5 M	10 M
High	QPSK	1	#0	22.33	22.72	22.59	--
		1	#Mid	**22.48**	**22.74**	**22.88**	--
		1	#Max	22.17	22.08	22.05	--
		50%	#0	21.42	21.56	21.90	--
		50%	#Mid	21.41	21.44	21.81	--
		50%	#Max	21.33	21.25	21.22	--
		100%	--	21.25	21.40	21.57	--
	16QAM	1	#0	21.64	21.99	21.84	--
		1	#Mid	**21.70**	**22.00**	**22.23**	--
		1	#Max	21.51	21.41	20.93	--
		50%	#0	21.51	20.67	20.97	--
		50%	#Mid	21.54	20.55	20.88	--
		50%	#Max	21.45	20.36	20.29	--
		100%	--	20.38	20.47	20.63	--
	64QAM	1	#0	20.75	21.03	20.90	--
		1	#Mid	**20.79**	**21.05**	**21.24**	--
		1	#Max	20.65	20.45	19.95	--
		50%	#0	20.65	19.72	20.04	--
		50%	#Mid	20.67	19.59	19.98	--
		50%	#Max	20.59	19.37	19.38	--
		100%	--	19.34	19.52	19.67	--

3.6. Maximum Conducted Power and ERP/EIRP Power

$EIRP = P_T + G_T - L_C = ERP + 2.15\ dB$, $ERP = EIRP - 2.15\ dB$

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

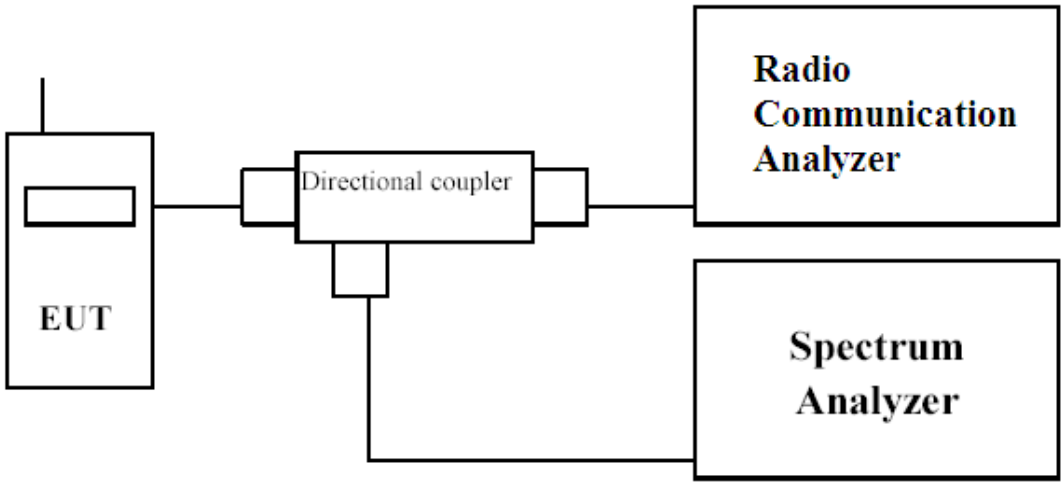
LTE Band	BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Antenna Gain (dBi)	Maximum ERP/EIRP (W)	Maximum ERP/EIRP Limit (W)
26	1.4 M	QPSK	22.48	0.177	-0.1	0.105	100
		16QAM	22.42	0.175	-0.1	0.104	100
		64QAM	22.06	0.161	-0.1	0.096	100
	3 M	QPSK	23.63	0.231	-0.1	0.137	100
		16QAM	23.14	0.206	-0.1	0.123	100
		64QAM	22.13	0.163	-0.1	0.097	100
	5 M	QPSK	23.64	0.231	-0.1	0.138	100
		16QAM	23.05	0.202	-0.1	0.120	100
		64QAM	22.06	0.161	-0.1	0.096	100
	10 M	QPSK	23.68	0.233	-0.1	0.139	100
		16QAM	22.97	0.198	-0.1	0.118	100
		64QAM	21.99	0.158	-0.1	0.094	100

4. Occupied Bandwidth

4.1. Test Secification

According to FCC Part 2.1049, 90.209

4.2. Test Setup

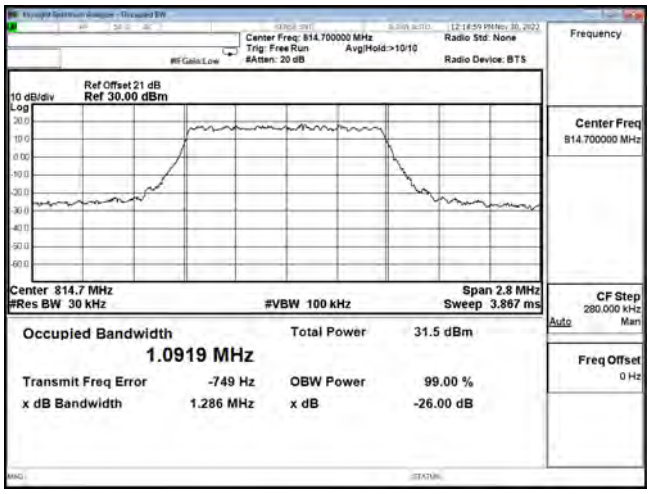


4.3. Test Procedure

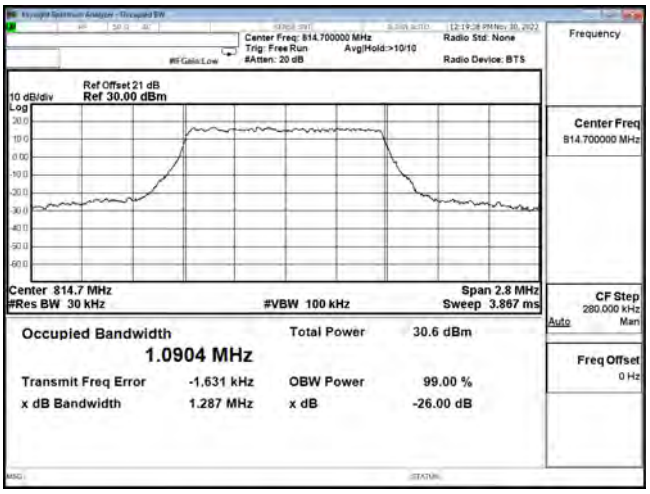
The EUT is tested with maximum rated TX power via the Base Station simulator, and the occupied bandwidth was measured at the antenna terminals of the EUT. The Resolution BW of the analyzer is set to 1 %~5 % of the emission bandwidth. The EUT's occupied bandwidth is measured as the width of the signal 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 Analyser.

4.4. Test Result of Occupied Bandwidth

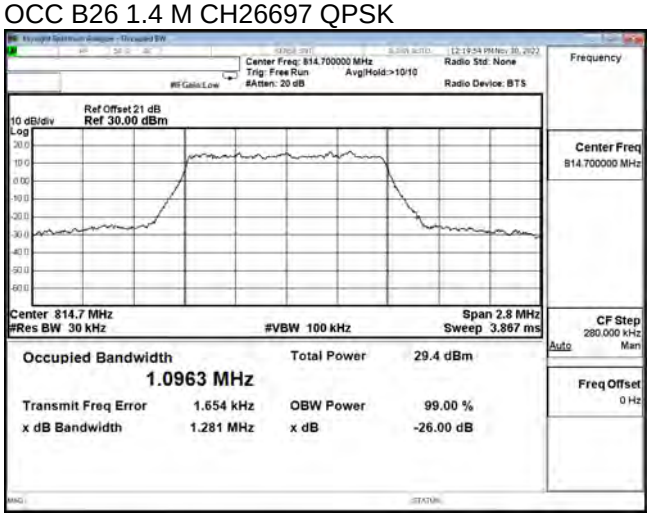
BW	Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			26 dB bandwidth (MHz)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1.4 M	26697	814.7	1.0919	1.0904	1.0963	1.286	1.287	1.281
1.4 M	26740	819	1.0916	1.0891	1.0954	1.281	1.291	1.278
1.4 M	26783	823.3	1.0907	1.0899	1.0945	1.280	1.285	1.282
3 M	26705	815.5	2.7297	2.7146	2.7185	3.058	3.027	3.043
3 M	26740	819	2.7300	2.7179	2.7183	3.058	3.040	3.048
3 M	26775	822.5	2.7335	2.7176	2.7198	3.054	3.036	3.047
5 M	26715	816.5	4.4950	4.5074	4.4873	5.001	5.033	4.971
5 M	26740	819	4.4921	4.5147	4.4892	4.995	5.036	4.978
5 M	26765	821.5	4.4975	4.5163	4.4856	4.975	5.027	4.982
10 M	26740	819	9.0382	9.0366	9.0333	10.03	10.01	9.989



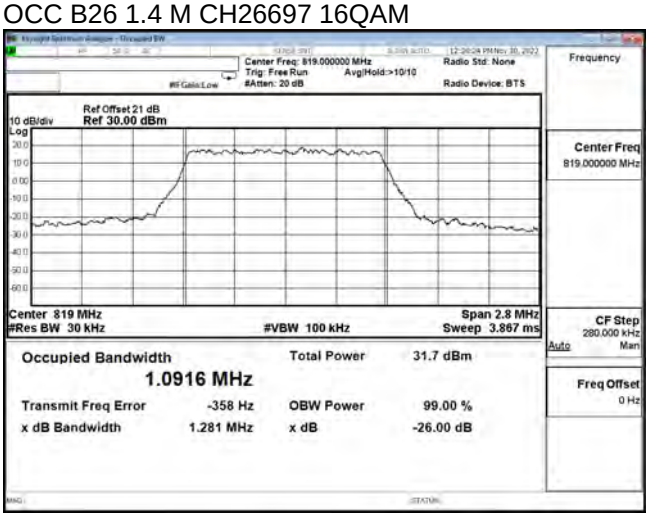
OCC B26 1.4 M CH26697 QPSK



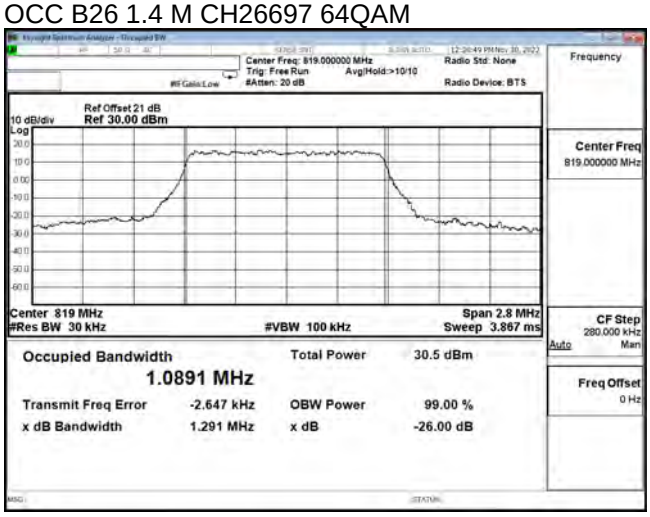
OCC B26 1.4 M CH26697 16QAM



OCC B26 1.4 M CH26697 64QAM



OCC B26 1.4 M CH26740 QPSK



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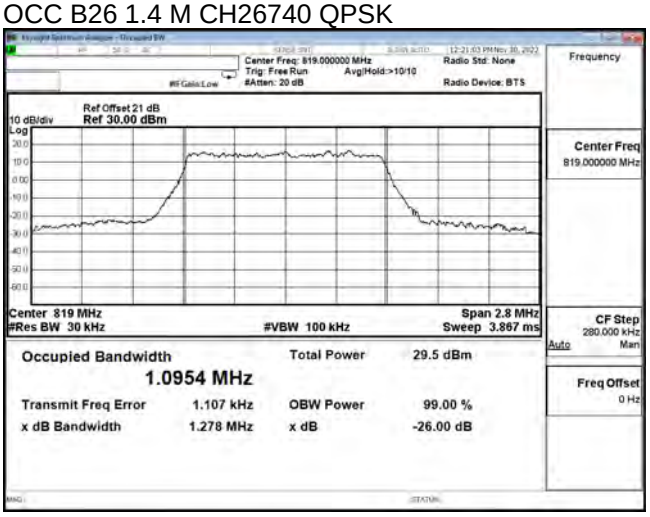

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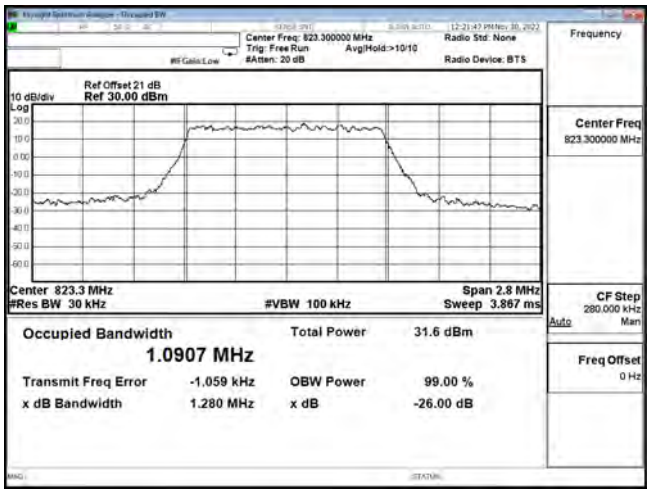
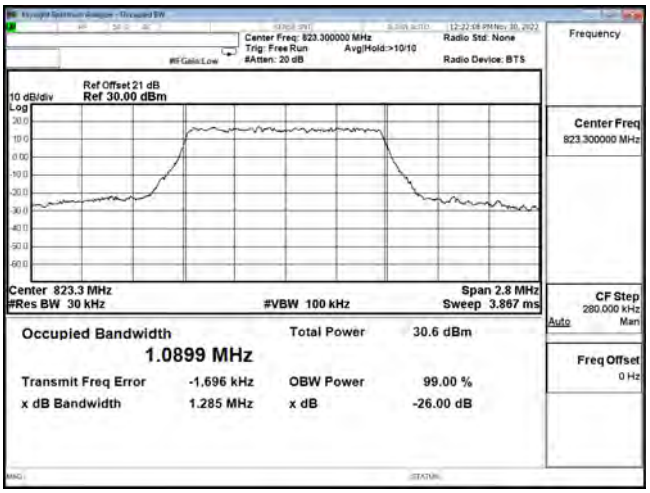


OCC B26 1.4 M CH26783 QPSK



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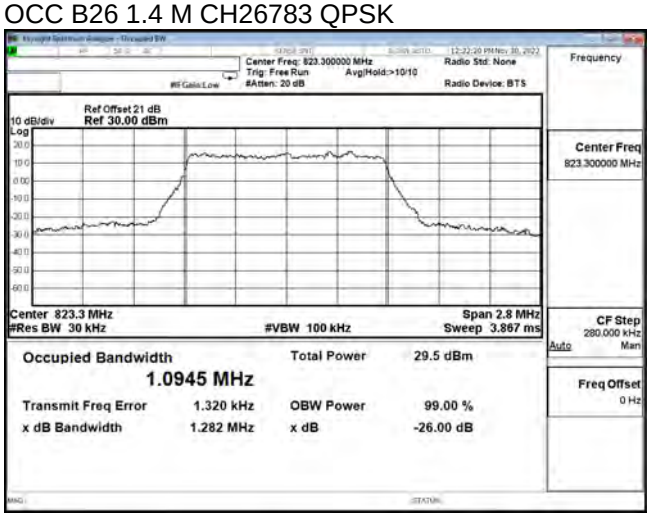

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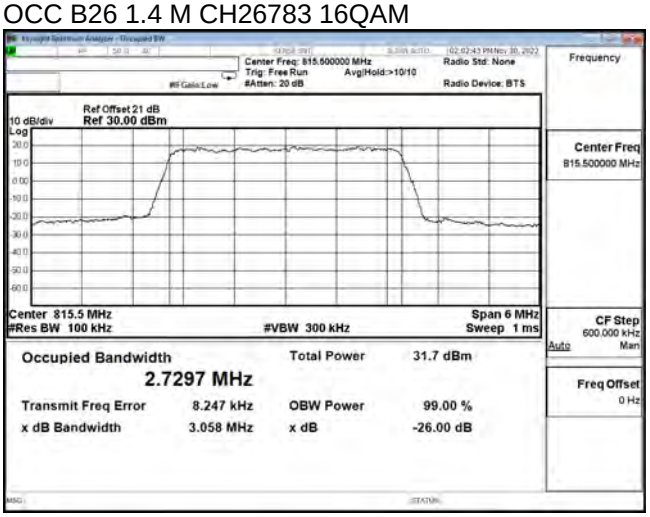
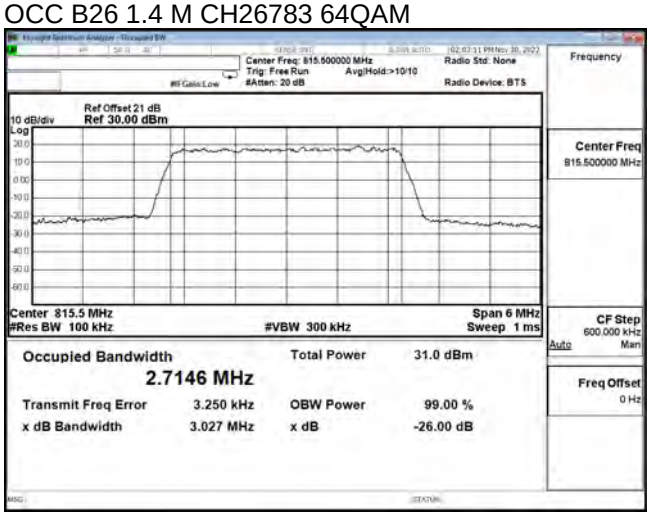
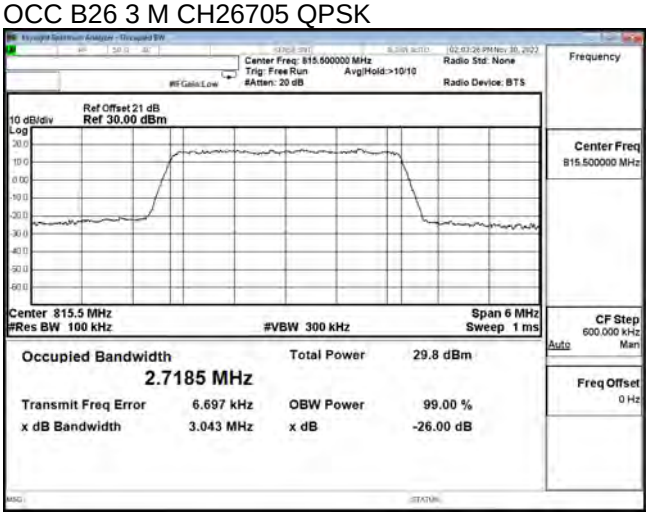


OCC B26 3 M CH26705 QPSK



OCC B26 3 M CH26705 16QAM



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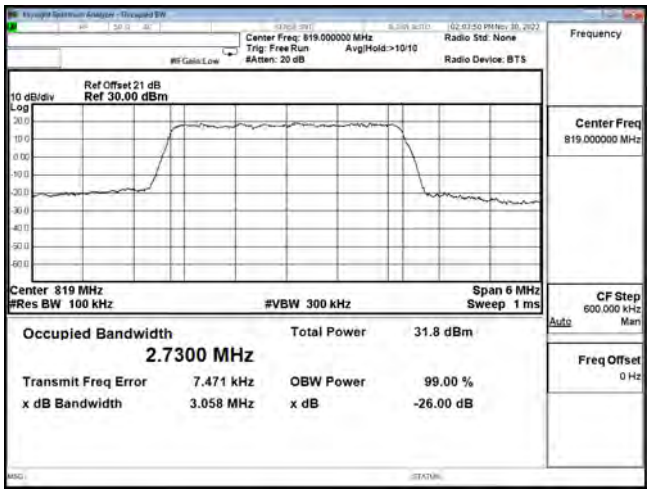
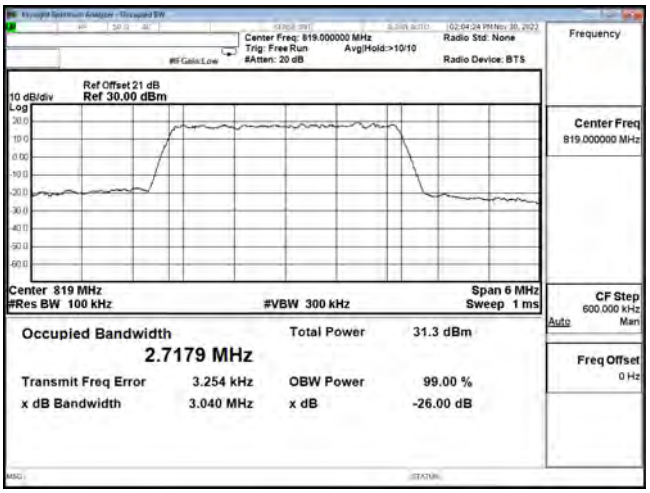


OCC B26 3 M CH26740 QPSK



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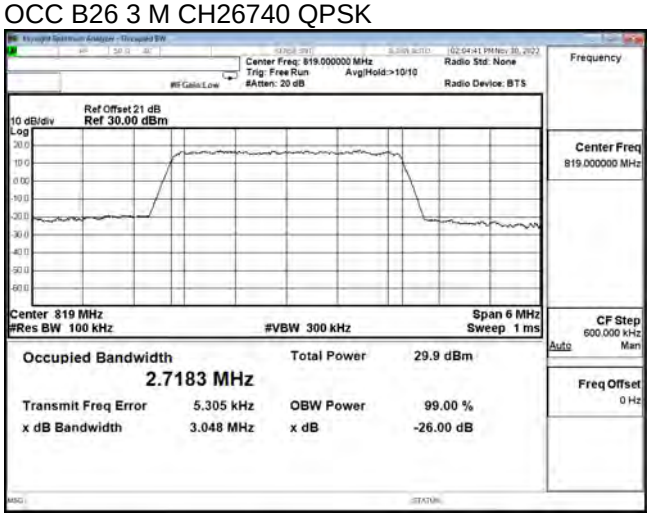

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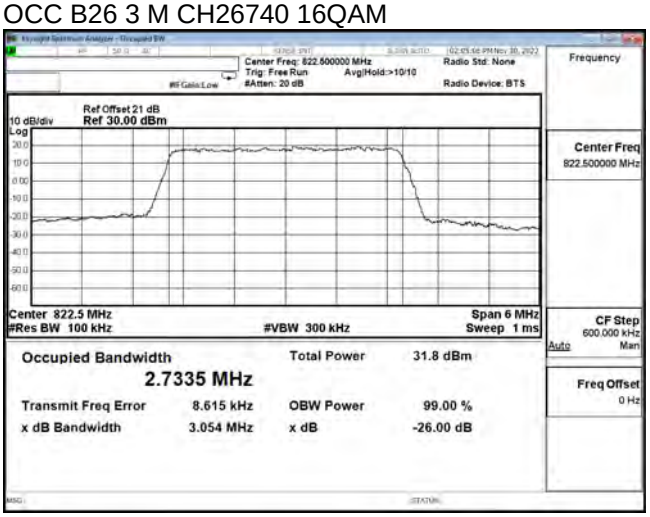

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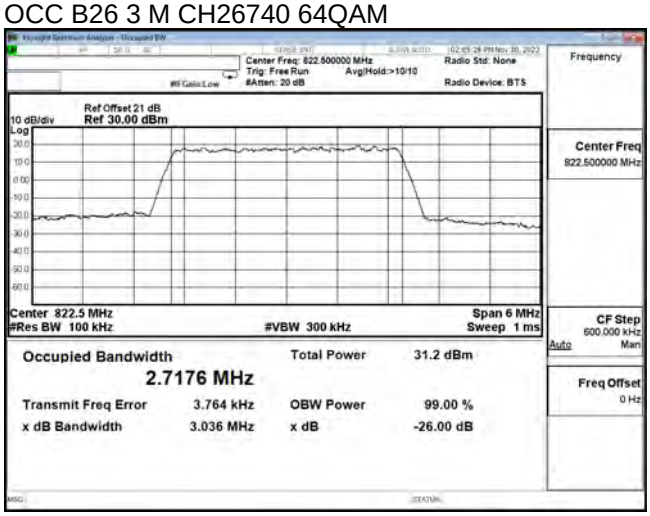

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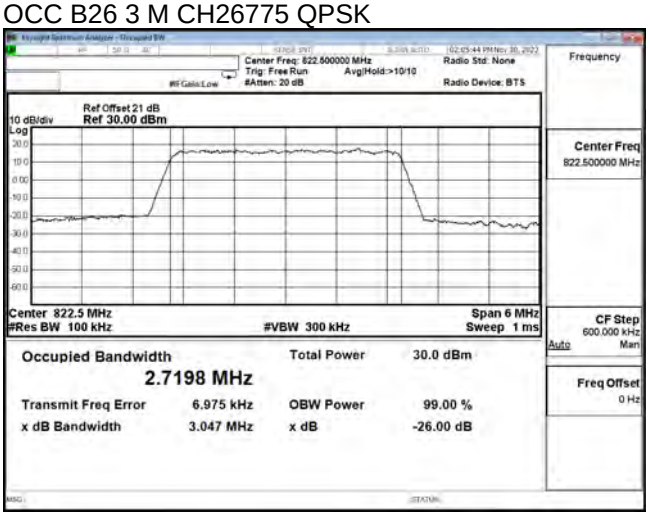

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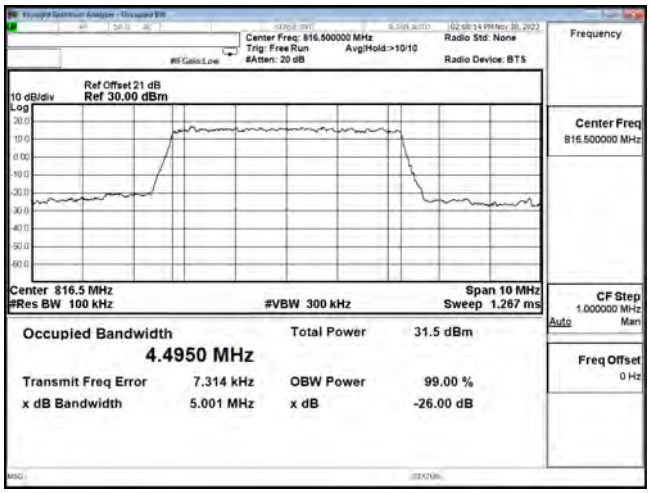

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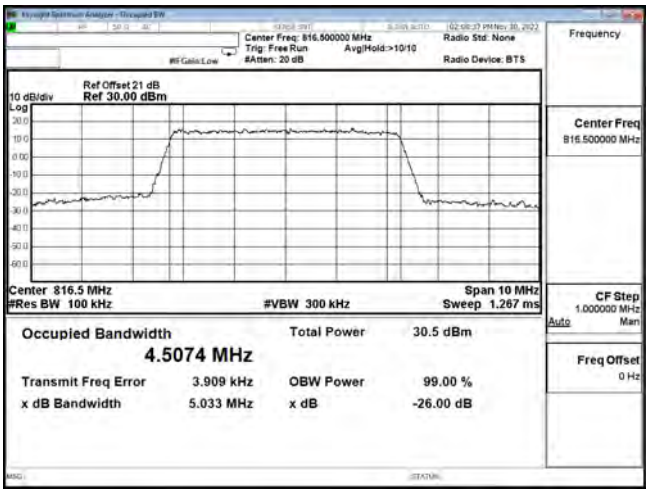

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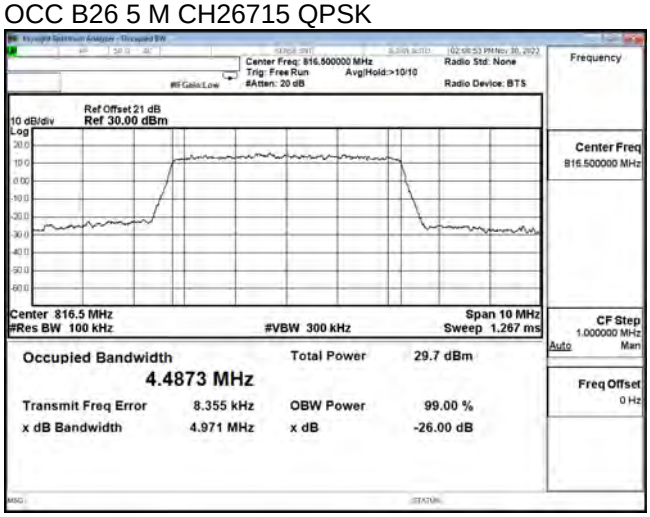

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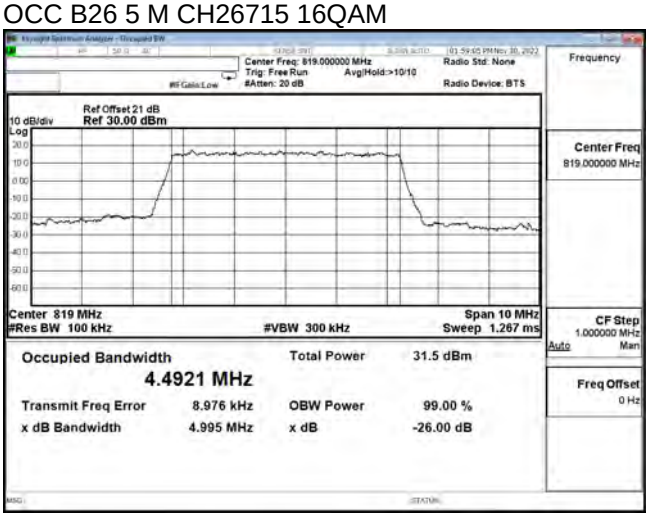

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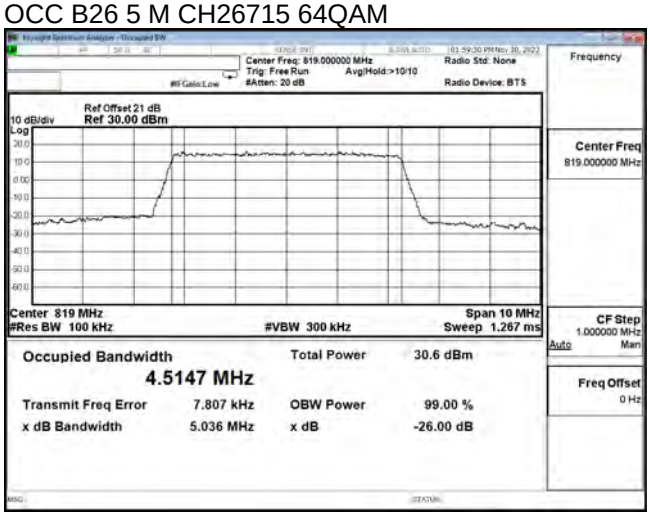

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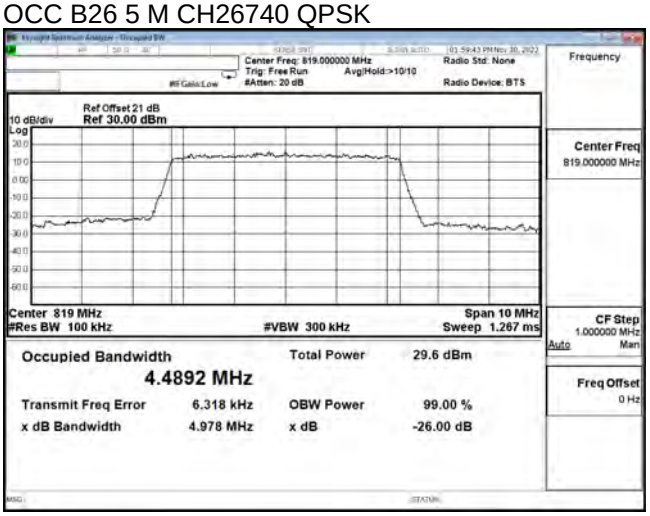

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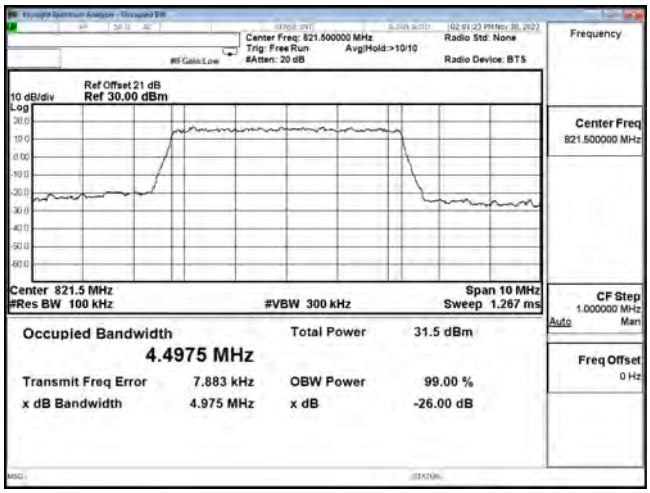

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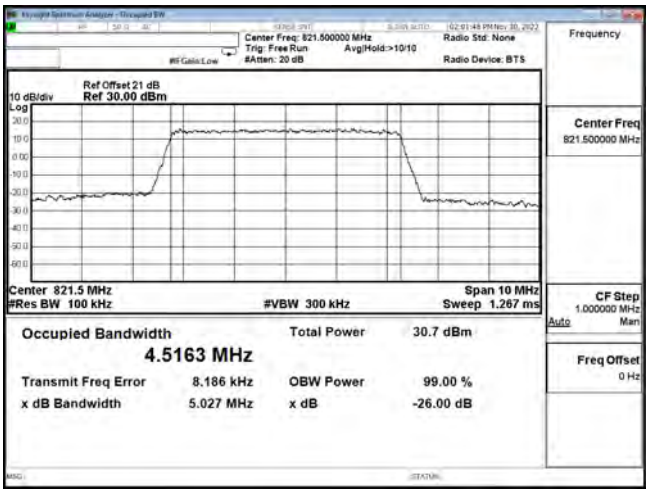

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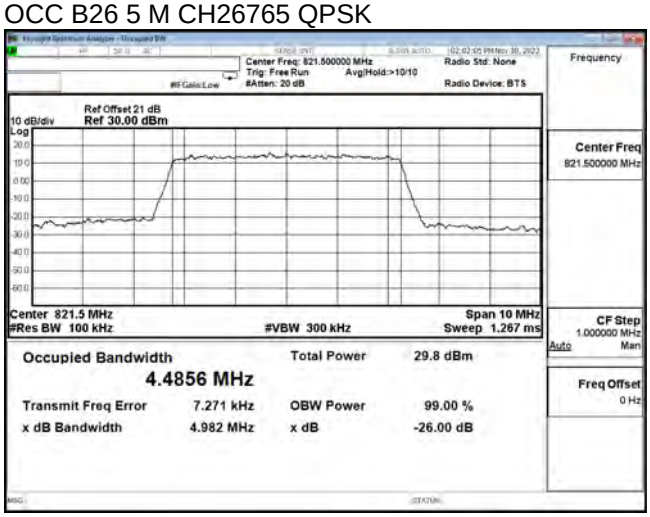

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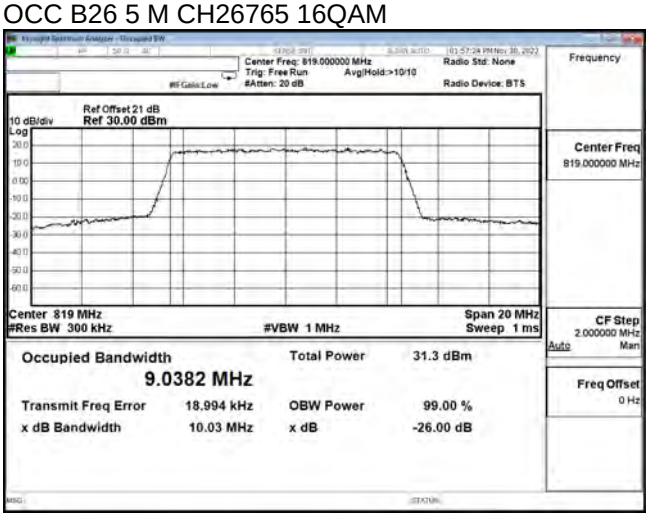

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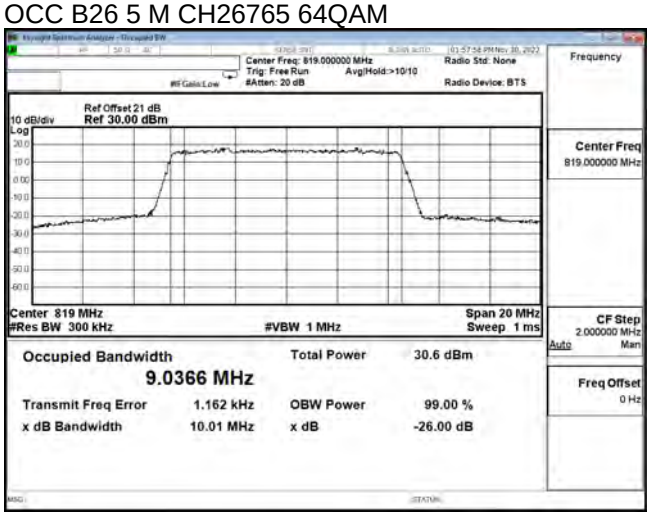

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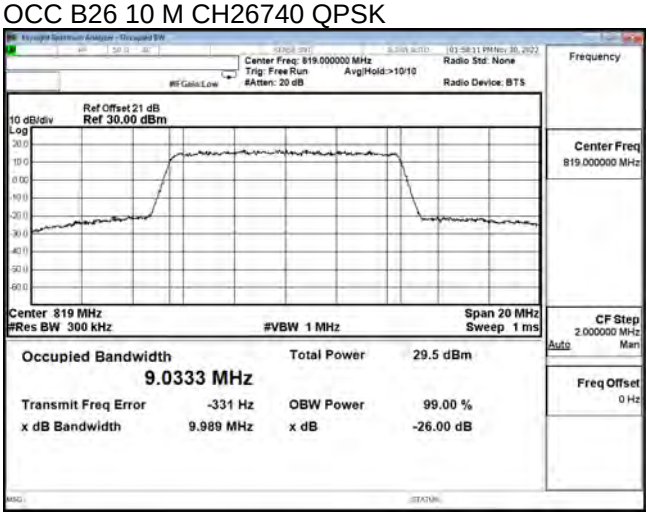


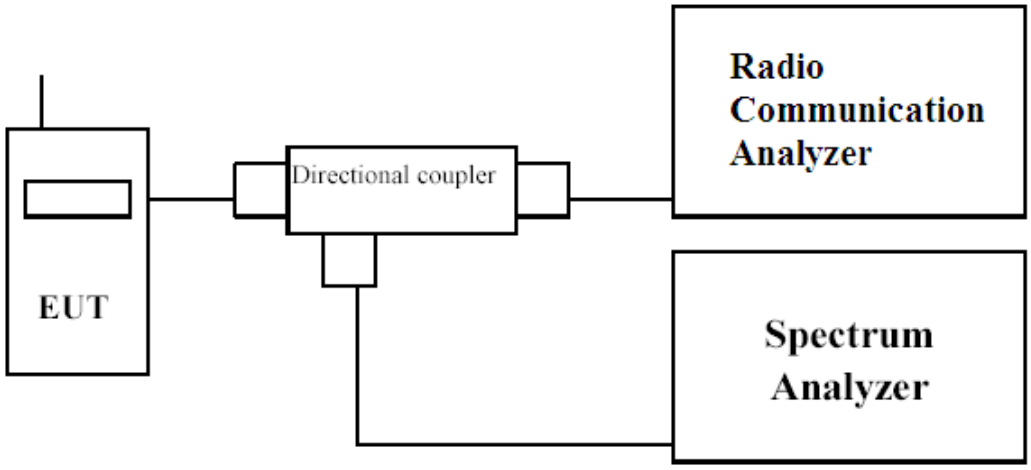
OCC B26 10 M CH26740 64QAM

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

5.1. Test Specification

According to Part 2.1051, 90.691

5.2. Setup



5.3. Limits

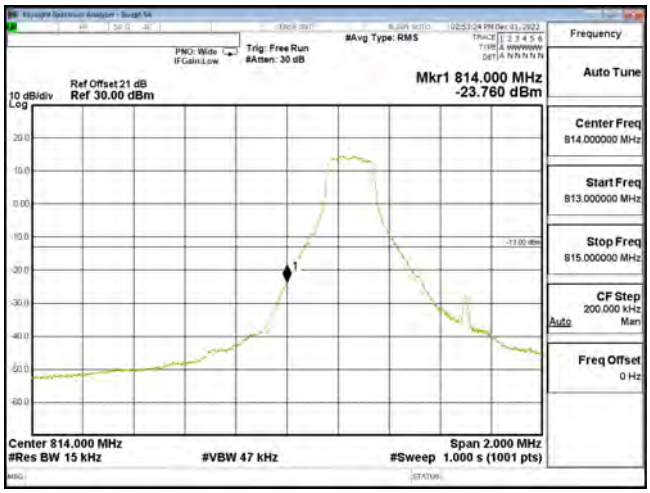
(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 $\log_{10}$(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

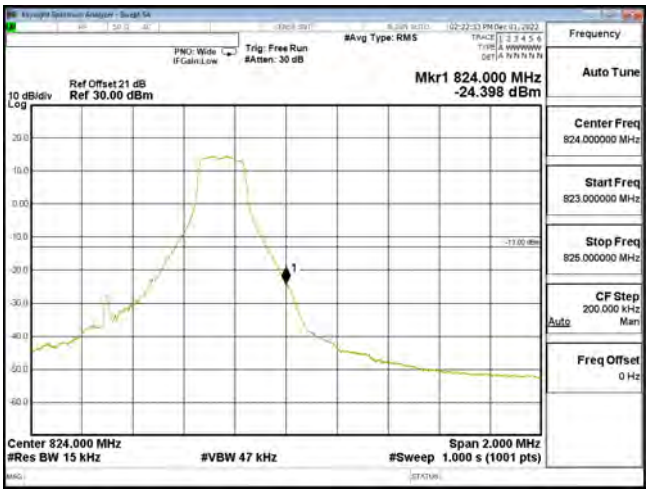
5.4. Test Procedure

In accordance with Part 90.691 at least 1 % of the emission bandwidth was used for the resolution and video bandwidths up to 1MHz 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.

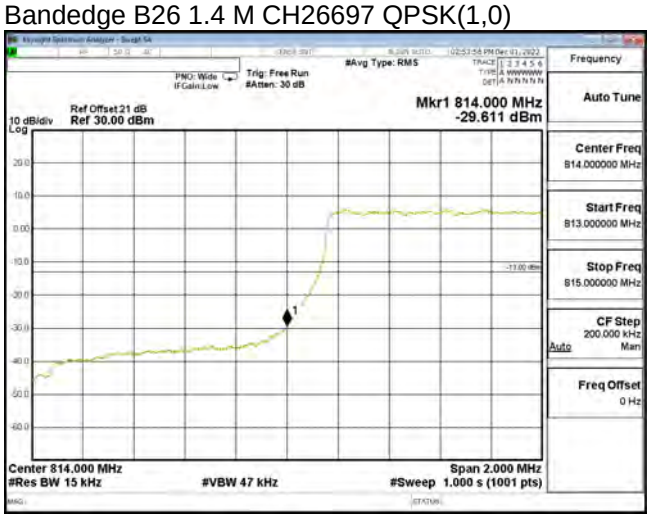
5.5. Test Result of Spurious Emission At Antenna Terminals (+/-1 MHz)



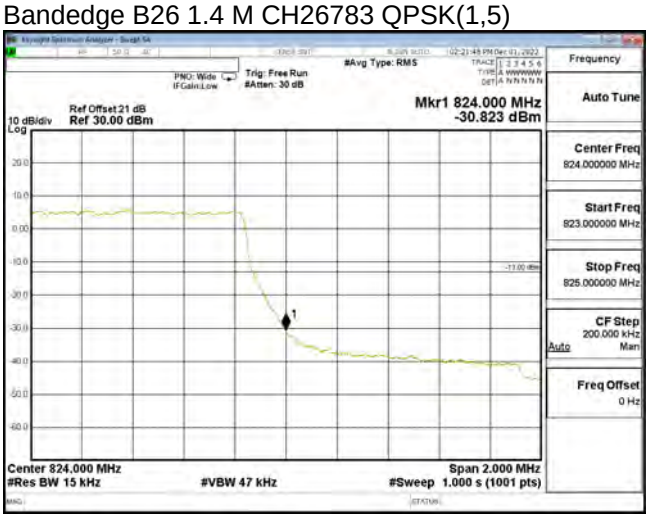
Bandedge B26 1.4 M CH26697 QPSK(1,0)



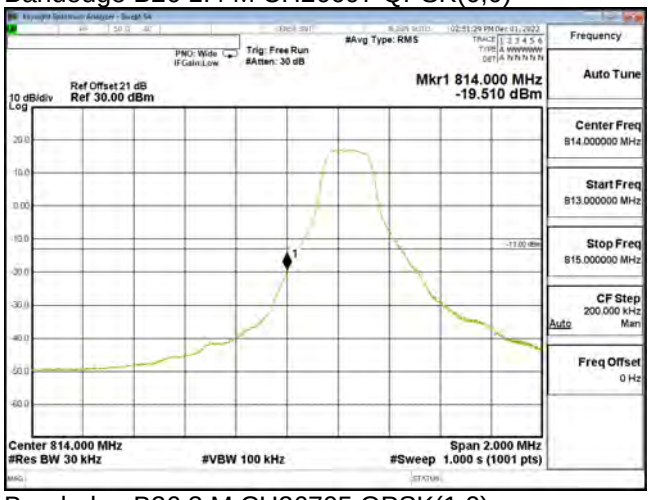
Bandedge B26 1.4 M CH26783 QPSK(1,5)



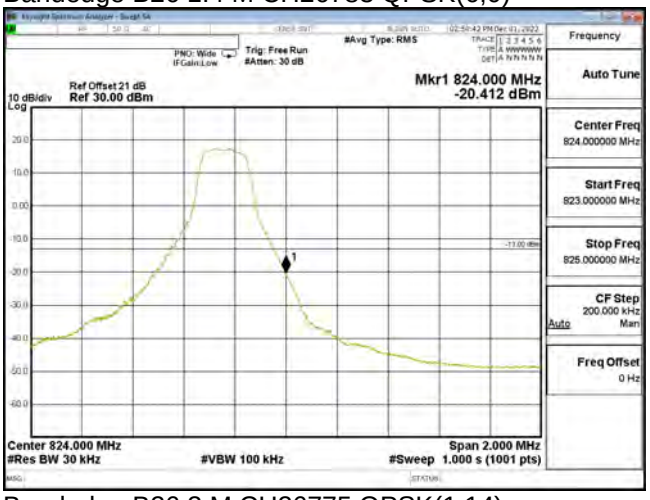
Bandedge B26 1.4 M CH26697 QPSK(6,0)



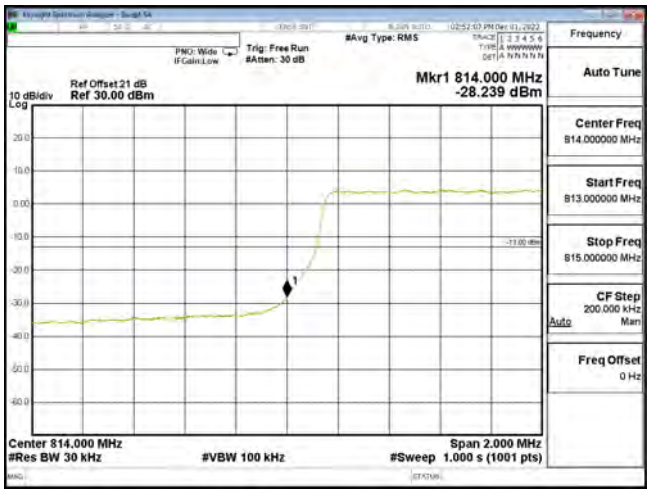
Bandedge B26 1.4 M CH26783 QPSK(6,0)



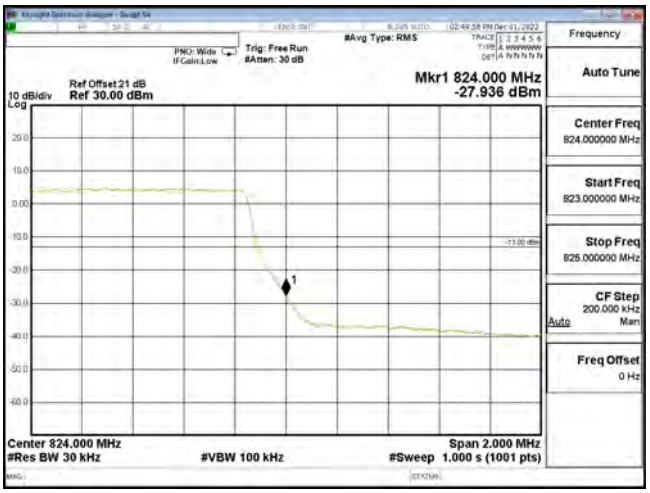
Bandedge B26 3 M CH26705 QPSK(1,0)



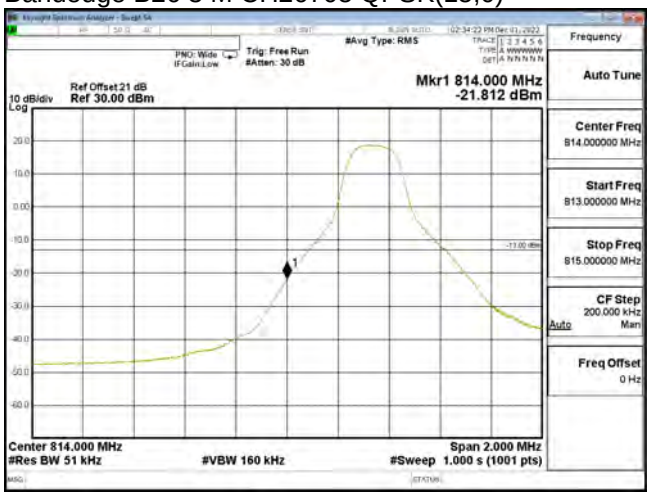
Bandedge B26 3 M CH26775 QPSK(1,14)



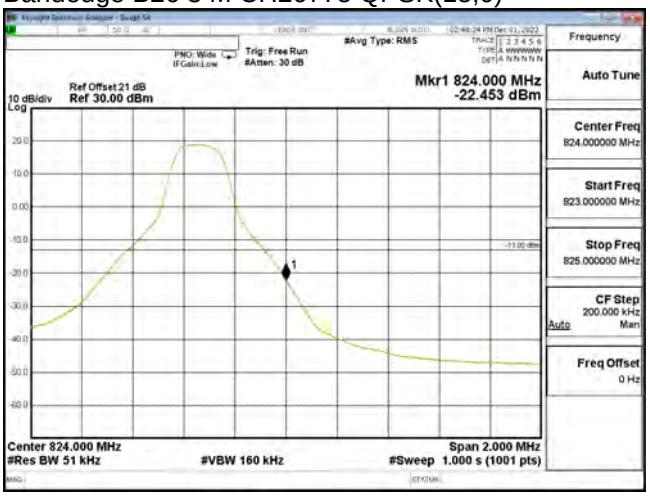
Bandedge B26 3 M CH26705 QPSK(15,0)



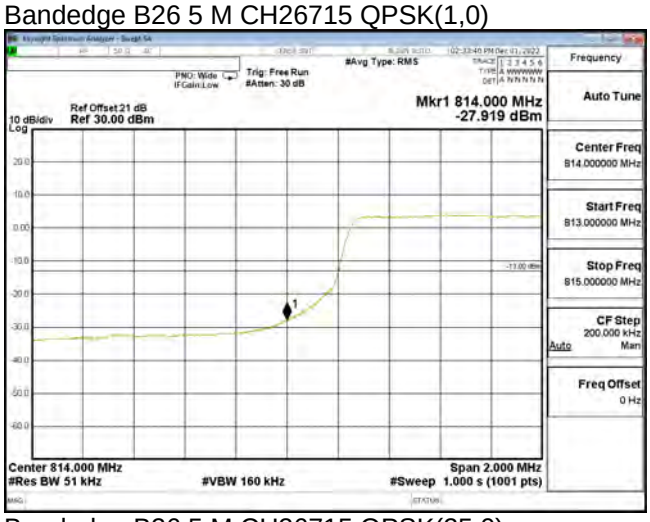
Bandedge B26 3 M CH26775 QPSK(15,0)



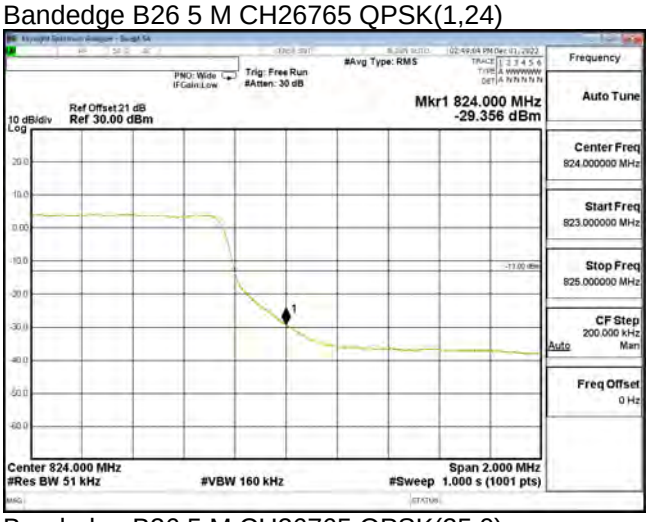
Bandedge B26 5 M CH26715 QPSK(1,0)



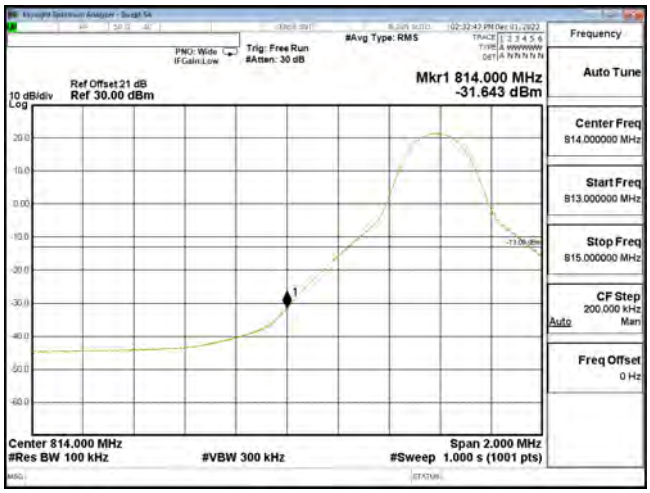
Bandedge B26 5 M CH26765 QPSK(1,24)



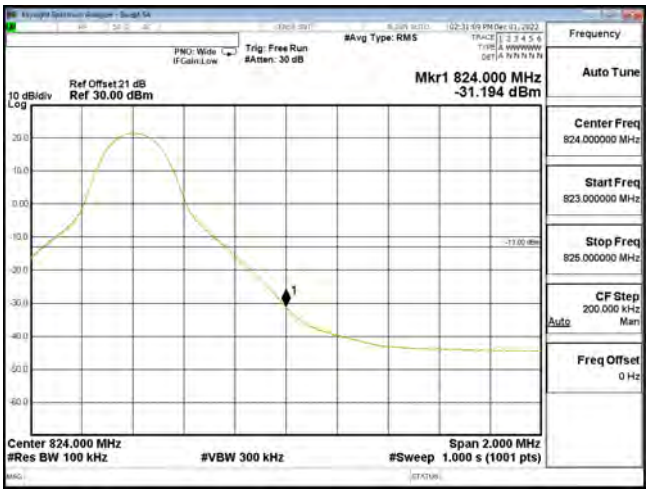
Bandedge B26 5 M CH26715 QPSK(25,0)



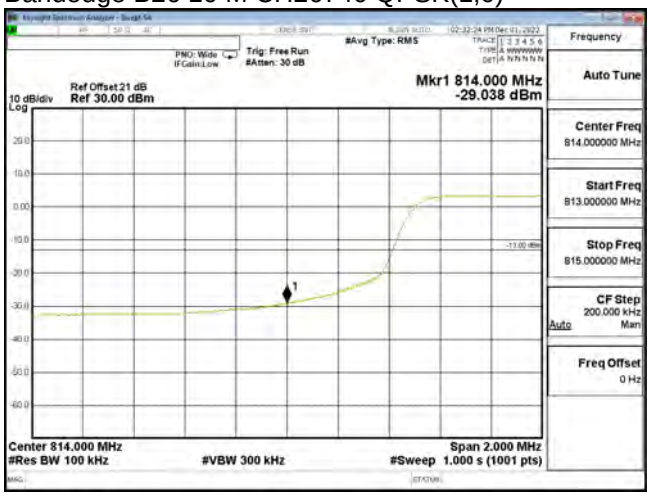
Bandedge B26 5 M CH26765 QPSK(25,0)



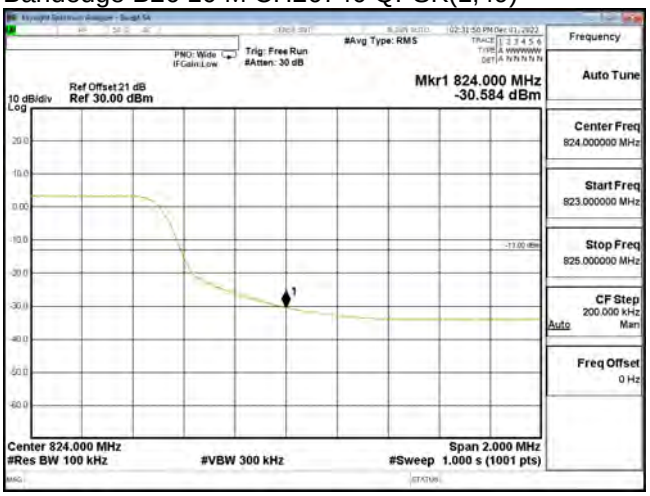
Bandedge B26 10 M CH26740 QPSK(1,0)



Bandedge B26 10 M CH26740 QPSK(1,49)



Bandedge B26 10 M CH26740 QPSK(50,0)



Bandedge B26 10 M CH26740 QPSK(50,0)

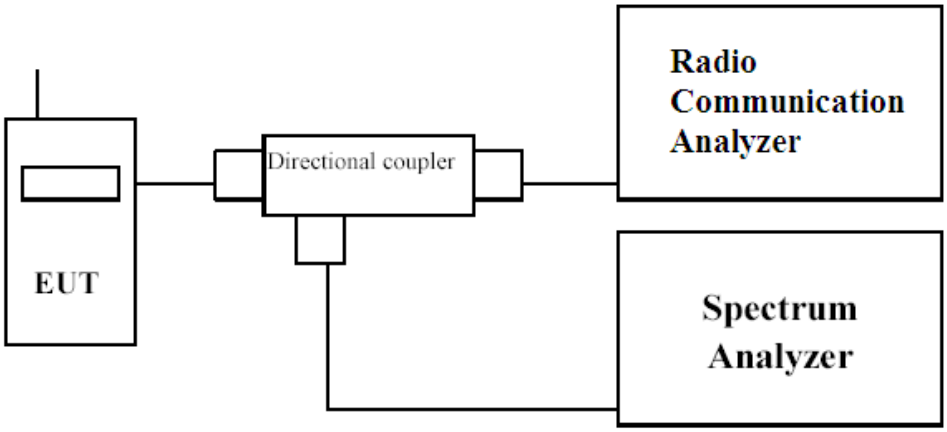
6. Spurious Emission

6.1. Test Specification

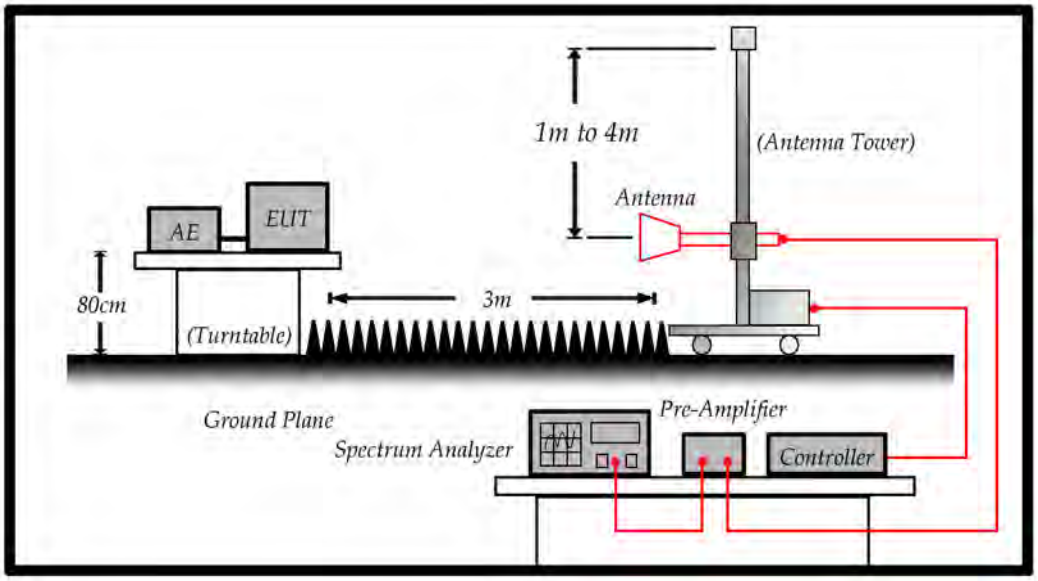
According to Part 2.1051, 90.691

6.2. Test Setup

Spurious emissions at antenna terminals



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

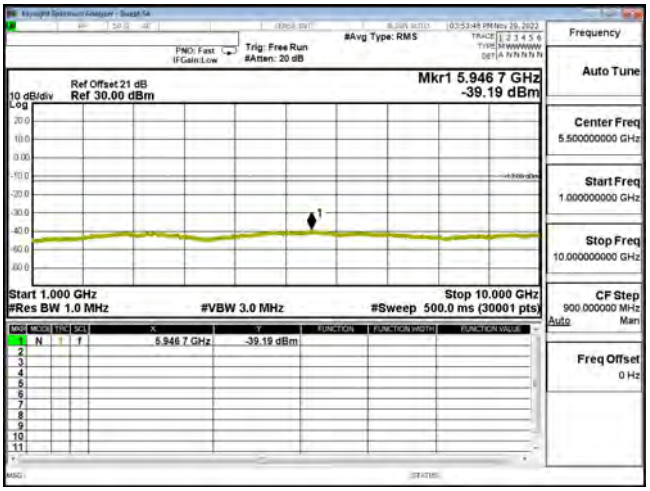
In accordance with Part 2.1051, 90.691, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 30 MHz to 20 GHz. The EUT was set to transmit on full power. 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 2.1051, 90.691. 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.

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.

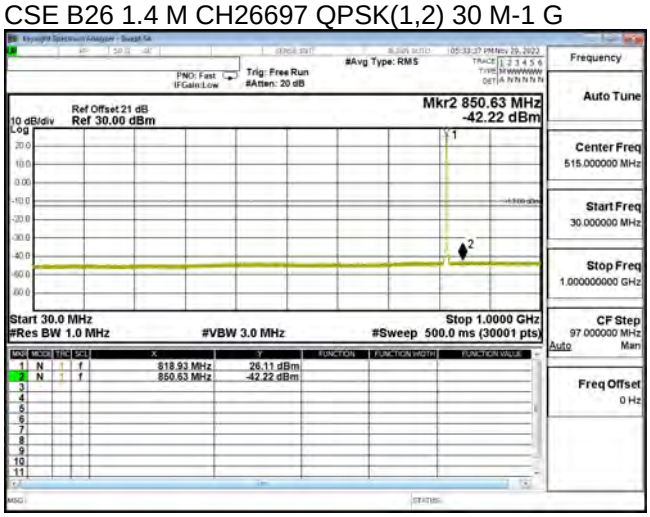
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to TIA/EIA 603-D on radiated measurement.

6.5. Test Result of Spurious Emission

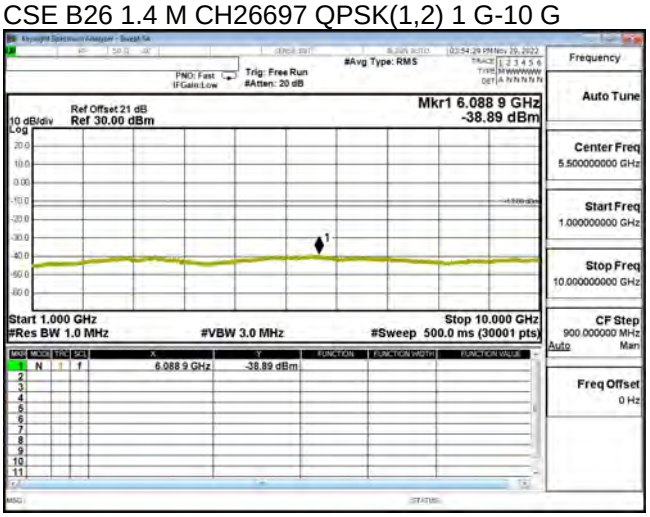
CSE B26 1.4 M CH26697 QPSK(1,2) 30 M-1 G



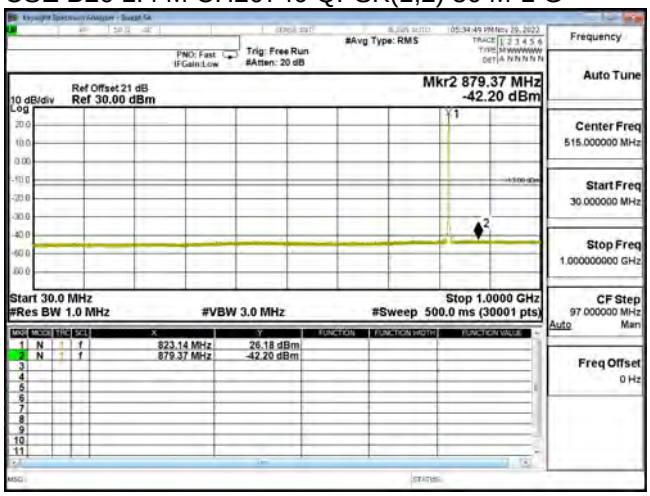
CSE B26 1.4 M CH26697 QPSK(1,2) 1 G-10 G



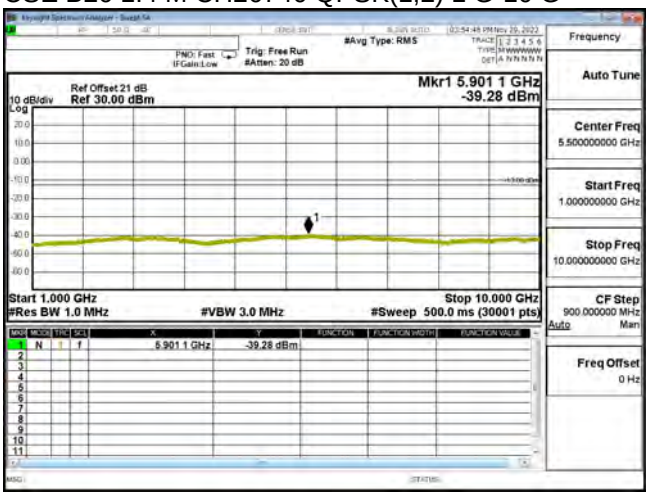
CSE B26 1.4 M CH26740 QPSK(1,2) 30 M-1 G



CSE B26 1.4 M CH26740 QPSK(1,2) 1 G-10 G

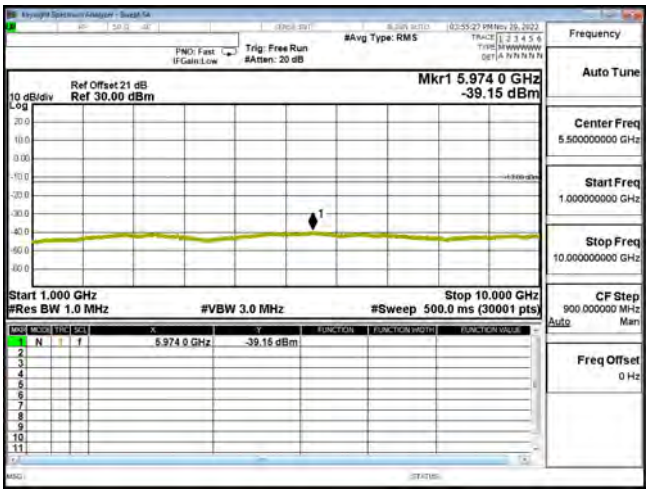


CSE B26 1.4 M CH26783 QPSK(1,2) 30 M-1 G

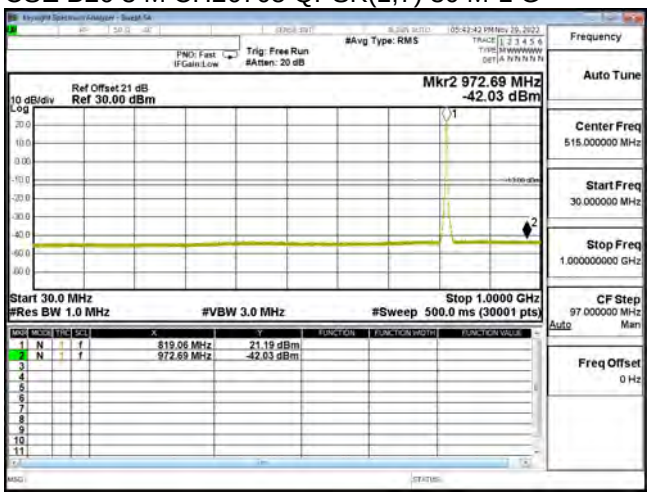


CSE B26 1.4 M CH26783 QPSK(1,2) 1 G-10 G

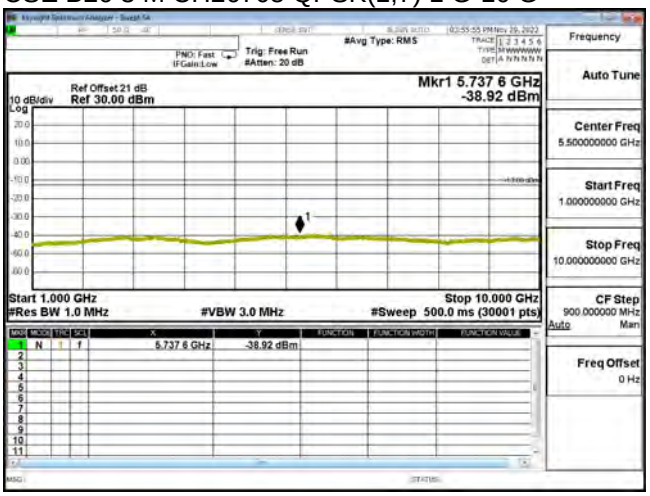
CSE B26 3 M CH26705 QPSK(1,7) 30 M-1 G



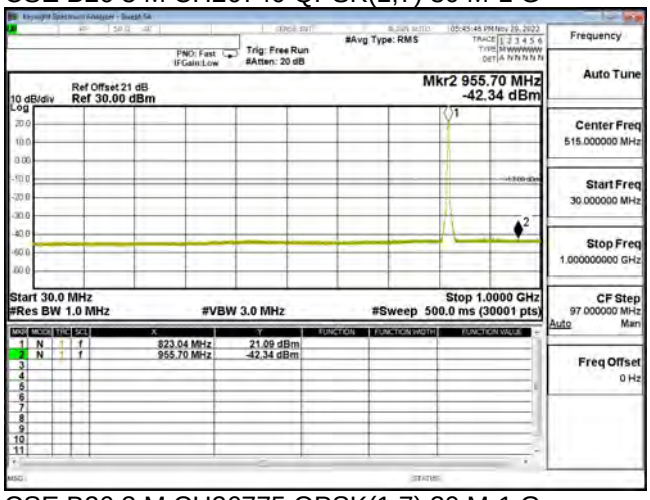
CSE B26 3 M CH26705 QPSK(1,7) 1 G-10 G



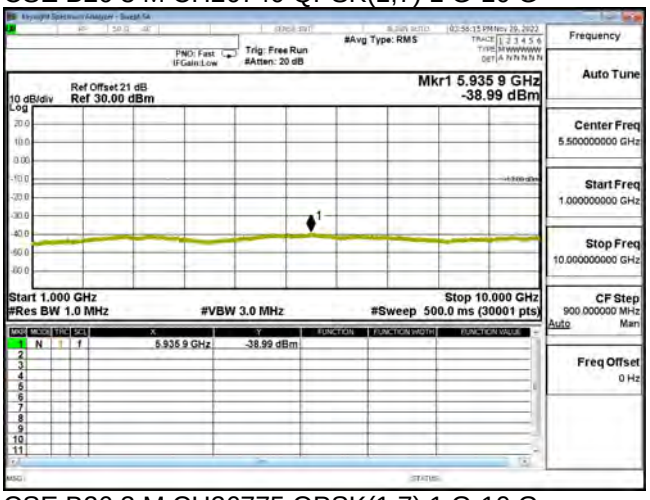
CSE B26 3 M CH26740 QPSK(1,7) 30 M-1 G



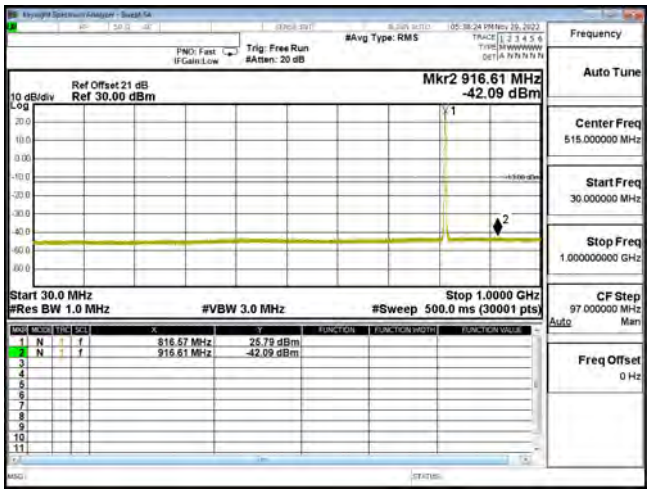
CSE B26 3 M CH26740 QPSK(1,7) 1 G-10 G



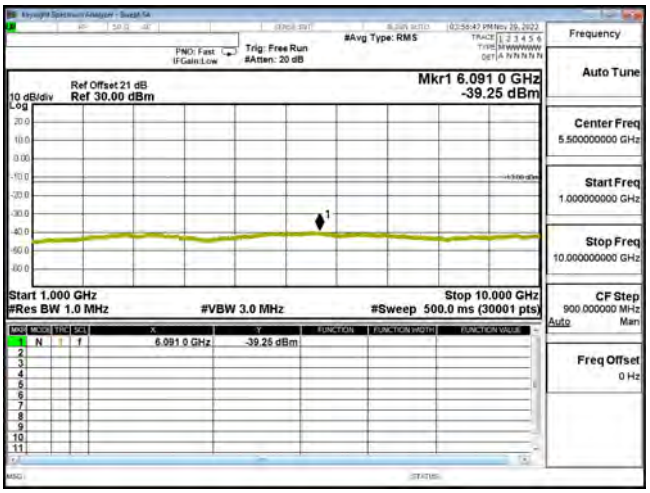
CSE B26 3 M CH26775 QPSK(1,7) 30 M-1 G



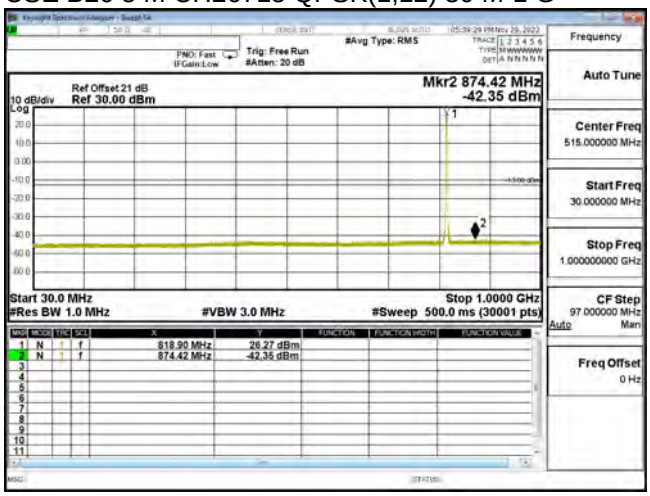
CSE B26 3 M CH26775 QPSK(1,7) 1 G-10 G



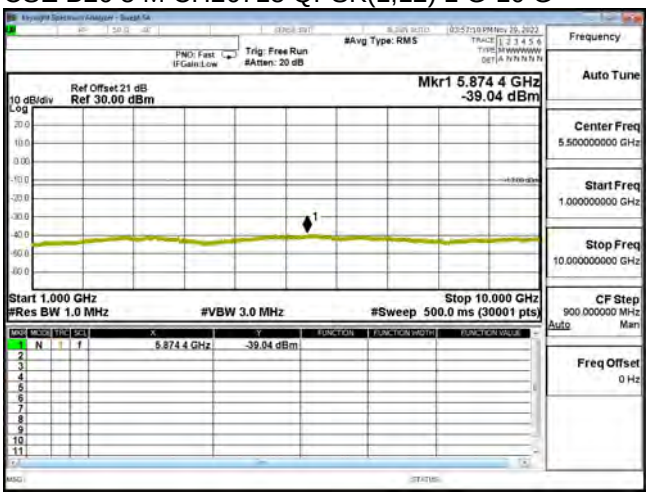
CSE B26 5 M CH26715 QPSK(1,12) 30 M-1 G



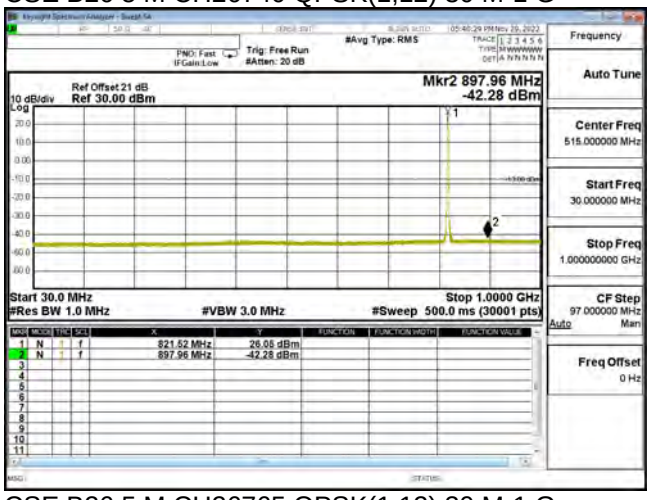
CSE B26 5 M CH26715 QPSK(1,12) 1 G-10 G



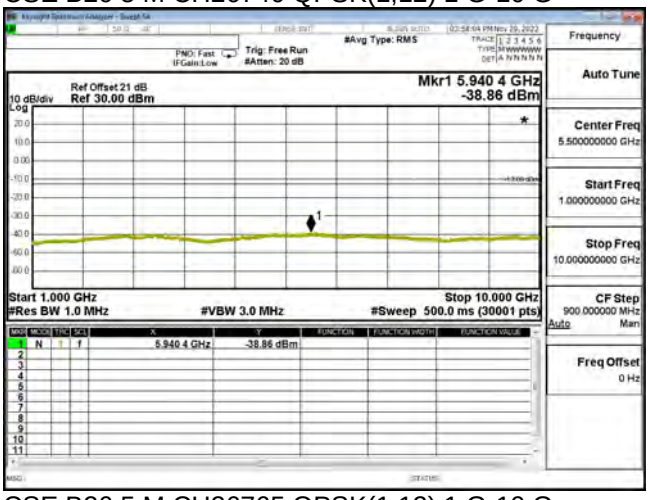
CSE B26 5 M CH26740 QPSK(1,12) 30 M-1 G



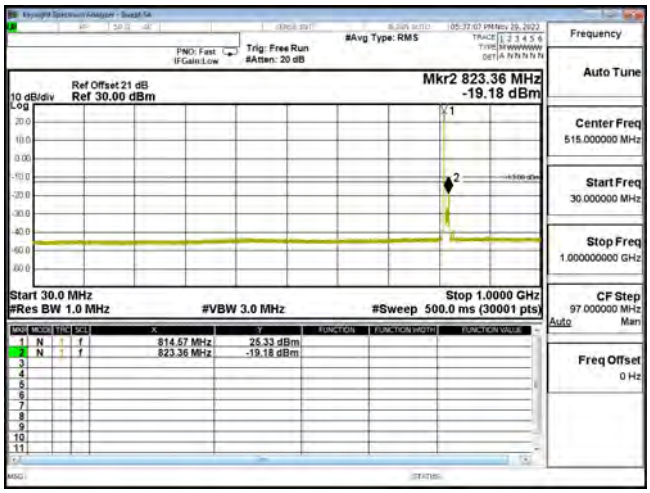
CSE B26 5 M CH26740 QPSK(1,12) 1 G-10 G



CSE B26 5 M CH26765 QPSK(1,12) 30 M-1 G



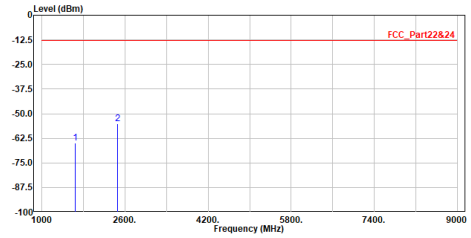
CSE B26 5 M CH26765 QPSK(1,12) 1 G-10 G



CSE B26 10 M CH26740 QPSK(1,0) 30 M-1 G

CSE B26 10 M CH2670 QPSK(1,0) 1 G-10 G

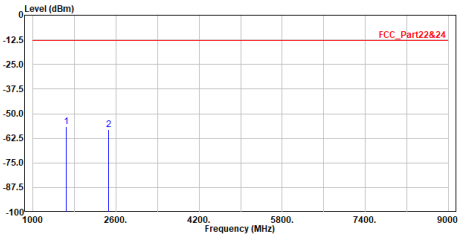
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B26_Part90_1RB25_CH26740
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1638.000	-65.04	-13.00	-52.04	-49.68	-15.36	Peak
2	2457.000	-54.91	-13.00	-41.91	-41.20	-13.71	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.

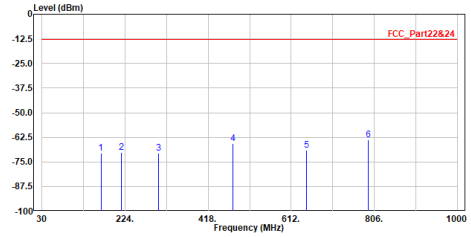
Site :HY-CB03
Condition :3m Vertical
Mode :LTE_B26_Part90_1RB25_CH26740
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1638.000	-56.43	-13.00	-43.43	-41.07	-15.36	Peak
2	2457.000	-58.19	-13.00	-45.19	-44.48	-13.71	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.

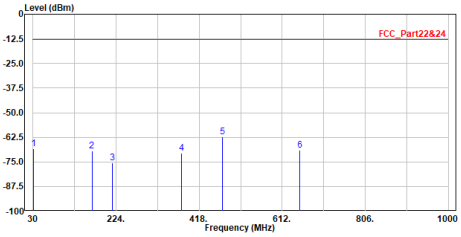
Site :HY-CB03
Condition :3m Horizontal
Mode :LTE_B26_Part90_1RB25_CH26740
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	167.740	-70.55	-13.00	-57.55	-55.74	-14.81	Peak
2	215.270	-70.33	-13.00	-57.33	-52.93	-17.40	Peak
3	302.570	-70.49	-13.00	-57.49	-56.36	-14.13	Peak
4	476.200	-65.57	-13.00	-52.57	-55.93	-9.64	Peak
5	647.890	-69.22	-13.00	-56.22	-63.20	-6.02	Peak
6	792.420	-63.64	-13.00	-50.64	-59.75	-3.89	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_B26_Part90_1RB25_CH26740
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	31.940	-68.22	-13.00	-55.22	-52.47	-15.75	Peak
2	167.740	-69.39	-13.00	-56.39	-54.58	-14.81	Peak
3	215.270	-75.51	-13.00	-62.51	-58.11	-17.40	Peak
4	377.260	-70.52	-13.00	-57.52	-58.41	-12.11	Peak
5	472.320	-62.26	-13.00	-49.26	-52.61	-9.65	Peak
6	653.710	-69.13	-13.00	-56.13	-63.20	-5.93	Peak

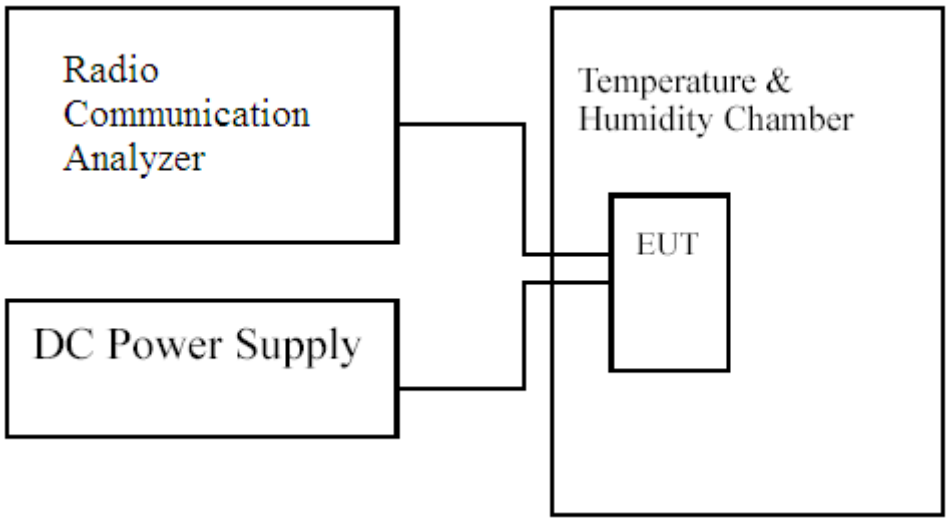
Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor + Aux Factor
3. Over Limit = Level - Limit Line
4. Aux Factor = Convert E (dBuVm) to EIRP (dBm)
= 107 + 20log(3) – 104.8 = 11.8 dB
5. The other emission levels were very low against the limit.
6. The emission 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, 90.213

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

Temperature Variations

Temperature Interval(℃)	Test Channel	Deviation (kHz)				Limit (kHz)
		1.4 M	3 M	5 M	10 M	
-30	Low	-0.0056	0.0052	0.0063	--	±2.05
-20	Low	-0.0051	0.0056	0.0069	--	±2.05
-10	Low	-0.0053	0.0068	0.0055	--	±2.05
0	Low	0.0058	0.0078	0.0050	--	±2.05
10	Low	-0.0052	0.0075	0.0054	--	±2.05
20	Low	-0.0048	0.0073	0.0059	--	±2.05
30	Low	-0.0042	0.0066	0,0061	--	±2.05
40	Low	-0.0047	0.0069	0,0052	--	±2.05
50	Low	-0.0045	0.0061	0.0045	--	±2.05
-30	Mid	--	--	--	-0.0033	±2.05
-20	Mid	--	--	--	-0.0034	±2.05
-10	Mid	--	--	--	-0.0038	±2.05
0	Mid	--	--	--	-0.0035	±2.05
10	Mid	--	--	--	-0.0029	±2.05
20	Mid	--	--	--	-0.0027	±2.05
30	Mid	--	--	--	-0.0021	±2.05
40	Mid	--	--	--	-0.0027	±2.05
50	Mid	--	--	--	-0.0024	±2.05
-30	High	-0.0051	0.0059	0.0058	--	±2.05
-20	High	-0.0047	0.0071	0.0051	--	±2.05
-10	High	-0.0044	0.0091	0.0047	--	±2.05
0	High	0.0047	0.0090	0.0041	--	±2.05
10	High	0.0043	0.0078	0,0046	--	±2.05
20	High	0.0036	0.0055	0.0041	--	±2.05
30	High	0.0031	0.0054	0,0048	--	±2.05
40	High	-0.0048	0.0051	0,0050	--	±2.05
50	High	-0.0058	0.0047	0.0046	--	±2.05

Voltage Variations

Temperature Interval(℃)	Test Channel	Deviation (kHz)				Limit (kHz)
		1.4 M	3 M	5 M	10 M	
4.40	Low	-0.0055	0.0062	0.0053	--	±2.05
3.85	Low	-0.0048	0.0073	0.0059	--	±2.05
3.60	Low	-0.0043	0.0060	0.0052	--	±2.05
4.40	Mid	--	--	--	-0.0019	±2.05
3.85	Mid	--	--	--	-0.0027	±2.05
3.60	Mid	--	--	--	-0.0024	±2.05
4.40	High	0.0070	0.0054	0.0043	--	±2.05
3.85	High	0.0036	0.0055	0.0041	--	±2.05
3.60	High	-0.0048	0.0053	0.0053	--	±2.05