

**ELECTROMAGNETIC EMISSIONS
COMPLIANCE REPORT**

EUT Description: Freedom Alert Go
Applicant: LogicMark, Inc.
2801 Diode Lane, Louisville, Kentucky, United States, 40299
Manufacturer: Shengyih Technologies Co.,Ltd (Taiwan)
3f-2, No.13 Wu Chuan 1st Rd., Xinzhuang Dist., New Taipei City
148 Taiwan
Brand Name: LogicMark
Model No. TYD-75911
Report Number: TERF2605001879ER
FCC ID TYD-75911
Date of EUT Received: June 12, 2026
Date of Test: June 29, 2026 ~ July 15, 2026
Issue Date: Aug 19, 2026

Approved By

Jay Lin

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26:2015 and the energy emitted by the sample EUT comply with FCC Part 2, 22H, 24E, 27C. The results of this report relate only to the sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TERF2605001879ER	00	Original	July 24, 2026	Mini Yeh	
TERF2605001879ER	01	Modify Comment	Aug 19, 2026	Mini Yeh	*

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.

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1 GENERAL PRODUCT INFORMATION

1.1 Equipment Under Test (EUT)

EUT Description	Freedom Alert Go
Brand Name	LogicMark
Model No.	TYD-75911
EUT Series No.	N/A
Power Supply	3.85 Vdc
Test Software (Name/Version)	default(Link Call Radio Communication Analyzer)

1.2 Antenna Designation

Antenna Type	Part No.	Antenna No.
FPC	T8-MB-MAIN-DXT	Ant0
Note: Transmission frequencies in this test report are only available by the above antenna(s).		

LTE Band	Frequency Range (MHz)	Ant0 Antenna Gain (dBi)
LTE Band 2	1850~1910	5
LTE Band 4	1710~1755	4.9
LTE Band 5	824~849	2.3
LTE Band 12	699~716	1.3
LTE Band 13	777~787	1.3

Note: The antenna information is provided by the applicant, and the laboratory shall not be held liable for the accuracy, completeness, or reliability of any applicant-supplied data.

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1.3 Operating Frequencies

Band	Bandwidth(MHz)	Low Frequency (MHz)	Upper Frequency (MHz)
LTE BAND 2	1.4	1850.70	1909.30
	3.0	1851.50	1908.50
	5.0	1852.50	1907.50
	10.0	1855.00	1905.00
Band	Bandwidth(MHz)	Low Frequency (MHz)	Upper Frequency (MHz)
LTE BAND 4	1.4	1710.70	1754.30
	3.0	1711.50	1753.50
	5.0	1712.50	1752.50
	10.0	1715.00	1750.00
Band	Bandwidth(MHz)	Low Frequency (MHz)	Upper Frequency (MHz)
LTE BAND 5	1.4	824.70	848.30
	3.0	825.50	847.50
	5.0	826.50	846.50
	10.0	829.00	844.00
Band	Bandwidth(MHz)	Low Frequency (MHz)	Upper Frequency (MHz)
LTE BAND 12	1.4	699.70	715.30
	3.0	700.50	714.50
	5.0	701.50	713.50
	10.0	704.00	711.00
Band	Bandwidth(MHz)	Low Frequency (MHz)	Upper Frequency (MHz)
LTE BAND 13	5.0	779.50	784.50
	10.0	782.00	782.00

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1.4 Type of Emission & Max ERP/EIRP Power Measurement Result

Band	Technology (GSM, CDMA, etc...)	Frequency		Conducted Power (dBm)	Conducted Power (W)	ERP/EIRP (dBm)	ERP/EIRP (W)	Frequency Tolerance		Emission Designator (See 47 CFR 2.201 and 2.202)	BW(kHz)	Optional
		Min (MHz)	Max (MHz)					Value	%, Hz, ppm			
LTE B2	QPSK	1855.0	1905.0	22.79	0.190	27.79	0.601	0.0102	ppm	8M96G7D	8957.8	Part24
LTE B2	QPSK	1851.5	1908.5	22.91	0.195	27.91	0.618	0.0102	ppm	2M70G7D	2695.3	Part24
Band	Technology (GSM, CDMA, etc...)	Frequency		Conducted Power (dBm)	Conducted Power (W)	ERP/EIRP (dBm)	ERP/EIRP (W)	Frequency Tolerance		Emission Designator (See 47 CFR 2.201 and 2.202)	BW(kHz)	Optional
		Min (MHz)	Max (MHz)					Value	%, Hz, ppm			
LTE B5	QPSK	829.0	844.0	22.37	0.173	22.52	0.179	0.0233	ppm	8M96G7D	8955.4	Part22
Band	Technology (GSM, CDMA, etc...)	Frequency		Conducted Power (dBm)	Conducted Power (W)	ERP/EIRP (dBm)	ERP/EIRP (W)	Frequency Tolerance		Emission Designator (See 47 CFR 2.201 and 2.202)	BW(kHz)	Optional
		Min (MHz)	Max (MHz)					Value	%, Hz, ppm			
LTE B4	QPSK	1715.0	1750.0	23.45	0.221	28.35	0.684	0.0106	ppm	8M98G7D	8982.8	Part27
LTE B12	QPSK	704.0	711.0	22.88	0.194	22.03	0.160	0.0267	ppm	8M97G7D	8968.7	Part27
LTE B13	QPSK	782.0	782.0	22.67	0.185	21.82	0.152	0.0201	ppm	8M96G7D	8962.1	Part27

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1.5 Final Amplifier Voltage and Current Information

LTE Band 2		
Test mode	DC voltage (V)	DC current (mA)
LTE Band 2_10M QPSK	3.85	530
LTE Band 4		
Test mode	DC voltage (V)	DC current (mA)
LTE Band 4_10M QPSK	3.85	510
LTE Band 5		
Test mode	DC voltage (V)	DC current (mA)
LTE Band 5_10M QPSK	3.85	480
LTE Band 12		
Test mode	DC voltage (V)	DC current (mA)
LTE Band 12_10M QPSK	3.85	500
LTE Band 13		
Test mode	DC voltage (V)	DC current (mA)
LTE Band 13_10M QPSK	3.85	460

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1.6 EUT Availability and The Worst Test Modes

1. Pre-Scan has been conducted to determine the worst-case scenario from all possible combinations among available modulations, data rates and antenna ports, the worst case configurations listed below for the final test.
2. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

LTE Band 2							
Test Item	Available Channel	Tested Channel	BW(MHz)	Modulation	RB Size 1RB	RB Size Half RB	RB Size Full RB
Max. OutPut Power	18607 to 19193	18607, 18900, 19193	1.4	QPSK	V	V	V
	18615 to 19185	18615, 18900, 19185	3		V	V	V
	18625 to 19175	18625, 18900, 19175	5		V	V	V
	18650 to 19150	18650, 18900, 19150	10		V	V	V
Frequency Stability	18650 to 19150	18900	10	QPSK	-	-	V
26dB and 99% Bandwidth	18607 to 19193	18607, 18900, 19193	1.4	QPSK	-	-	V
	18615 to 19185	18615, 18900, 19185	3		-	-	V
	18625 to 19175	18625, 18900, 19175	5		-	-	V
	18650 to 19150	18650, 18900, 19150	10		-	-	V
Peak-to-Average Ratio	18607 to 19193	18607, 18900, 19193	1.4	QPSK	-	-	V
	18615 to 19185	18615, 18900, 19185	3		-	-	V
	18625 to 19175	18625, 18900, 19175	5		-	-	V
	18650 to 19150	18650, 18900, 19150	10		-	-	V
Out of Band Emissions at Antenna Terminals	18607 to 19193	18607, 19193	1.4	QPSK	V	-	V
	18615 to 19185	18615, 19185	3		V	-	V
	18625 to 19175	18625, 19175	5		V	-	V
	18650 to 19150	18650, 19150	10		V	-	V
Conducted Spurious Emission	18615 to 19185	18615, 18900, 19185	3	QPSK	V	-	-
Radiated Spurious Emission	18615 to 19185	18615, 18900, 19185	3	QPSK	V	-	-

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LTE Band 4							
Test Item	Available Channel	Tested Channel	BW(MHz)	Modulation	RB Size 1RB	RB Size Half RB	RB Size Full RB
Max. OutPut Power	19957 to 20393	19957, 20175, 20393	1.4	QPSK	V	V	V
	19965 to 20385	19965, 20175, 20385	3		V	V	V
	19975 to 20375	19975, 20175, 20375	5		V	V	V
	20000 to 20350	20000, 20175, 20350	10		V	V	V
Frequency Stability	20000 to 20350	20175	10	QPSK	-	-	V
26dB and 99% Bandwidth	19957 to 20393	19957, 20175, 20393	1.4	QPSK	-	-	V
	19965 to 20385	19965, 20175, 20385	3		-	-	V
	19975 to 20375	19975, 20175, 20375	5		-	-	V
	20000 to 20350	20000, 20175, 20350	10		-	-	V
Peak-to-Average Ratio	19957 to 20393	19957, 20175, 20393	1.4	QPSK	-	-	V
	19965 to 20385	19965, 20175, 20385	3		-	-	V
	19975 to 20375	19975, 20175, 20375	5		-	-	V
	20000 to 20350	20000, 20175, 20350	10		-	-	V
Out of Band Emissions at Antenna Terminals	19957 to 20393	19957, 20393	1.4	QPSK	V	-	V
	19965 to 20385	19965, 20385	3		V	-	V
	19975 to 20375	19975, 20375	5		V	-	V
	20000 to 20350	20000, 20350	10		V	-	V
Conducted Spurious Emission	20000 to 20350	20000, 20175, 20350	10	QPSK	V	-	-
Radiated Spurious Emission	20000 to 20350	20000, 20175, 20350	10	QPSK	V	-	-

LTE Band 5							
Test Item	Available Channel	Tested Channel	BW(MHz)	Modulation	RB Size 1RB	RB Size Half RB	RB Size Full RB
Max. OutPut Power	20407 to 20643	20407, 20525, 20643	1.4	QPSK	V	V	V
	20415 to 20635	20415, 20525, 20635	3		V	V	V
	20425 to 20625	20425, 20525, 20625	5		V	V	V
	20450 to 20600	20450, 20525, 20600	10		V	V	V
Frequency Stability	20450 to 20600	20525	10	QPSK	-	-	V
26dB and 99% Bandwidth	20407 to 20643	20407, 20525, 20643	1.4	QPSK	-	-	V
	20415 to 20635	20415, 20525, 20635	3		-	-	V
	20425 to 20625	20425, 20525, 20625	5		-	-	V
	20450 to 20600	20450, 20525, 20600	10		-	-	V
Peak-to-Average Ratio	20407 to 20643	20407, 20525, 20643	1.4	QPSK	-	-	V
	20415 to 20635	20415, 20525, 20635	3		-	-	V
	20425 to 20625	20425, 20525, 20625	5		-	-	V
	20450 to 20600	20450, 20525, 20600	10		-	-	V
Out of Band Emissions at Antenna Terminals	20407 to 20643	20407, 20643	1.4	QPSK	V	-	V
	20415 to 20635	20415, 20635	3		V	-	V
	20425 to 20625	20425, 20625	5		V	-	V
	20450 to 20600	20450, 20600	10		V	-	V
Conducted Spurious Emission	20450 to 20600	20450, 20525, 20600	10	QPSK	V	-	-
Radiated Spurious Emission	20450 to 20600	20450, 20525, 20600	10	QPSK	V	-	-

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LTE Band 12							
Test Item	Available Channel	Tested Channel	BW(MHz)	Modulation	RB Size 1RB	RB Size Half RB	RB Size Full RB
Max. OutPut Power	23017 to 23173	23017, 23095, 23173	1.4	QPSK	V	V	V
	23025 to 23165	23025, 23095, 23165	3		V	V	V
	23035 to 23155	23035, 23095, 23155	5		V	V	V
	23060 to 23130	23060, 23095, 23130	10		V	V	V
Frequency Stability	23060 to 23130	23095	10	QPSK	-	-	V
26dB and 99% Bandwidth	23017 to 23173	23017, 23095, 23173	1.4	QPSK	-	-	V
	23025 to 23165	23025, 23095, 23165	3		-	-	V
	23035 to 23155	23035, 23095, 23155	5		-	-	V
	23060 to 23130	23060, 23095, 23130	10		-	-	V
Peak-to-Average Ratio	23017 to 23173	23017, 23095, 23173	1.4	QPSK	-	-	V
	23025 to 23165	23025, 23095, 23165	3		-	-	V
	23035 to 23155	23035, 23095, 23155	5		-	-	V
	23060 to 23130	23060, 23095, 23130	10		-	-	V
Out of Band Emissions at Antenna Terminals	23017 to 23173	23017, 23173	1.4	QPSK	V	-	V
	23025 to 23165	23025, 23165	3		V	-	V
	23035 to 23155	23035, 23155	5		V	-	V
	23060 to 23130	23060, 23130	10		V	-	V
Conducted Spurious Emission	23060 to 23130	23060, 23095, 23130	10	QPSK	V	-	-
Radiated Spurious Emission	23060 to 23130	23060, 23095, 23130	10	QPSK	V	-	-
LTE Band 13							
Test Item	Available Channel	Tested Channel	BW(MHz)	Modulation	RB Size 1RB	RB Size Half RB	RB Size Full RB
Max. OutPut Power	23205 to 23255	23205, 23230, 23255	5	QPSK	V	V	V
	23230	23230	10		V	V	V
Frequency Stability	23230	23230	10	QPSK	-	-	V
26dB and 99% Bandwidth	23205 to 23255	23205, 23230, 23255	5	QPSK	-	-	V
	23230	23230	10		-	-	V
Peak-to-Average Ratio	23205 to 23255	23205, 23230, 23255	5	QPSK	-	-	V
	23230	23230	10		-	-	V
Out of Band Emissions at Antenna Terminals	23205 to 23255	23205, 23255	5	QPSK	V	-	V
	23230	23230	10		V	-	V
Conducted Spurious Emission	23230	23230	10	QPSK	V	-	-
Radiated Spurious Emission	23230	23230	10	QPSK	V	-	-

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2 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§22.913(a)(5) §24.232(c) §27.1507(a)(3) §27.1507(a)(4) §27.50(a)(3)(i) §27.50(b)(10) §27.50(c)(10) §27.50(d)(4) §27.50(h)(2) §27.50(j)(3) §27.50(k)(3)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occupied Bandwidth	Compliant
§22.917(a) §24.238(a) §27.1509 §27.1509(a) §27.53(a)(4) §27.53(c)(2) §27.53(g) §27.53(h)(1) §27.53(l)(2) §27.53(m)(4) §27.53(n)(2)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§22.917(a) §24.238(a) §27.1509 §27.1509(a) §27.53(a)(4) §27.53(c)(2) §27.53(g) §27.53(h)(1) §27.53(l)(2) §27.53(m)(4) §27.53(n)(2)	Field Strength of Spurious Radiation	Compliant
§22.913(d) §24.232(d) §27.1507(a)(4) §27.1507(d) §27.50 (k)(4) §27.50(a)(1)(B) §27.50(d)(5) §27.50(j)(4)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	Frequency Stability	Compliant

2.1 Test Methodology of Applied Standards

1. FCC 47 CFR Part 2, 22H
2. FCC 47 CFR Part 2, 24E
3. FCC 47 CFR Part 2, 27C
4. ANSI C63.26:2015
5. FCC KDB 971168 D01 Power Meas License Digital System v03r01
6. FCC KDB 412172 D01 Determining ERP and EIRP v01r01

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2.2 Measurement Uncertainty

Test Items	Uncertainty
Power Density	+/- 0.61 dB
Output Power measurement	+/- 0.97 dB
ERP/ EIRP measurement	+/- 2.15 dB
Emission Bandwidth	+/- 1.38 Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 0.77 dB
Peak to Average Ratio	+/- 0.97 dB
Frequency Stability vs. Temperature	+/- 1.48 Hz
Frequency Stability vs. Voltage	+/- 1.48 Hz
Temperature	+/- 0.60 °C
Humidity	+/- 3.00 %
DC / AC Power Source	+/- 1.00 %

Radiated Spurious Emission Measurement Uncertainty		
Polarization: Vertical	+/- 1.89 dB	9kHz - 30MHz
	+/- 4.10 dB	30MHz - 1000MHz
	+/- 3.41 dB	1GHz - 18GHz
	+/- 3.89 dB	18GHz - 40GHz
Polarization: Horizontal	+/- 1.89 dB	9kHz - 30MHz
	+/- 4.10 dB	30MHz - 1000MHz
	+/- 3.41 dB	1GHz - 18GHz
	+/- 3.89 dB	18GHz - 40GHz
Radiated Spurious Emission	+/- 2.00 dB	33GHz - 50GHz
	+/- 1.59 dB	50GHz - 60GHz
	+/- 1.71 dB	60GHz - 90GHz
	+/- 1.64 dB	90GHz - 140GHz
	+/- 3.84 dB	140GHz - 220GHz

Note

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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2.3 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number / Registration Number	IC CAB identifier / Company Number
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803	SAC 1 / SAC 2 / SAC 3 Conduction 1 / Conducted 1 Conducted 2 / Conducted 3 Conducted 4 / Conducted 5 Conducted 6 / FAC 1	TW0027 / 891563	TW3702 / 4620A
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.2, Keji 1st Rd, Guishan District, Taoyuan City, Taiwan 333	SAC C / SAC D / SAC G Conduction C/ Conducted A Conducted B / Conducted C Conducted D / Conducted E Conducted F / Conducted G FAC A	TW0028 / 200037	TW3702 / 4620E

Measurement	Test Site Name	Test Engineer	EUT S/N	Test Environment	Test Date
Conducted	Conducted E	Henry Chiang	N/A	21.3~24.5°C / 65~69%	2026/07/07 ~ 2026/07/09
Radiated	SAC C	Alex Li	N/A	24.3~24.3°C / 56~56%	2026/07/15 ~ 2026/07/15

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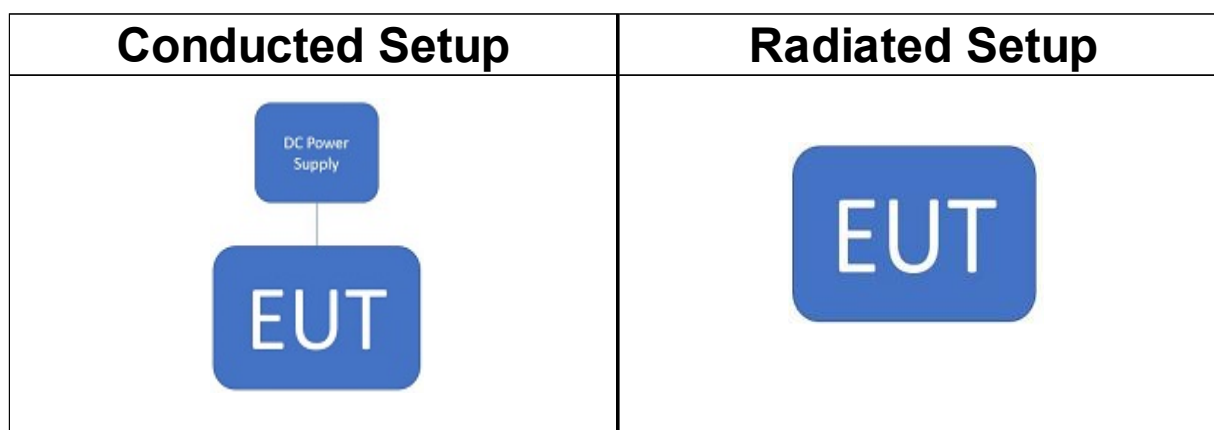
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3 CONTROL UNIT(S) AND PERIPHERAL(S)

3.1 EUT Exercise

1. The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.
2. The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level. The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

3.2 Diagrams



3.3 List

N/A

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4 MEASUREMENT EQUIPMENT USED

4.1 Conducted Measurement

Conducted Emission Test Site: Conducted E					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
Attenuator	Marvelous	MVE2213-10	RF05	11/13/2025	11/12/2026
DC Block	PASTERNAK	PE8210	RF34	11/13/2025	11/12/2026
DC Power Supply	Gwinstek	SPD-3606	GEV923152	05/14/2026	05/13/2027
Radio Communication Analyzer	Anritsu	MT8821C	6261786084	01/05/2026	01/04/2027
Splitter	Woken	DOM35LW1A2	RF56	11/13/2025	11/12/2026
Coaxial Cables	TITAN	T0710ASFF14110A60	RF86	11/13/2025	11/12/2026
Coaxial Cables	TITAN	T0710ASFF14110A60	RF87	11/13/2025	11/12/2026
Temperature Chamber	Haich	HC-TOPH-30-CHP	QHC20230320-100-2	08/29/2025	08/28/2026
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	10/17/2025	10/16/2026
Test Software	SGS Taiwan	Radio Test Software	Ver.21	N.C.R	N.C.R

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4.2 Radiated Measurement

Radiated Emission Test Site: SAC C					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
1700-2000 Notch Filter	Titan Microwave	T04N1700200050N S01	RF206	11/13/2025	11/12/2026
1G High pass Filter	Woken	EWT-57-0209	RF158	11/13/2025	11/12/2026
1G Low pass Filter	Woken	EWT-56-0019	RF156	11/13/2025	11/12/2026
2G High Pass Filter	WI	WHKX2.0/18G	RF164	11/13/2025	11/12/2026
3m Site NSA	SGS	966 chamber C	N/A	03/02/2026	03/01/2027
635-920 Notch Filter	Titan Microwave	T04N63592050S01	RF204	11/13/2025	11/12/2026
800-1000 Notch Filter	Woken	EWT-54-0037	RF190	11/13/2025	11/12/2026
Attenuator	Woken	WATT-218FS-10	RF11	11/13/2025	11/12/2026
Broadband Antenna	SCHWARZBECK	VULB 9168	9168-300	11/14/2025	11/13/2026
Coaxial Cable	EMCI+Huber Suhner	RG 214/U+EMC104- SM-SM- 6000+EMC105-SM- SM-12000+15	W13.01+150813+2 310002+15	11/13/2025	11/12/2026
Horn Antenna	Schwarzbeck	BBHA9120D	1187	02/06/2026	02/05/2027
Horn Antenna	Schwarzbeck	BBHA9170	185	08/07/2025	08/06/2026
Pre-Amplifier	EMC Instruments	EMC118A45SE	980789	11/13/2025	11/12/2026
Pre-Amplifier	EMC Instruments	EMC330	980091	11/13/2025	11/12/2026
Radio Communication Analyser	Anritsu	MT8821C	6262044739	12/02/2025	12/01/2026
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	09/22/2025	09/21/2026

NOTE: N.C.R refers to Not Calibrated Required.

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5 REGULATORY REQUIREMENTS

5.1 Maximum Output Power

§22.913(a)(5)

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts

§24.232(c)

Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications

§27.1507(a)(3)

Mobile, control and auxiliary test stations. Mobile, control and auxiliary test stations must not exceed 10 watts ERP

§27.1507(a)(4)

Portable stations. Portable stations must not exceed 3 watts ERP

§27.50(a)(3)(i)

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off

§27.50(b)(10)

Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP

§27.50(c)(10)

Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP

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§27.50(d)(4)

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications

§27.50(h)(2)

Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power

§27.50(j)(3)

Mobile and portable stations are limited to 1 Watt EIRP. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications

§27.50(k)(3)

Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications

5.2 Occupied Bandwidth

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power.

5.3 Out Of Band Emission At Antenna Terminals

§22.917(a)

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB

§24.238(a)

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB

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§27.1509

The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least the following amounts:

- (a) For 900 MHz broadband operations in the 896-901 MHz band, by at least $43 + 10 \log (P)$ dB.
- (b) For 900 MHz broadband operations in the 935-940 MHz band, by at least $50 + 10 \log (P)$ dB.
- (c) Compliance with the provisions of paragraphs (a) and (b) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the licensee's band, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
- (d) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.
- (e) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

§27.1509(a)

For 900 MHz broadband operations in the 896-901 MHz band, by at least $43 + 10 \log (P)$ dB

§27.53(a)(4)

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

- (i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;
- (ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;
- (iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

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§27.53(c)(2)

On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

§27.53(g)

For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed

§27.53(h)(1)

General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB

§27.53(l)(2)

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power

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§27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees

§27.53(n)(2)

For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power

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5.4 Field Strength Of Spurious Radiation

§22.917(a)

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB

§24.238(a)

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB

§27.1509

The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least the following amounts:

(a) For 900 MHz broadband operations in the 896-901 MHz band, by at least $43 + 10 \log(P)$ dB.

(b) For 900 MHz broadband operations in the 935-940 MHz band, by at least $50 + 10 \log(P)$ dB.

(c) Compliance with the provisions of paragraphs (a) and (b) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the licensee's band, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(d) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

(e) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

§27.1509(a)

For 900 MHz broadband operations in the 896-901 MHz band, by at least $43 + 10 \log(P)$ dB

§27.53(a)(4)

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: $43 + 10 \log(P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log(P)$ dB

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on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;

(iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365 MHz.

§27.53(c)(2)

On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

§27.53(g)

For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed

§27.53(h)(1)

General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB

§27.53(l)(2)

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The

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emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power

§27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees

§27.53(n)(2)

For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power

5.5 Frequency Stability

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

5.6 Peak to Average Ratio

The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

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6 TEST CONFIGURATION

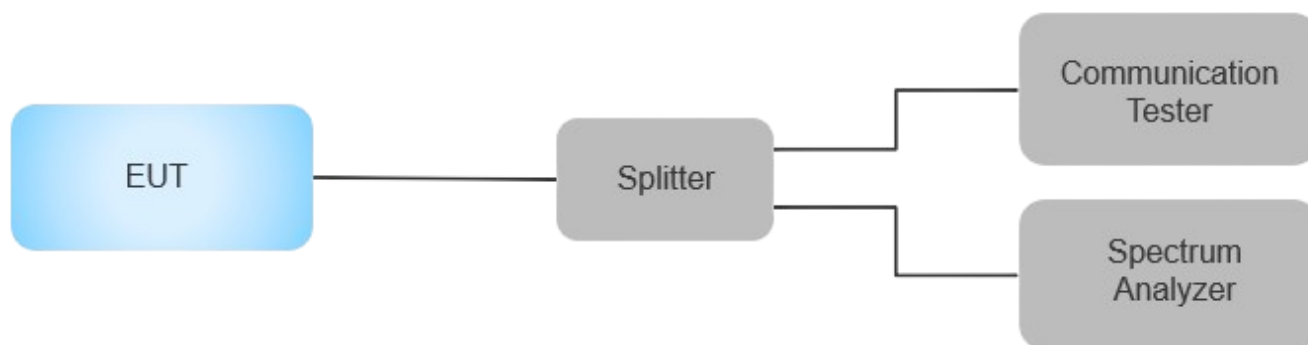
6.1 Maximum Output Power



The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.

6.2 Occupied Bandwidth



99% &26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1% ~ 5%, VBW $\geq 3 * RBW$, with span $> 2 * \text{Signal BW}$, set % Power = 99%.

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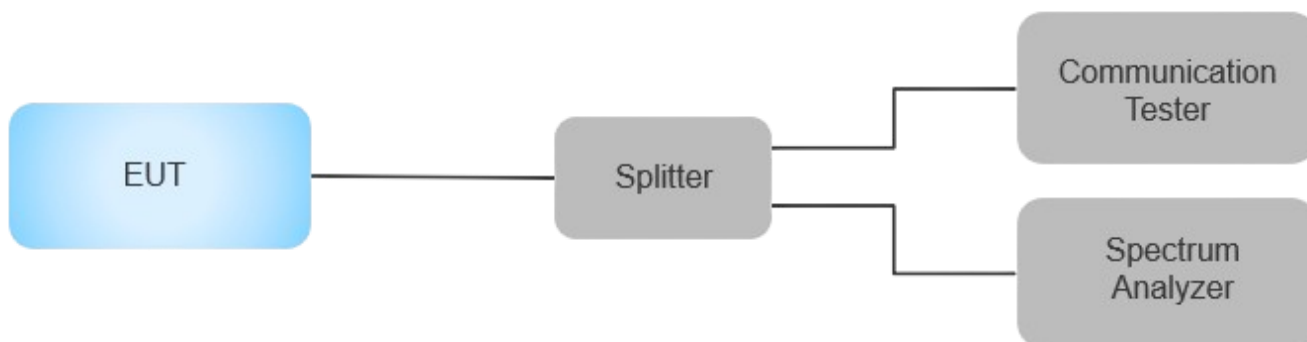
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6.3 Out Of Band Emission At Antenna Terminals



6.3.1 Out Of Band Emission

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

To connect Antenna Port of EUT to Spectrum.

Set RBW = 1MHz & VBW = 1MHz on Spectrum.

Allow trace to fully stabilize

Repeat above procedures until all default test channel measured were complete.

6.3.2 Band Edge

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

To connect Antenna Port of EUT to Spectrum.

Set RBW = 1MHz & VBW = 1MHz on Spectrum.

Allow trace to fully stabilize

Repeat above procedures until all default test channel measured were complete.

1. To connect Antenna Port of EUT to Spectrum.
2. The band edge of low and high channels for the highest RF powers was measured.
Setting $RBW \geq 1\% EBW$.
3. Detector = Average
4. Allow trace to fully stabilize
5. Repeat above procedures until all default test channel measured were complete.

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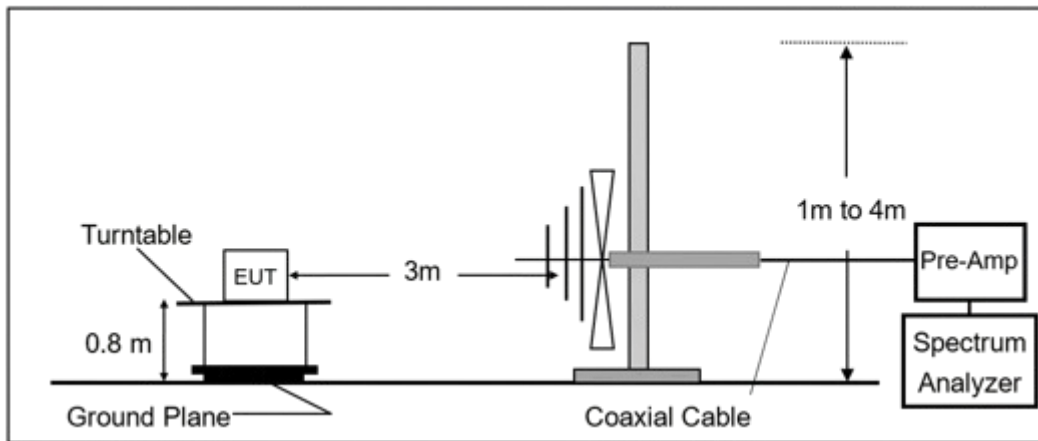
6.4 Field Strength Of Spurious Radiation

For Measurements From 9 kHz To 30 MHz

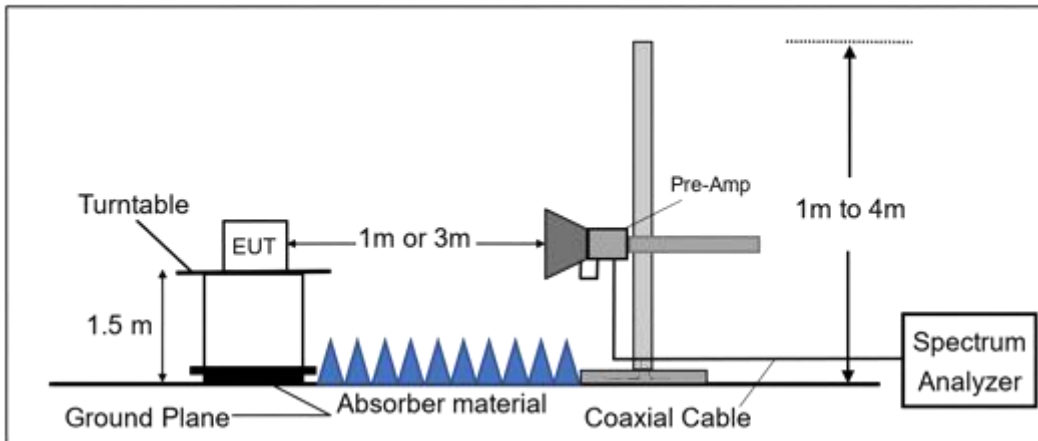
Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz.



Radiated Emission Test Set-Up, Frequency Above 1GHz.



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The Equipment Under Test (EUT) was positioned on a non-conductive turntable that rotates 360 degrees. The receiving antenna was placed 3 meters from the EUT, with height varied between 1-4 meters to maximize emission detection.

To identify maximum emission levels, the following parameters were optimized:

EUT azimuth angle through 360-degree rotation

EUT orientation in three orthogonal axes

Antenna height (1-4 meters)

Antenna polarization (horizontal and vertical)

For frequencies above 1 GHz, measurements were conducted with the antenna maintained within the 3dB illumination bandwidth and pointed toward the EUT in both azimuth and elevation angles.

The frequency range extending to the tenth harmonic was investigated for three fundamental frequencies (low, middle, and high channels). Spurious emissions were identified and their power levels determined using the substitution method. The spurious emission attenuation was calculated as the difference between the radiated power at the fundamental frequency and the spurious emission frequency.

ERP (dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

EIRP (dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

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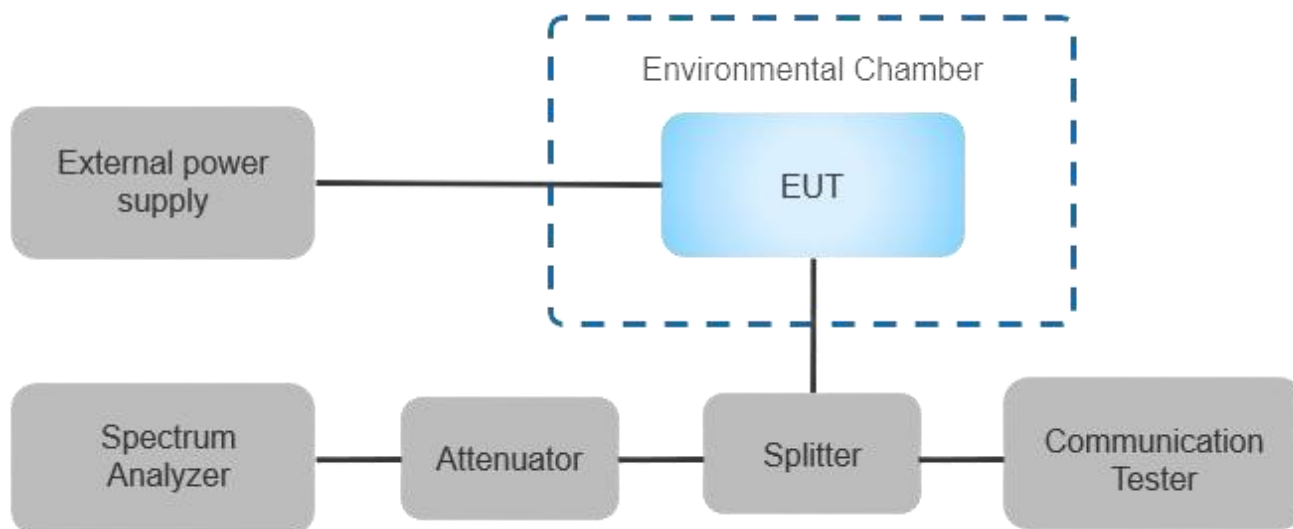
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6.5 Frequency Stability



The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

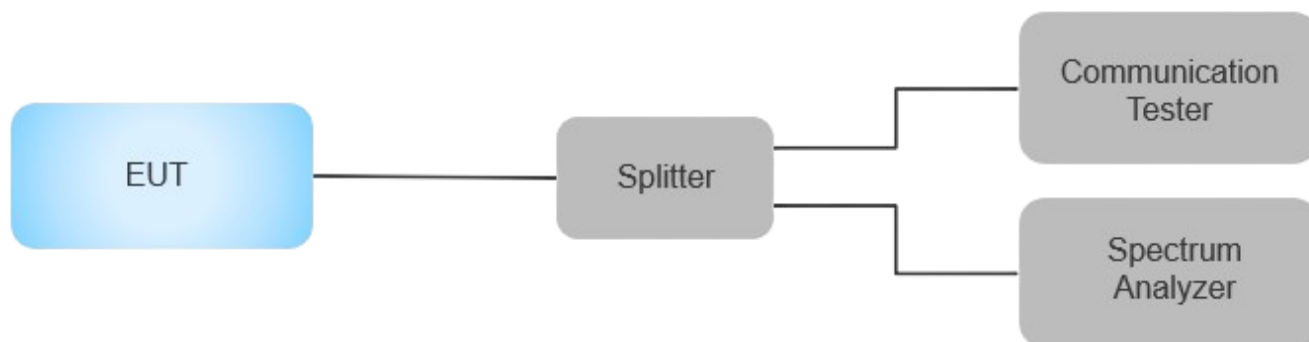
Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

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6.6 Peak To Average Ratio



1. KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:
2. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth; & internal = 1ms
3. As an alternative, the highest power level measured in a narrower RBW (relative to the specified reference bandwidth) can be scaled by applying a correction factor determined from: $10 \log [(reference\ bandwidth) / (resolution\ or\ measurement\ band-width)]$.
4. Set the number of counts to a value that stabilizes the measured CCDF curve.

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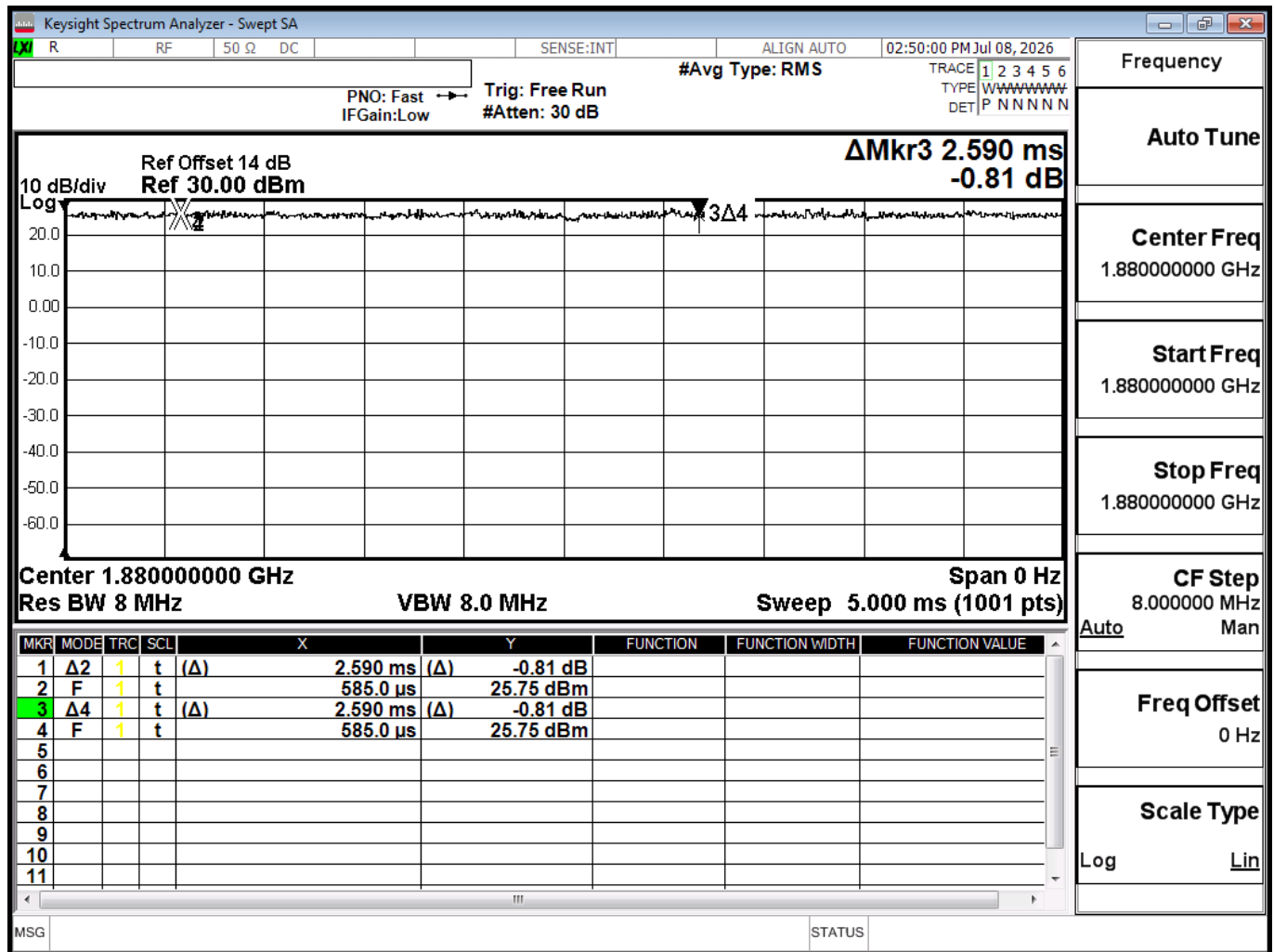
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7 TEST RESULTS

7.1 Maximum Output Power

7.1.1 Duty Factor

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)
FDD	100.00	0.00



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7.1.2 ERP/EIRP

Antenna gain (dBi)		5							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	18607	1850.7	QPSK	1	0	22.71	27.71	33	-5.29
				1	5	22.57	27.57	33	-5.43
				3	2	21.56	26.56	33	-6.44
				6	0	20.93	25.93	33	-7.07
	18900	1880	QPSK	1	0	22.63	27.63	33	-5.37
				1	5	22.60	27.60	33	-5.40
				3	2	21.55	26.55	33	-6.45
				6	0	20.98	25.98	33	-7.02
	19193	1909.3	QPSK	1	0	22.69	27.69	33	-5.31
				1	5	22.41	27.41	33	-5.59
				3	2	21.57	26.57	33	-6.43
				6	0	20.84	25.84	33	-7.16

Antenna gain (dBi)		5							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	18615	1851.5	QPSK	1	0	22.91	27.91	33	-5.09
				1	14	22.60	27.60	33	-5.40
				8	4	21.14	26.14	33	-6.86
				15	0	20.80	25.80	33	-7.20
	18900	1880.0	QPSK	1	0	22.72	27.72	33	-5.28
				1	14	22.62	27.62	33	-5.38
				8	4	21.13	26.13	33	-6.87
				15	0	20.88	25.88	33	-7.12
	19185	1908.5	QPSK	1	0	22.80	27.80	33	-5.20
				1	14	22.42	27.42	33	-5.58
				8	4	21.24	26.24	33	-6.76
				15	0	20.73	25.73	33	-7.27

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Antenna gain (dBi)		5							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	18625	1852.5	QPSK	1	0	22.78	27.78	33	-5.22
				1	24	22.70	27.70	33	-5.30
				12	6	21.26	26.26	33	-6.74
				25	0	20.96	25.96	33	-7.04
	18900	1880.0	QPSK	1	0	22.75	27.75	33	-5.25
				1	24	22.64	27.64	33	-5.36
				12	6	21.27	26.27	33	-6.73
				25	0	21.01	26.01	33	-6.99
	19175	1907.5	QPSK	1	0	22.76	27.76	33	-5.24
				1	24	22.61	27.61	33	-5.39
				12	6	21.35	26.35	33	-6.65
				25	0	20.93	25.93	33	-7.07

Antenna gain (dBi)		5							
LTE Band 2_Uplink frequency band : 1850 to 1910 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	18650	1855.0	QPSK	1	0	22.79	27.79	33	-5.21
				1	49	22.38	27.38	33	-5.62
				25	12	21.58	26.58	33	-6.42
				50	0	21.33	26.33	33	-6.67
	18900	1880.0	QPSK	1	0	22.74	27.74	33	-5.26
				1	49	22.40	27.40	33	-5.60
				25	12	21.63	26.63	33	-6.37
				50	0	21.51	26.51	33	-6.49
	19150	1905.0	QPSK	1	0	22.56	27.56	33	-5.44
				1	49	22.53	27.53	33	-5.47
				25	12	21.77	26.77	33	-6.23
				50	0	21.41	26.41	33	-6.59

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Antenna gain (dBi)		4.9							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	19957	1710.7	QPSK	1	0	23.15	28.05	30	-1.95
				1	5	23.19	28.09	30	-1.91
				3	2	23.21	28.11	30	-1.89
				6	0	22.08	26.98	30	-3.02
	20175	1732.5	QPSK	1	0	23.18	28.08	30	-1.92
				1	5	23.07	27.97	30	-2.03
				3	2	23.20	28.10	30	-1.90
				6	0	22.19	27.09	30	-2.91
	20393	1754.3	QPSK	1	0	23.08	27.98	30	-2.02
				1	5	23.05	27.95	30	-2.05
				3	2	23.19	28.09	30	-1.91
				6	0	22.04	26.94	30	-3.06

Antenna gain (dBi)		4.9							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3	19965	1711.5	QPSK	1	0	23.10	28.00	30	-2.00
				1	14	23.04	27.94	30	-2.06
				8	4	22.07	26.97	30	-3.03
				15	0	22.15	27.05	30	-2.95
	20175	1732.5	QPSK	1	0	23.11	28.01	30	-1.99
				1	14	23.06	27.96	30	-2.04
				8	4	22.14	27.04	30	-2.96
				15	0	22.16	27.06	30	-2.94
	20385	1753.5	QPSK	1	0	23.12	28.02	30	-1.98
				1	14	23.21	28.11	30	-1.89
				8	4	22.09	26.99	30	-3.01
				15	0	22.04	26.94	30	-3.06

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Antenna gain (dBi)		4.9							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5	19975	1712.5	QPSK	1	0	23.10	28.00	30	-2.00
				1	24	23.11	28.01	30	-1.99
				12	6	22.07	26.97	30	-3.03
				25	0	22.10	27.00	30	-3.00
	20175	1732.5	QPSK	1	0	23.07	27.97	30	-2.03
				1	24	23.04	27.94	30	-2.06
				12	6	22.11	27.01	30	-2.99
				25	0	22.04	26.94	30	-3.06
	20375	1752.5	QPSK	1	0	23.09	27.99	30	-2.01
				1	24	23.17	28.07	30	-1.93
				12	6	22.03	26.93	30	-3.07
				25	0	22.07	26.97	30	-3.03

Antenna gain (dBi)		4.9							
LTE Band 4_Uplink frequency band : 1710 to 1755 MHz									
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10	20000	1715.0	QPSK	1	0	23.45	28.35	30	-1.65
				1	49	23.10	28.00	30	-2.00
				25	12	22.11	27.01	30	-2.99
				50	0	22.04	26.94	30	-3.06
	20175	1732.5	QPSK	1	0	23.29	28.19	30	-1.81
				1	49	23.16	28.06	30	-1.94
				25	12	22.10	27.00	30	-3.00
				50	0	22.16	27.06	30	-2.94
	20350	1750.0	QPSK	1	0	23.21	28.11	30	-1.89
				1	49	23.07	27.97	30	-2.03
				25	12	22.06	26.96	30	-3.04
				50	0	22.22	27.12	30	-2.88

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Antenna gain (dBi)		2.3								
LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
1.4	20407	824.7	QPSK	1	0	21.59	23.89	21.74	38.45	-16.71
				1	5	21.51	23.81	21.66	38.45	-16.79
				3	2	21.53	23.83	21.68	38.45	-16.77
				6	0	20.58	22.88	20.73	38.45	-17.72
	20525	836.5	QPSK	1	0	22.01	24.31	22.16	38.45	-16.29
				1	5	21.51	23.81	21.66	38.45	-16.79
				3	2	21.59	23.89	21.74	38.45	-16.71
				6	0	20.62	22.92	20.77	38.45	-17.68
	20643	848.3	QPSK	1	0	21.60	23.90	21.75	38.45	-16.70
				1	5	21.56	23.86	21.71	38.45	-16.74
				3	2	21.57	23.87	21.72	38.45	-16.73
				6	0	20.53	22.83	20.68	38.45	-17.77

Antenna gain (dBi)		2.3								
LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
3	20415	825.5	QPSK	1	0	21.97	24.27	22.12	38.45	-16.33
				1	14	21.63	23.93	21.78	38.45	-16.67
				8	4	20.92	23.22	21.07	38.45	-17.38
				15	0	20.54	22.84	20.69	38.45	-17.76
	20525	836.5	QPSK	1	0	21.86	24.16	22.01	38.45	-16.44
				1	14	21.59	23.89	21.74	38.45	-16.71
				8	4	20.94	23.24	21.09	38.45	-17.36
				15	0	20.63	22.93	20.78	38.45	-17.67
	20635	847.5	QPSK	1	0	21.77	24.07	21.92	38.45	-16.53
				1	14	21.56	23.86	21.71	38.45	-16.74
				8	4	20.69	22.99	20.84	38.45	-17.61
				15	0	20.57	22.87	20.72	38.45	-17.73

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Antenna gain (dBi)		2.3								
LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
5	20425	826.5	QPSK	1	0	22.04	24.34	22.19	38.45	-16.26
				1	24	21.75	24.05	21.90	38.45	-16.55
				12	6	21.64	23.94	21.79	38.45	-16.66
				25	0	21.35	23.65	21.50	38.45	-16.95
	20525	836.5	QPSK	1	0	22.05	24.35	22.20	38.45	-16.25
				1	24	21.82	24.12	21.97	38.45	-16.48
				12	6	21.42	23.72	21.57	38.45	-16.88
				25	0	21.03	23.33	21.18	38.45	-17.27
	20625	846.5	QPSK	1	0	22.15	24.45	22.30	38.45	-16.15
				1	24	21.85	24.15	22.00	38.45	-16.45
				12	6	21.70	24.00	21.85	38.45	-16.60
				25	0	21.34	23.64	21.49	38.45	-16.96

Antenna gain (dBi)		2.3								
LTE Band 5_Uplink frequency band : 824 to 849 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
10	20450	829.0	QPSK	1	0	22.37	24.67	22.52	38.45	-15.93
				1	49	22.32	24.62	22.47	38.45	-15.98
				25	12	22.19	24.49	22.34	38.45	-16.11
				50	0	22.16	24.46	22.31	38.45	-16.14
	20525	836.5	QPSK	1	0	22.34	24.64	22.49	38.45	-15.96
				1	49	22.30	24.60	22.45	38.45	-16.00
				25	12	22.18	24.48	22.33	38.45	-16.12
				50	0	22.13	24.43	22.28	38.45	-16.17
	20600	844.0	QPSK	1	0	22.27	24.57	22.42	38.45	-16.03
				1	49	22.21	24.51	22.36	38.45	-16.09
				25	12	22.11	24.41	22.26	38.45	-16.19
				50	0	22.25	24.55	22.40	38.45	-16.05

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Antenna gain (dBi)		1.3								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
1.4	23017	699.7	QPSK	1	0	21.51	22.81	20.66	34.77	-14.11
				1	5	21.54	22.84	20.69	34.77	-14.08
				3	2	21.72	23.02	20.87	34.77	-13.90
				6	0	21.43	22.73	20.58	34.77	-14.19
	23095	707.5	QPSK	1	0	21.57	22.87	20.72	34.77	-14.05
				1	5	21.55	22.85	20.70	34.77	-14.07
				3	2	21.58	22.88	20.73	34.77	-14.04
				6	0	21.33	22.63	20.48	34.77	-14.29
	23173	715.3	QPSK	1	0	21.66	22.96	20.81	34.77	-13.96
				1	5	21.82	23.12	20.97	34.77	-13.80
				3	2	22.05	23.35	21.20	34.77	-13.57
				6	0	21.84	23.14	20.99	34.77	-13.78

Antenna gain (dBi)		1.3								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
3	23025	700.5	QPSK	1	0	21.70	23.00	20.85	34.77	-13.92
				1	14	21.79	23.09	20.94	34.77	-13.83
				8	4	21.84	23.14	20.99	34.77	-13.78
				15	0	21.90	23.20	21.05	34.77	-13.72
	23095	707.5	QPSK	1	0	21.94	23.24	21.09	34.77	-13.68
				1	14	21.94	23.24	21.09	34.77	-13.68
				8	4	21.89	23.19	21.04	34.77	-13.73
				15	0	21.95	23.25	21.10	34.77	-13.67
	23165	714.5	QPSK	1	0	22.06	23.36	21.21	34.77	-13.56
				1	14	22.01	23.31	21.16	34.77	-13.61
				8	4	21.90	23.20	21.05	34.77	-13.72
				15	0	21.79	23.09	20.94	34.77	-13.83

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Antenna gain (dBi)		1.3								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
5	23035	701.5	QPSK	1	0	22.09	23.39	21.24	34.77	-13.53
				1	24	21.97	23.27	21.12	34.77	-13.65
				12	6	22.10	23.40	21.25	34.77	-13.52
				25	0	22.19	23.49	21.34	34.77	-13.43
	23095	707.5	QPSK	1	0	21.89	23.19	21.04	34.77	-13.73
				1	24	22.16	23.46	21.31	34.77	-13.46
				12	6	21.84	23.14	20.99	34.77	-13.78
				25	0	21.90	23.20	21.05	34.77	-13.72
	23155	713.5	QPSK	1	0	22.08	23.38	21.23	34.77	-13.54
				1	24	22.21	23.51	21.36	34.77	-13.41
				12	6	22.15	23.45	21.30	34.77	-13.47
				25	0	22.12	23.42	21.27	34.77	-13.50

Antenna gain (dBi)		1.3								
LTE Band 12_Uplink frequency band : 699 to 716 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
10	23060	704.0	QPSK	1	0	22.59	23.89	21.74	34.77	-13.03
				1	49	22.36	23.66	21.51	34.77	-13.26
				25	12	22.23	23.53	21.38	34.77	-13.39
				50	0	22.24	23.54	21.39	34.77	-13.38
	23095	707.5	QPSK	1	0	22.88	24.18	22.03	34.77	-12.74
				1	49	22.42	23.72	21.57	34.77	-13.20
				25	12	22.27	23.57	21.42	34.77	-13.35
				50	0	22.43	23.73	21.58	34.77	-13.19
	23130	711.0	QPSK	1	0	22.55	23.85	21.70	34.77	-13.07
				1	49	22.49	23.79	21.64	34.77	-13.13
				25	12	22.41	23.71	21.56	34.77	-13.21
				50	0	22.50	23.80	21.65	34.77	-13.12

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Antenna gain (dBi)		1.3								
LTE Band 13_Uplink frequency band : 777 to 787 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
5	23205	779.5	QPSK	1	0	22.40	23.70	21.55	34.77	-13.22
				1	24	21.70	23.00	20.85	34.77	-13.92
				12	6	21.17	22.47	20.32	34.77	-14.45
				25	0	20.55	21.85	19.70	34.77	-15.07
	23230	782.0	QPSK	1	0	22.37	23.67	21.52	34.77	-13.25
				1	24	21.67	22.97	20.82	34.77	-13.95
				12	6	21.15	22.45	20.30	34.77	-14.47
				25	0	20.52	21.82	19.67	34.77	-15.10
	23255	784.5	QPSK	1	0	22.34	23.64	21.49	34.77	-13.28
				1	24	21.64	22.94	20.79	34.77	-13.98
				12	6	21.13	22.43	20.28	34.77	-14.49
				25	0	20.59	21.89	19.74	34.77	-15.03

Antenna gain (dBi)		1.3								
LTE Band 13_Uplink frequency band : 777 to 787 MHz										
BW (MHz)	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	ERP Average (dBm)	ERP Limit (dBm)	Margin (dB)
10	23230	782.0	QPSK	1	0	22.67	23.97	21.82	34.77	-12.95
				1	49	21.75	23.05	20.90	34.77	-13.87
				25	12	20.99	22.29	20.14	34.77	-14.63
				50	0	20.53	21.83	19.68	34.77	-15.09

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7.2 Occupied Bandwidth

LTE BAND 2 Channel bandwidth:			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
18607	1850.7	1.0859	1.258
18900	1880.0	1.0829	1.250
19193	1909.3	1.0842	1.270

LTE BAND 2 Channel bandwidth: 3MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
18615	1851.5	2.6941	2.911
18900	1880.0	2.6953	2.918
19185	1908.5	2.6916	2.918

LTE BAND 2 Channel bandwidth: 5MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
18625	1852.5	4.4889	4.893
18900	1880.0	4.4883	4.893
19175	1907.5	4.4836	4.871

LTE BAND 2 Channel bandwidth: 10MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
18650	1855.0	8.9532	9.624
18900	1880.0	8.9578	9.639
19150	1905.0	8.9560	9.627

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LTE BAND 4 Channel bandwidth:			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
19957	1710.7	1.0838	1.282
20175	1732.5	1.0828	1.264
20393	1754.3	1.0884	1.305

LTE BAND 4 Channel bandwidth: 3MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
19965	1711.5	2.6999	2.921
20175	1732.5	2.6969	2.919
20385	1753.5	2.6958	2.954

LTE BAND 4 Channel bandwidth: 5MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
19975	1712.5	4.4901	4.894
20175	1732.5	4.4858	4.901
20375	1752.5	4.4920	4.886

LTE BAND 4 Channel bandwidth: 10MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
20000	1715.0	8.9828	10.770
20175	1732.5	8.9563	9.662
20350	1750.0	8.9672	9.737

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LTE BAND 5 Channel bandwidth:			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
20407	824.7	1.0821	1.253
20525	836.5	1.0824	1.253
20643	848.3	1.0811	1.255

LTE BAND 5 Channel bandwidth: 3MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
20415	825.5	2.6958	2.923
20525	836.5	2.6932	2.925
20635	847.5	2.6952	2.923

LTE BAND 5 Channel bandwidth: 5MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
20425	826.5	4.4859	4.865
20525	836.5	4.4807	4.887
20625	846.5	4.4886	4.884

LTE BAND 5 Channel bandwidth: 10MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
20450	829.0	8.9554	9.646
20525	836.5	8.9415	9.581
20600	844.0	8.9454	9.653

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LTE BAND 12 Channel bandwidth:			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
23017	699.7	1.0817	1.252
23095	707.5	1.0834	1.253
23173	715.3	1.0829	1.248

LTE BAND 12 Channel bandwidth: 3MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
23025	700.5	2.6952	2.912
23095	707.5	2.6935	2.914
23165	714.5	2.6950	2.919

LTE BAND 12 Channel bandwidth: 5MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
23035	701.5	4.4853	4.878
23095	707.5	4.4885	4.890
23155	713.5	4.4860	4.886

LTE BAND 12 Channel bandwidth:			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
23060	704.0	8.9426	9.636
23095	707.5	8.9540	9.583
23130	711.0	8.9687	9.664

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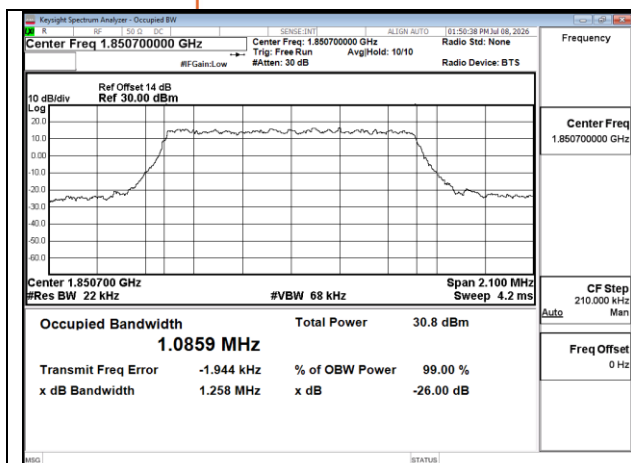
LTE BAND 13 Channel bandwidth: 5MHz			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
23205	779.5	4.4842	4.866
23230	782.0	4.4840	4.895
23255	784.5	4.4914	4.924

LTE BAND 13 Channel bandwidth:			
CH	Freq. (MHz)	99% BW (MHz)	26 dB BW (MHz)
		QPSK	QPSK
23230	782.0	8.9621	9.6510

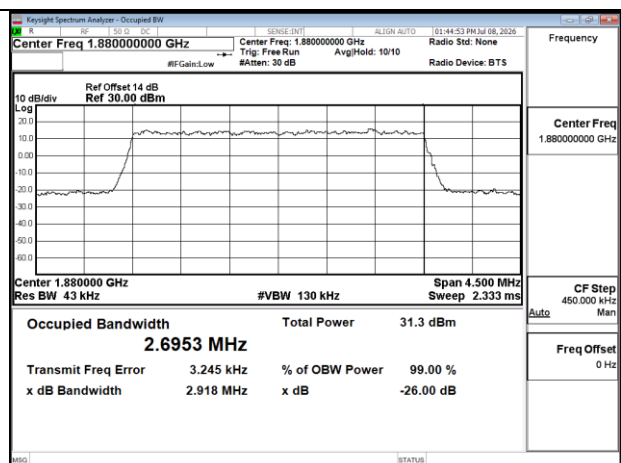
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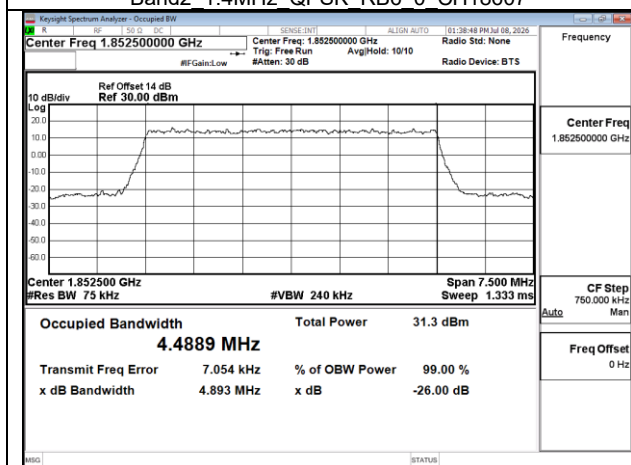
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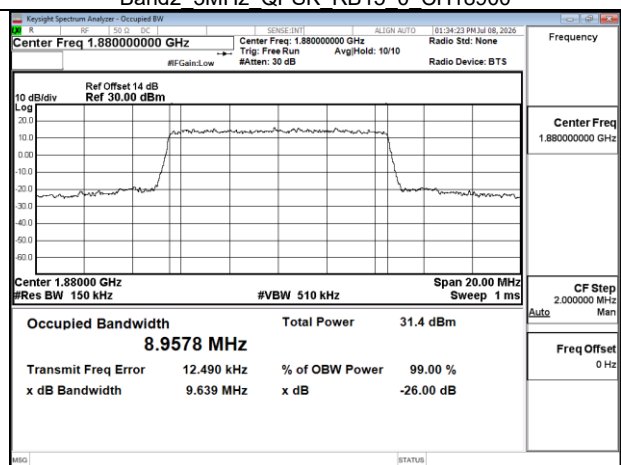
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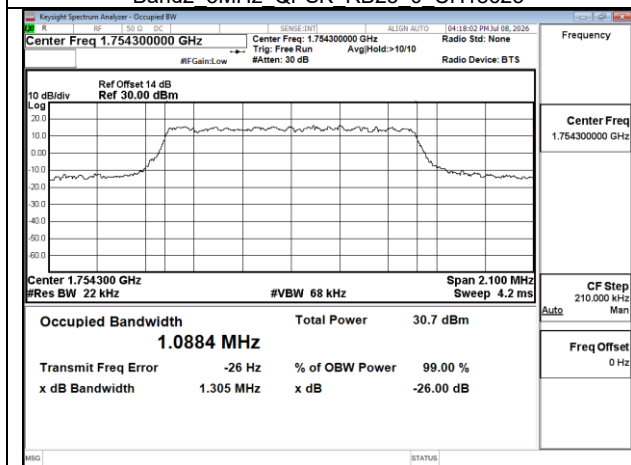
Band2 3MHz QPSK RB15_0 CH18900



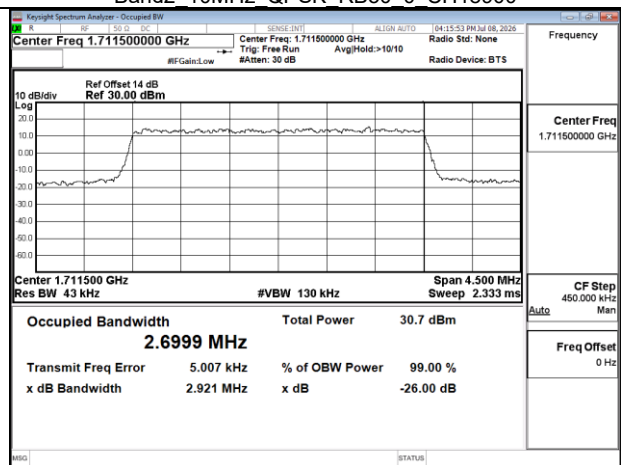
Band2 5MHz QPSK RB25_0 CH18625



Band2 10MHz QPSK RB50_0 CH18900



Band4 1.4MHz QPSK RB6_0 CH20393

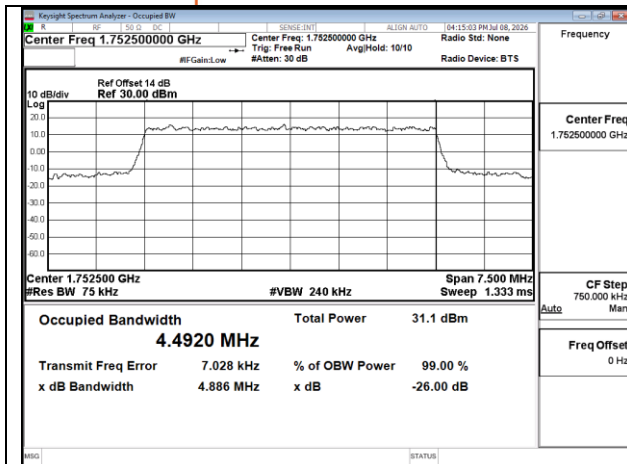


Band4 3MHz QPSK RB15_0 CH19965

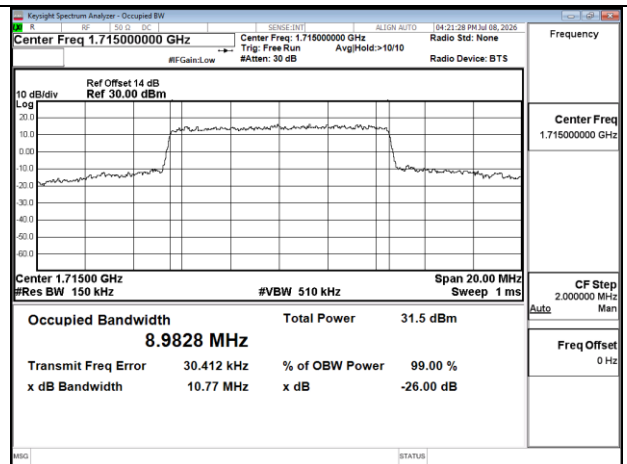
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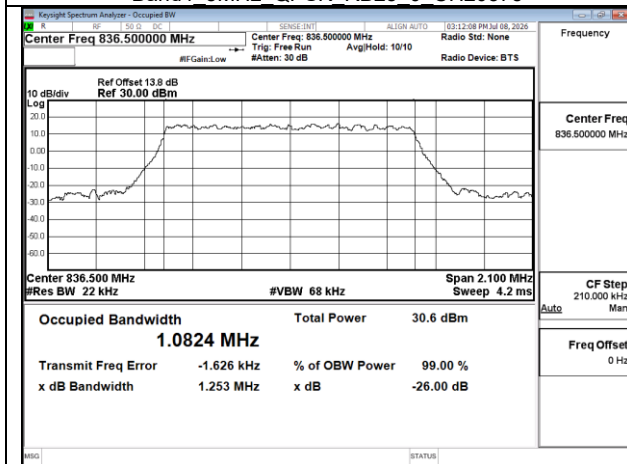
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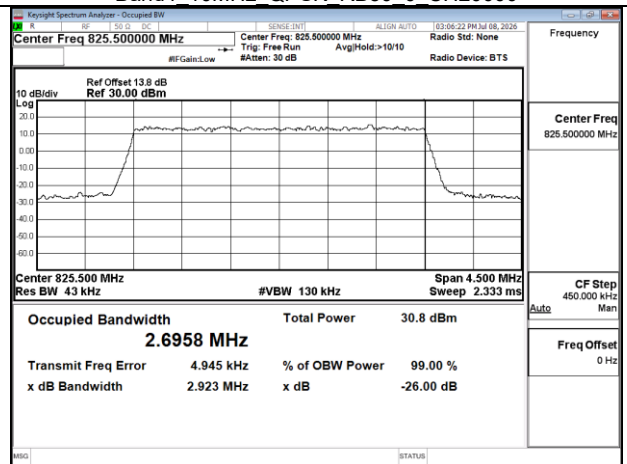
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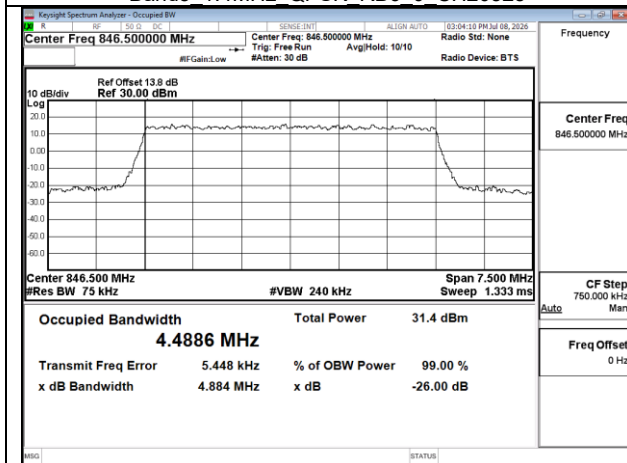
Band4 10MHz QPSK RB50 0 CH20000



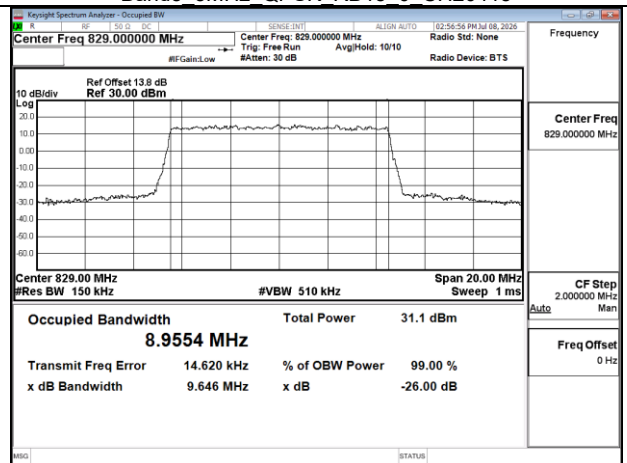
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Band5 3MHz QPSK RB15 0 CH20415



Band5 5MHz QPSK RB25 0 CH20625

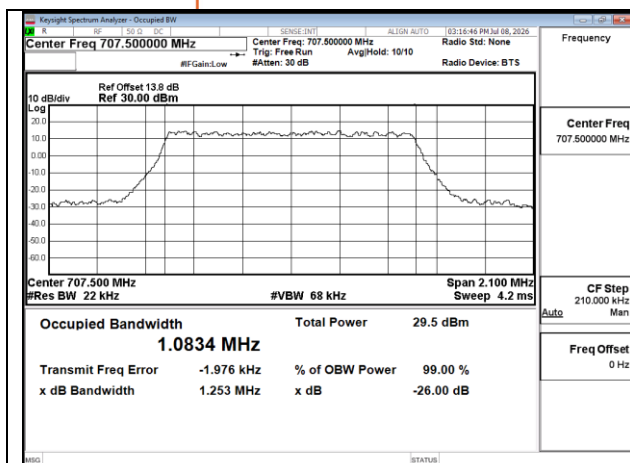


Band5 10MHz QPSK RB50 0 CH20450

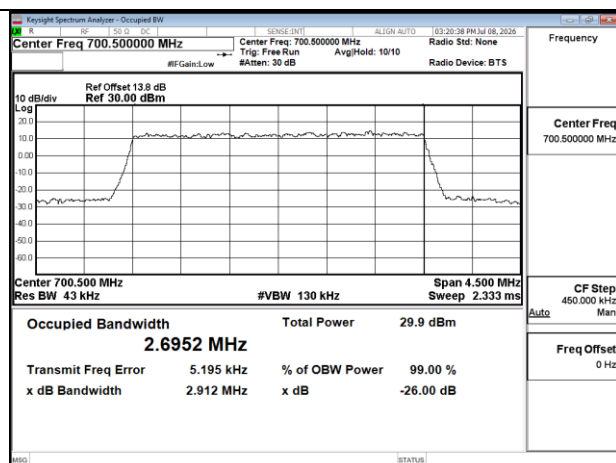
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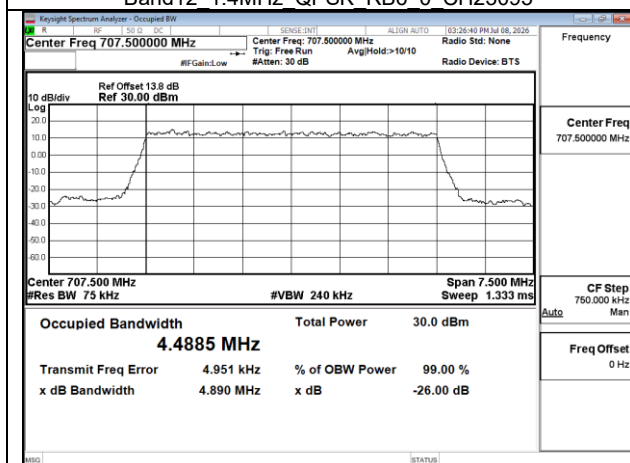
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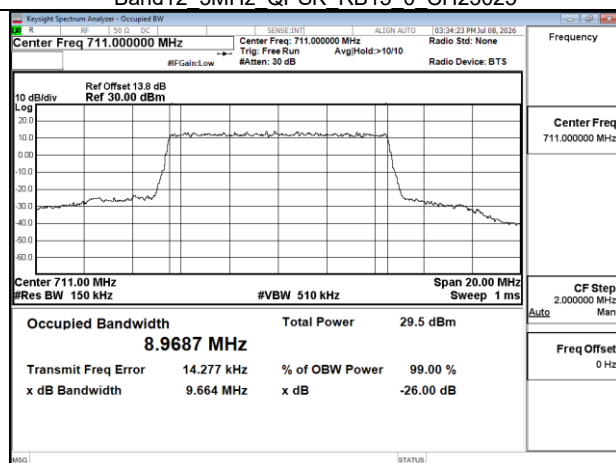
Band12 1.4MHz QPSK RB6 0 CH23095



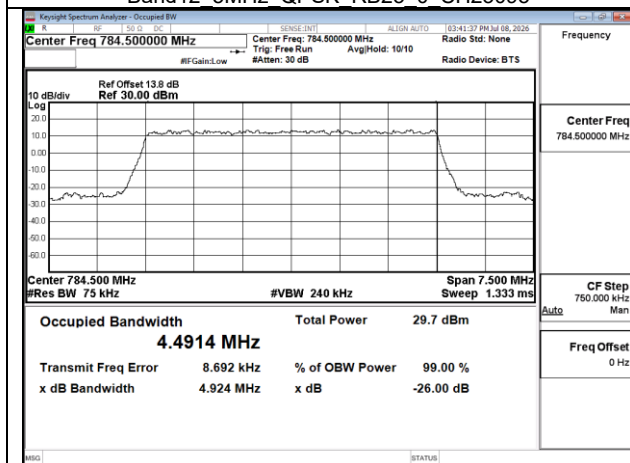
Band12 3MHz QPSK RB15 0 CH23025



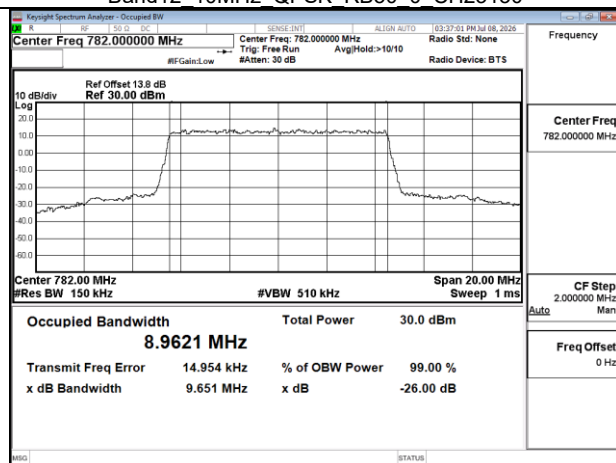
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Band12 10MHz QPSK RB50 0 CH23130



Band13 5MHz QPSK RB25 0 CH23255



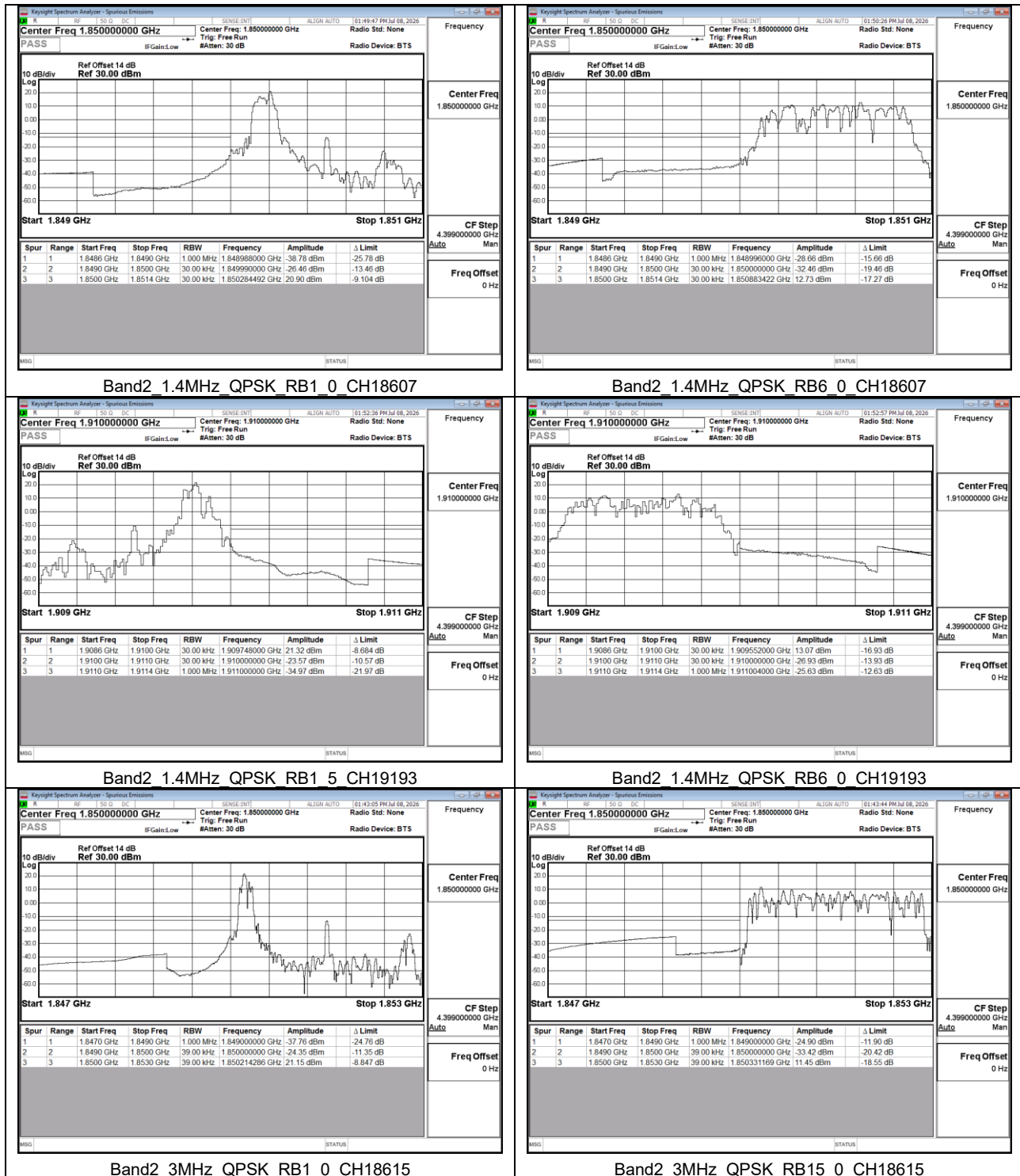
Band13 10MHz QPSK RB50 0 CH23230

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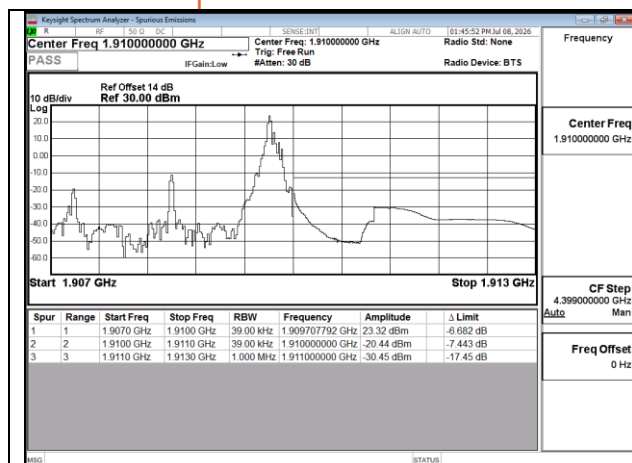
7.3 Out Of Band Emission At Antenna Terminals



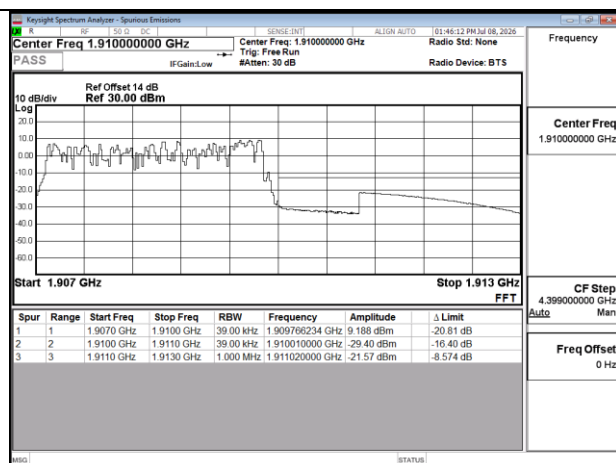
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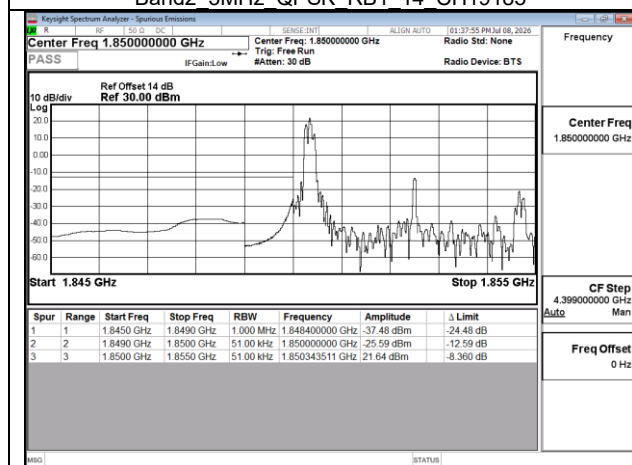
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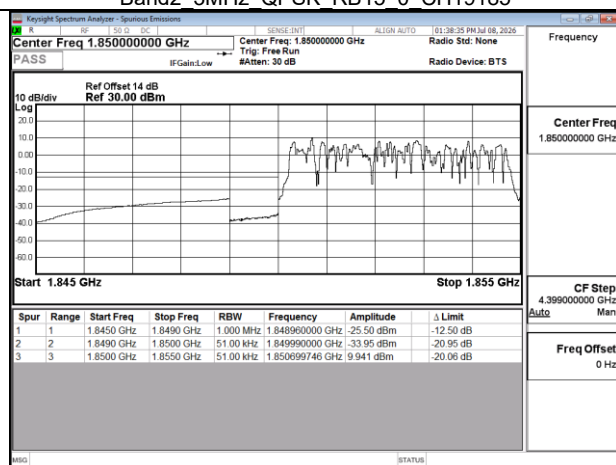
Band2 3MHz QPSK RB1 14 CH19185



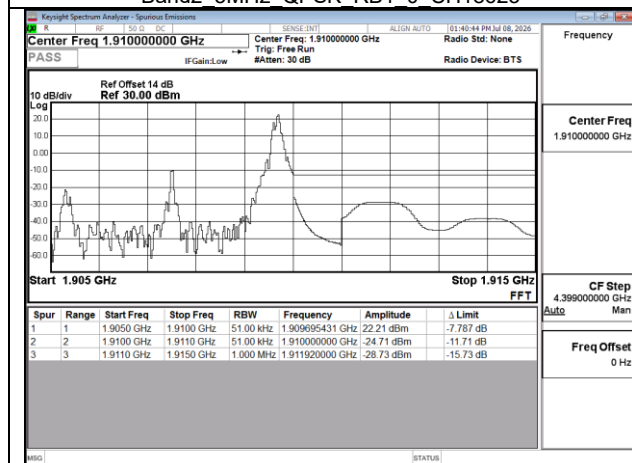
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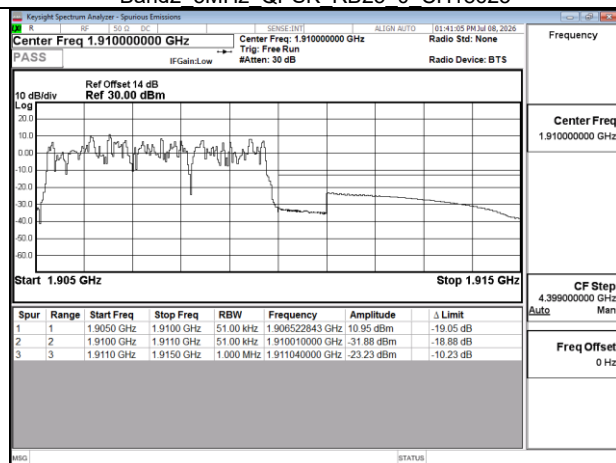
Band2 5MHz QPSK RB1 0 CH18625



Band2 5MHz QPSK RB25 0 CH18625



Band2 5MHz QPSK RB1 24 CH19175

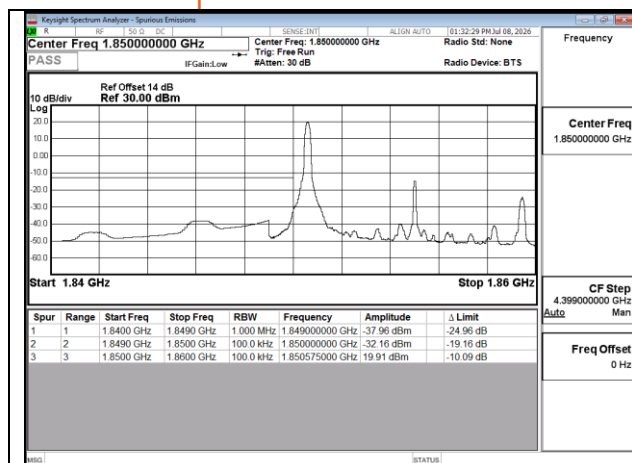


Band2 5MHz QPSK RB25 0 CH19175

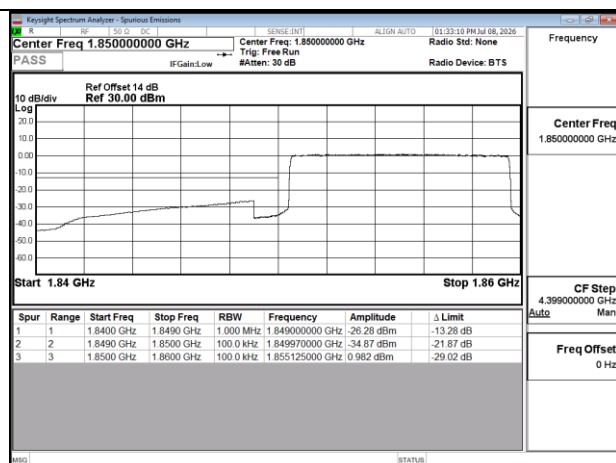
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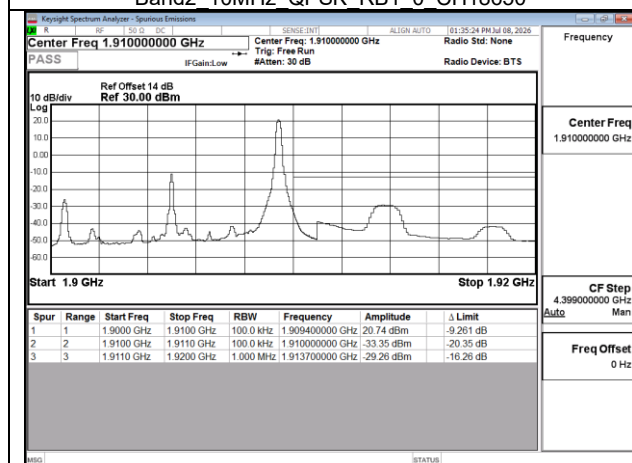
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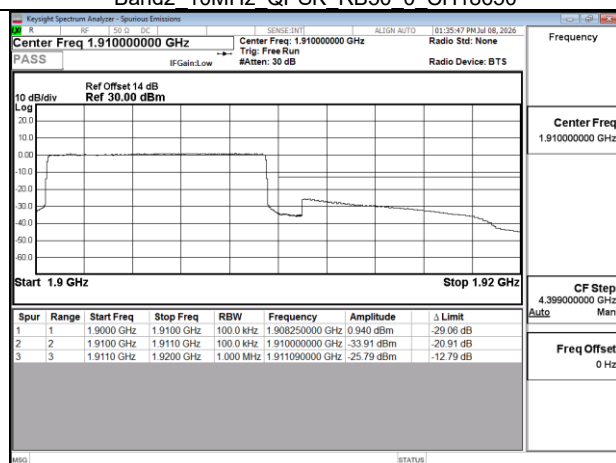
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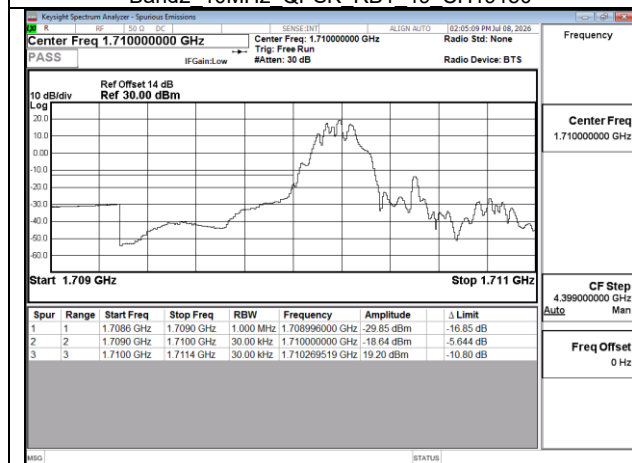
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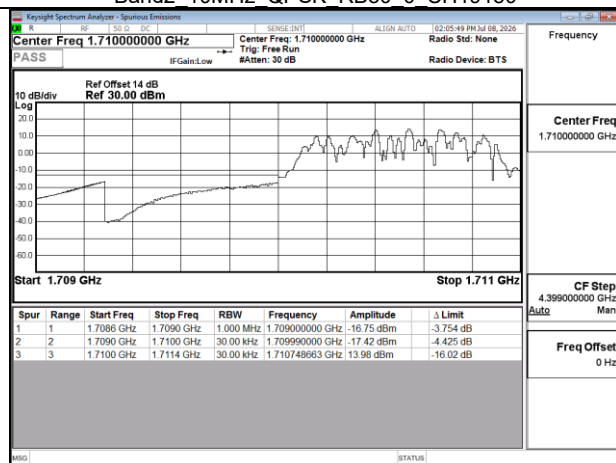
Band2 10MHz QPSK RB1 49 CH19150



Band2 10MHz QPSK RB50 0 CH19150



Band4 1.4MHz QPSK RB1 0 CH19957

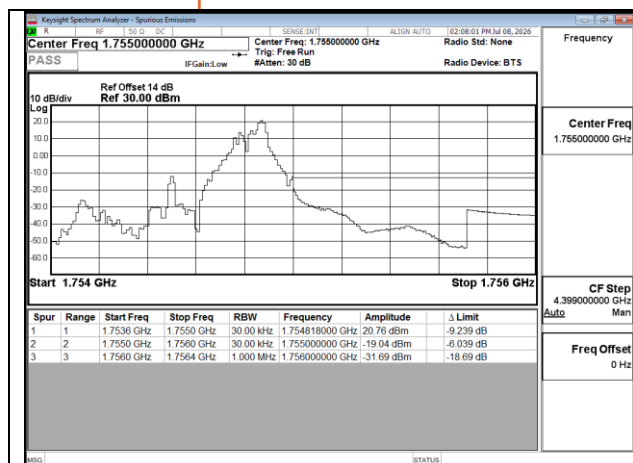


Band4 1.4MHz QPSK RB6 0 CH19957

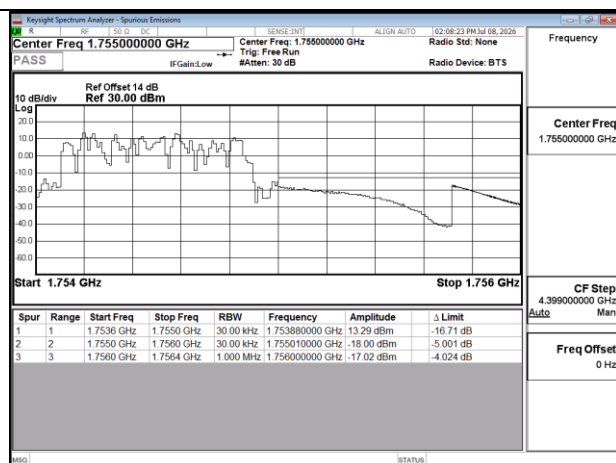
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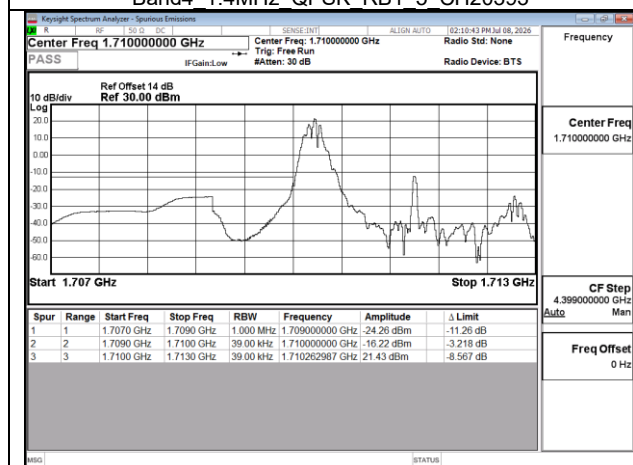
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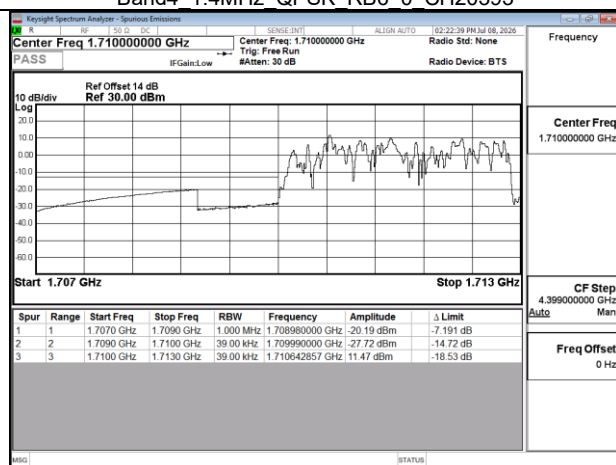
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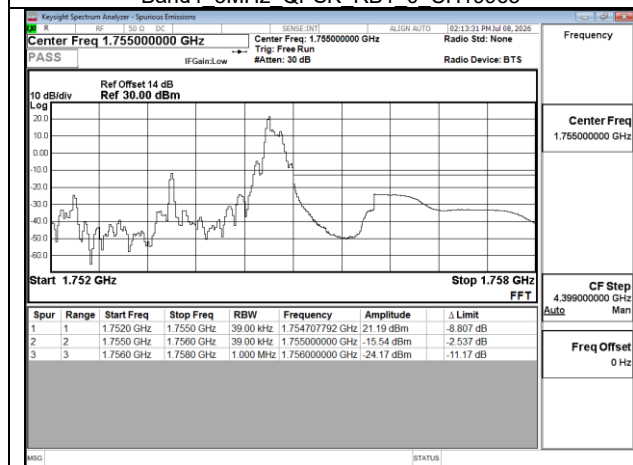
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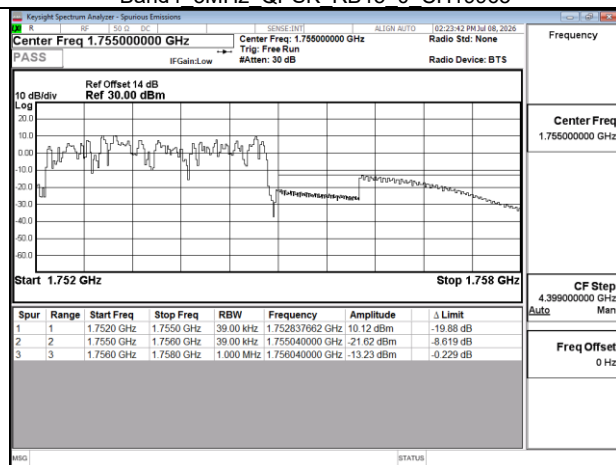
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Band4 3MHz QPSK RB15 0 CH19965



Band4 3MHz QPSK RB1 14 CH20385

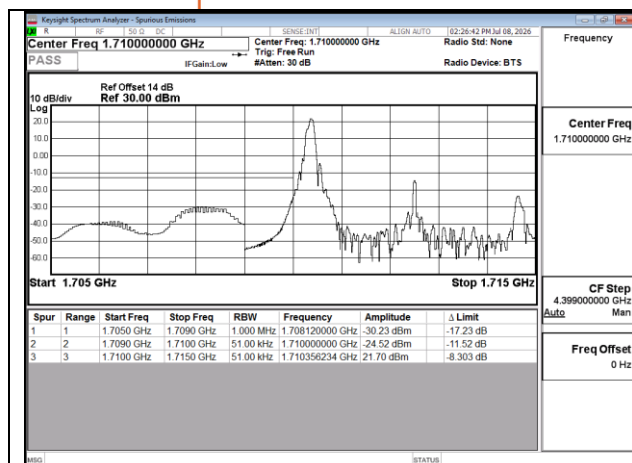


Band4 3MHz QPSK RB15 0 CH20385

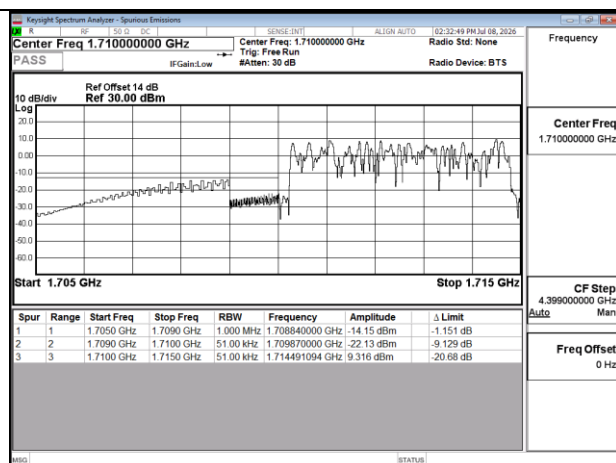
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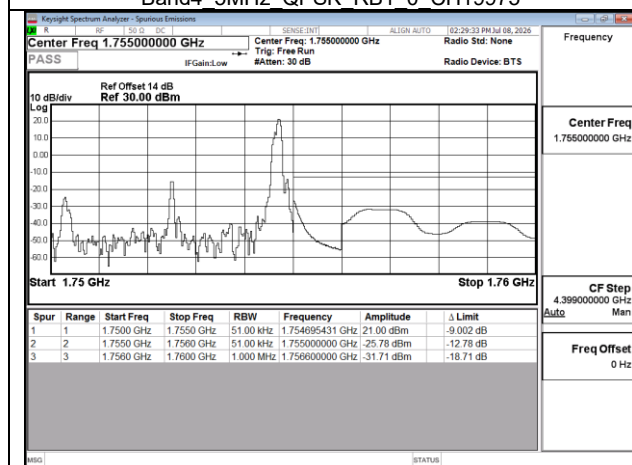
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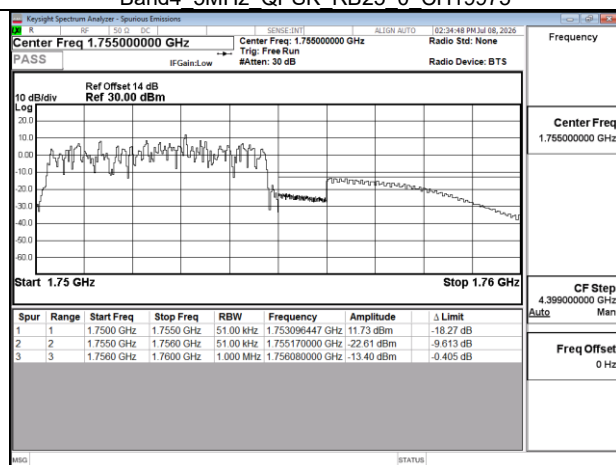
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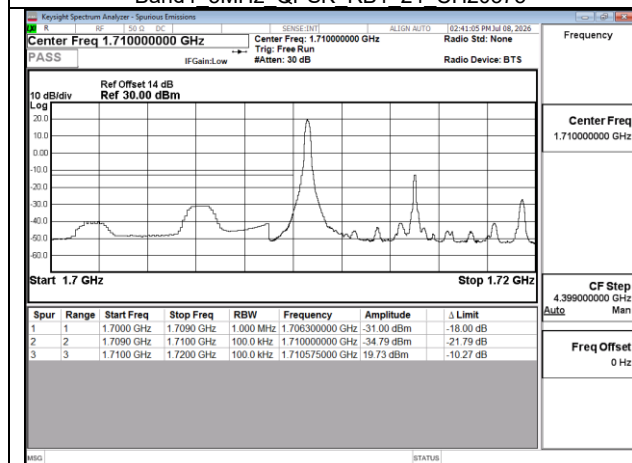
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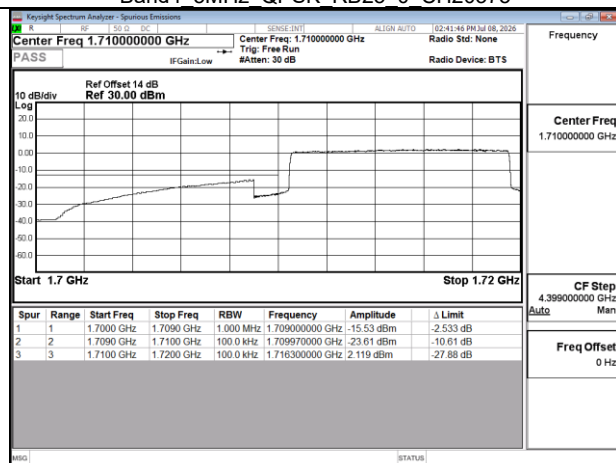
Band4 5MHz QPSK RB1 24 CH20375



Band4 5MHz QPSK RB25 0 CH20375



Band4 10MHz QPSK RB1 0 CH20000

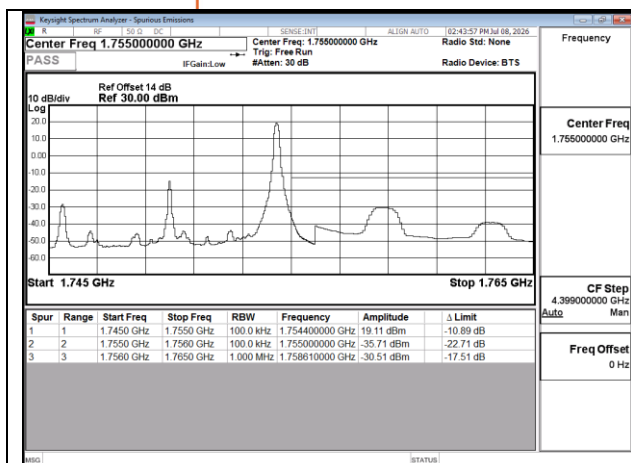


Band4 10MHz QPSK RB50 0 CH20000

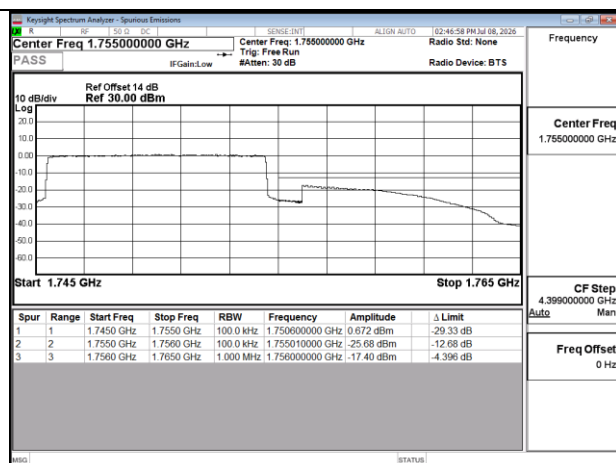
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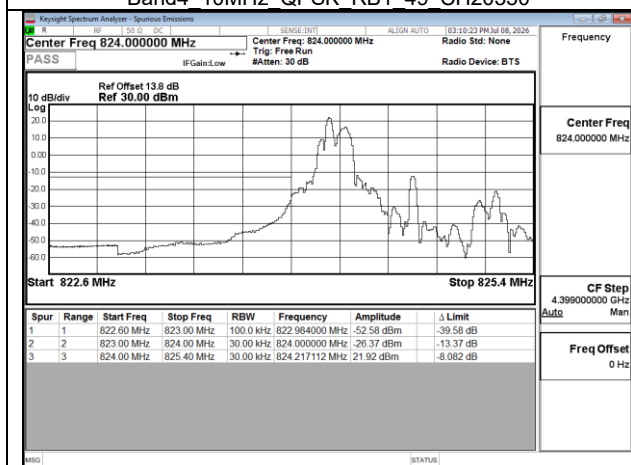
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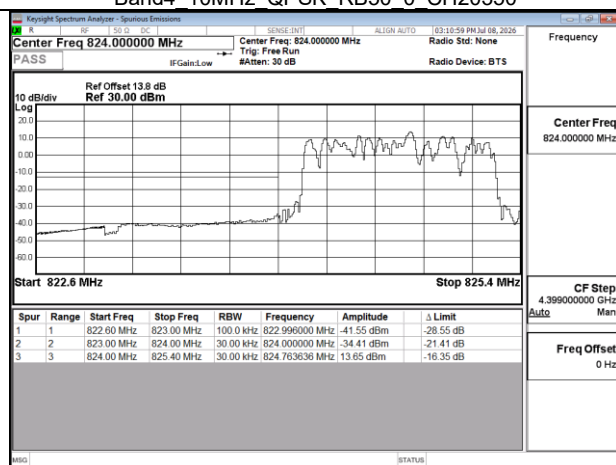
Band4 10MHz QPSK RB1 49 CH20350



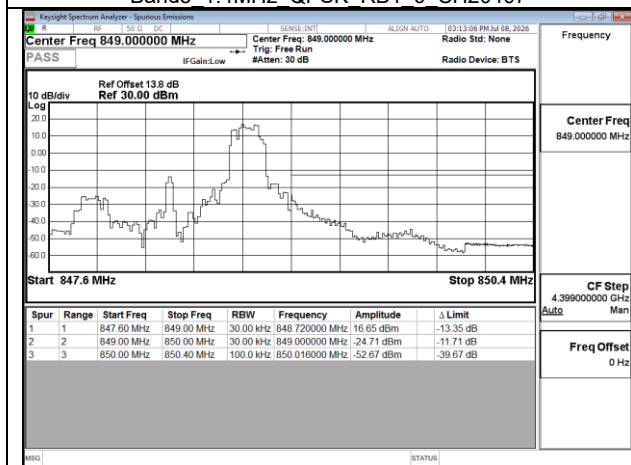
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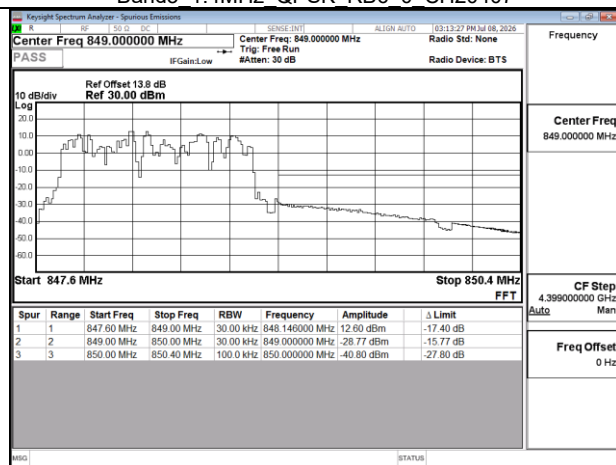
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Band5 1.4MHz QPSK RB6 0 CH20407



Band5 1.4MHz QPSK RB1 5 CH20643

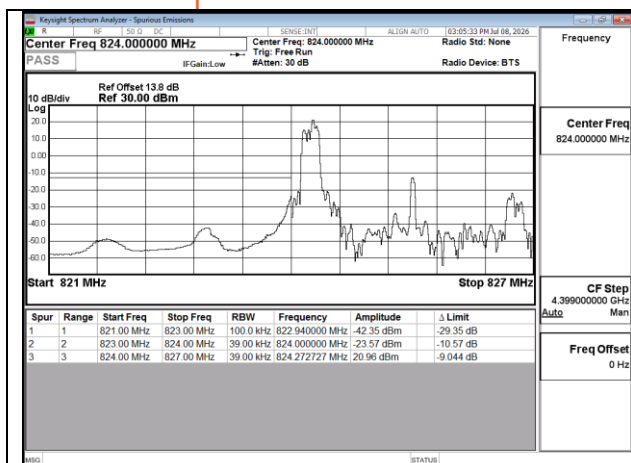


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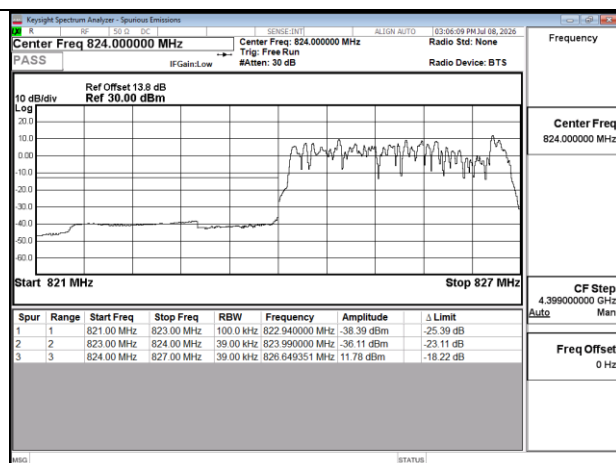
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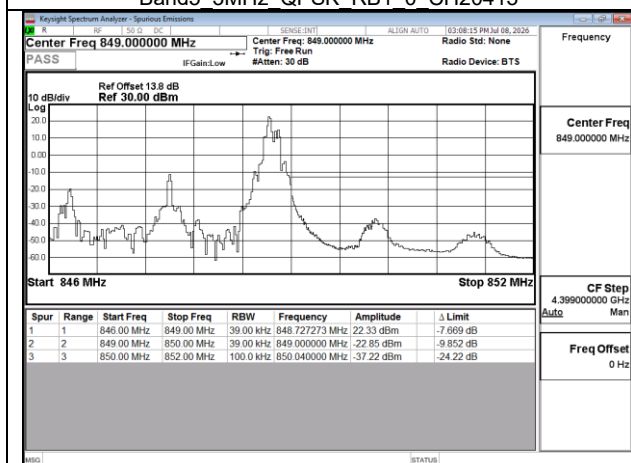
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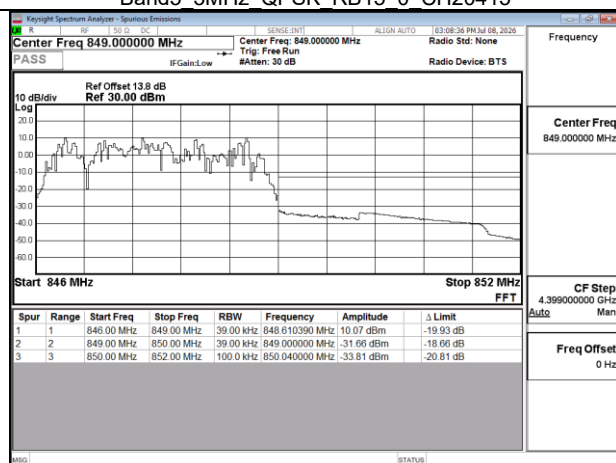
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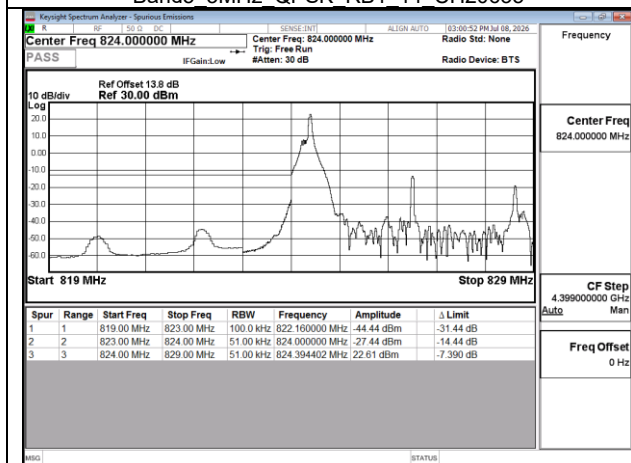
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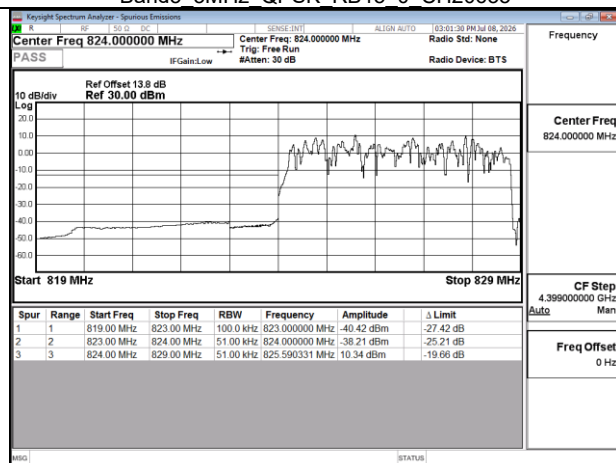
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Band5 5MHz QPSK RB1 0 CH20425



Band5 5MHz QPSK RB25 0 CH20425

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