RF TEST REPORT

Product Name: Duet

Model Name: HM-1005

FCC ID: 2AUCLHM-1005

Issued For : FX TECHNOLOGY LIMITED

2 Stone Buildings, Lincoln's Inn, London, United Kingdom

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Report Number:	LGT23E031RF08
Sample Received Date:	May 18, 2023
Date of Test:	May 18, 2023 – Aug. 02, 2023
Date of Issue:	Aug. 02, 2023

TEST REPORT CERTIFICATION

Applicant:	FX TECHNOLOGY LIMITED
Address:	2 Stone Buildings, Lincoln's Inn, London, United Kingdom
Manufacturer:	UWIN INNOVATION(HONG KONG)LIMITED
Address:	ROOM D 10/F TOWER A BILLION CENTRE 1 WANG KWONG RD KOWLOON BAY KL
Product Name:	Duet
Trademark:	Linxdot
Model Name:	HM-1005
Sample Status:	Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 2, 96 KDB 971168 D01 v03r01, ANSI C63.26(2015)	PASS

Prepared by:

Zane Shan

Zane Shan
Engineer

Approved by:

Vita Li
Technical Director

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Revision History

Rev.	Issue Date	Contents
00	Aug. 02, 2023	Initial Issue

1. TEST FACTORY & MEASUREMENT UNCERTAINTY

1.1 TEST FACTORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Parameter	**Uncertainty**
Occupied Channel Bandwidth	±3.2 %
RF Output Power, Conducted	±0.87dB
Power Spectral Density, Conducted	±2.11 dB
Unwanted Emission, Conducted	±0.86dB
All Emissions, Radiated (Below 1GHz)	±3.54dB
All Emissions, Radiated (1GHz-18GHz)	±4.22dB
All Emissions, Radiated (18GHz-25GHz)	±4.81dB
Temperature	±0.5°C
Humidity	±2%

Note: The measurement uncertainty is not included in the test result.

2. GENERAL INFORMATION

2.1 TECHNICAL SPECIFICATIONS AND REGULATIONS

2.1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Name:	Duet
Trademark:	Linxdot
Model Name:	HM-1005
Series Model:	N/A
Model Difference:	N/A
Frequency Bands:	TDD Band 48: 3550-3700MHz
Bandwidth:	LTE Band 48: 5MHz / 10MHz / 15MHz /20MHz
Type of Modulation:	QPSK /16QAM
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as single chipset, SIM 1 is used to tested.
Antenna:	PIFA
Antenna gain:	LTE B48: 0.81dBi
Adapter:	N/A
Battery:	Capacity: 5500mAh Rated Voltage: 3.85V
Extreme Vol. Limits:	3.465V to 4.235V (Nominal 3.85V)
Extreme Temp. Tolerance:	-0℃ to +40℃
Hardware Version:	N/A
Software Version:	N/A

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.

2.1.2 TEST SUMMARY

FCC Rules	Test Description	Test Limit	Test Result
2.1046	Conducted Output Power	Reporting Only	PASS
96.41	Effective Radiated Power/ Equivalent Isotropic Radiated Power	< 23dBm/10MHz	PASS
2.1049	Occupied Bandwidth	Reporting Only	PASS
2.1055	Frequency Stability	Emission must remain in band	PASS
2.1051 96.41	Out-Of-Band Emissions& Band Edge	-13 dBm/Mhz at frequencies within 0-10MHz of channel edge -25 dBm/MHz at frequencies greater than 10MHz above and below channel edge -40 dBm/MHz at frequencies below 3530 MHz and above 3720 MHz	PASS
96.41	Field Strength of Spurious Radiation	< -40dBm/MHz	PASS

2.1.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for filing to comply with the 47 CFR Part 2, 96.

2.1.4 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for fcc grant together.

2.1.5 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission’s requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.1.6 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.1.7 CONFIGURATION OF EUT SYSTEM

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

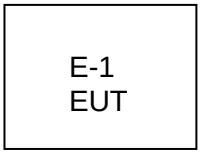


Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	Length	Note
N/A				N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in『Length』column.

(2) "YES" is means "with core"; "NO" is means "without core".

2.1.8 MEASUREMENT INSTRUMENTS

The radiated emission testing was performed according to the procedures of ANSI C63.26 2015 and FCC CFR 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

Radiated Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU8	100372	2023.04.13	2024.04.12
Active loop Antenna	ETS	6502	00049544	2022.06.02	2025.06.01
Spectrum Analyzer	Keysight	N9010B	MY60242508	2023.04.10	2024.04.09
Bilog Antenna(30M-1G)	SCHWARZBECK	VULB 9168	01447	2022.12.12	2025.12.11
Horn Antenna(1-18G)	SCHWARZBECK	3115	10SL0060	2022.06.02	2025.06.01
Pre-amplifier(1-26.5G)	Agilent	8449B	3008A4722	2023.04.07	2024.04.06
Wireless Communications Test Set	R&S	CMW 500	137737	2023.04.13	2024.04.12
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Testing Software	EMC-I_V1.4.0.3_SKET				

Conducted Test equipment

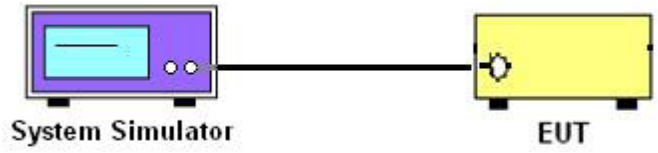
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
Signal Analyzer	Keysight	N9010B	MY60242508	2023.04.10	2024.04.09
Signal Analyzer	Keysight	N9020A	MY50530994	2022.12.09	2023.12.08
Wireless Communications Test Set	R&S	CMW 500	137737	2023.04.13	2024.04.12
MXG Vector Signal Generator	Keysight	N5182B	MY59100717	2023.04.07	2024.04.06
RF Automatic Test system	MW	MW100-RFCB	MW220324LG-33	2023.04.13	2024.04.12
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Temperature& Humidity test chamber	AISRY	LX-1000L	171200018	2023.05.10	2024.05.09
Attenuator	eastsheep	90db	N.A	2023.04.10	2024.04.09
Testing Software	MTS8200_ V2.0.0.0_MW				

3. CONDUCTED OUTPUT POWER
3.1 DESCRIPTION OF THE CONDUCTED OUTPUT POWER MEASUREMENT

3.1.1 MEASUREMENT METHOD

A system simulator was used to establish communication with the eut. Its parameters were set to force the eut transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.
Configuration follows KDB 971168 D01 v03r01.

3.1.2 TEST SETUP



3.1.3 TEST PROCEDURES

1. The transmitter output port was connected to system simulator.

2. Set EUT at maximum power through the system simulator.

3. Select lowest/middle/highest channels for each band and different modulation.

4. Measure and record the power level from the system simulator.

3.1.4 TEST RESULTS

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	Limit (dBm)	Verdict
Band48	5	55265	1	#0	QPSK	20.25	N/A	PASS
Band48	5	55265	1	#Mid	QPSK	20.03	N/A	PASS
Band48	5	55265	1	#Max	QPSK	19.90	N/A	PASS
Band48	5	55265	12	#0	QPSK	20.08	N/A	PASS
Band48	5	55265	12	#Mid	QPSK	19.97	N/A	PASS
Band48	5	55265	12	#Max	QPSK	19.88	N/A	PASS
Band48	5	55265	25	#0	QPSK	19.99	N/A	PASS
Band48	5	55265	1	#0	16QAM	20.82	N/A	PASS
Band48	5	55265	1	#Mid	16QAM	20.60	N/A	PASS
Band48	5	55265	1	#Max	16QAM	20.46	N/A	PASS
Band48	5	55265	12	#0	16QAM	20.06	N/A	PASS
Band48	5	55265	12	#Mid	16QAM	19.96	N/A	PASS
Band48	5	55265	12	#Max	16QAM	19.86	N/A	PASS
Band48	5	55265	25	#0	16QAM	19.90	N/A	PASS
Band48	5	55990	1	#0	QPSK	22.63	N/A	PASS
Band48	5	55990	1	#Mid	QPSK	22.36	N/A	PASS
Band48	5	55990	1	#Max	QPSK	22.29	N/A	PASS
Band48	5	55990	12	#0	QPSK	21.55	N/A	PASS
Band48	5	55990	12	#Mid	QPSK	21.43	N/A	PASS
Band48	5	55990	12	#Max	QPSK	21.31	N/A	PASS
Band48	5	55990	25	#0	QPSK	21.42	N/A	PASS
Band48	5	55990	1	#0	16QAM	22.00	N/A	PASS
Band48	5	55990	1	#Mid	16QAM	21.65	N/A	PASS
Band48	5	55990	1	#Max	16QAM	21.66	N/A	PASS
Band48	5	55990	12	#0	16QAM	20.66	N/A	PASS
Band48	5	55990	12	#Mid	16QAM	20.56	N/A	PASS
Band48	5	55990	12	#Max	16QAM	20.44	N/A	PASS
Band48	5	55990	25	#0	16QAM	20.49	N/A	PASS
Band48	5	56715	1	#0	QPSK	22.63	N/A	PASS
Band48	5	56715	1	#Mid	QPSK	22.76	N/A	PASS
Band48	5	56715	1	#Max	QPSK	22.92	N/A	PASS
Band48	5	56715	12	#0	QPSK	21.52	N/A	PASS
Band48	5	56715	12	#Mid	QPSK	21.53	N/A	PASS
Band48	5	56715	12	#Max	QPSK	21.61	N/A	PASS
Band48	5	56715	25	#0	QPSK	21.56	N/A	PASS
Band48	5	56715	1	#0	16QAM	22.09	N/A	PASS
Band48	5	56715	1	#Mid	16QAM	22.09	N/A	PASS
Band48	5	56715	1	#Max	16QAM	22.30	N/A	PASS
Band48	5	56715	12	#0	16QAM	20.61	N/A	PASS
Band48	5	56715	12	#Mid	16QAM	20.51	N/A	PASS
Band48	5	56715	12	#Max	16QAM	20.58	N/A	PASS
Band48	5	56715	25	#0	16QAM	20.56	N/A	PASS
Band48	10	55290	1	#0	QPSK	20.11	N/A	PASS
Band48	10	55290	1	#Mid	QPSK	20.10	N/A	PASS
Band48	10	55290	1	#Max	QPSK	19.43	N/A	PASS
Band48	10	55290	25	#0	QPSK	20.30	N/A	PASS
Band48	10	55290	25	#Mid	QPSK	20.09	N/A	PASS
Band48	10	55290	25	#Max	QPSK	19.81	N/A	PASS
Band48	10	55290	50	#0	QPSK	20.02	N/A	PASS
Band48	10	55290	1	#0	16QAM	20.59	N/A	PASS
Band48	10	55290	1	#Mid	16QAM	20.58	N/A	PASS
Band48	10	55290	1	#Max	16QAM	19.90	N/A	PASS
Band48	10	55290	25	#0	16QAM	20.20	N/A	PASS
Band48	10	55290	25	#Mid	16QAM	20.11	N/A	PASS
Band48	10	55290	25	#Max	16QAM	19.84	N/A	PASS
Band48	10	55290	50	#0	16QAM	20.01	N/A	PASS
Band48	10	55990	1	#0	QPSK	22.91	N/A	PASS
Band48	10	55990	1	#Mid	QPSK	22.50	N/A	PASS
Band48	10	55990	1	#Max	QPSK	22.16	N/A	PASS
Band48	10	55990	25	#0	QPSK	21.62	N/A	PASS
Band48	10	55990	25	#Mid	QPSK	21.47	N/A	PASS
Band48	10	55990	25	#Max	QPSK	21.16	N/A	PASS
Band48	10	55990	50	#0	QPSK	21.42	N/A	PASS
Band48	10	55990	1	#0	16QAM	22.08	N/A	PASS
Band48	10	55990	1	#Mid	16QAM	21.59	N/A	PASS
Band48	10	55990	1	#Max	16QAM	21.30	N/A	PASS
Band48	10	55990	25	#0	16QAM	20.76	N/A	PASS
Band48	10	55990	25	#Mid	16QAM	20.57	N/A	PASS
Band48	10	55990	25	#Max	16QAM	20.31	N/A	PASS
Band48	10	55990	50	#0	16QAM	20.60	N/A	PASS
Band48	10	56690	1	#0	QPSK	22.25	N/A	PASS
Band48	10	56690	1	#Mid	QPSK	22.44	N/A	PASS
Band48	10	56690	1	#Max	QPSK	22.64	N/A	PASS
Band48	10	56690	25	#0	QPSK	21.32	N/A	PASS
Band48	10	56690	25	#Mid	QPSK	21.40	N/A	PASS
Band48	10	56690	25	#Max	QPSK	21.43	N/A	PASS
Band48	10	56690	50	#0	QPSK	21.38	N/A	PASS
Band48	10	56690	1	#0	16QAM	21.35	N/A	PASS
Band48	10	56690	1	#Mid	16QAM	21.46	N/A	PASS
Band48	10	56690	1	#Max	16QAM	21.75	N/A	PASS
Band48	10	56690	25	#0	16QAM	20.41	N/A	PASS
Band48	10	56690	25	#Mid	16QAM	20.57	N/A	PASS
Band48	10	56690	25	#Max	16QAM	20.43	N/A	PASS
Band48	10	56690	50	#0	16QAM	20.49	N/A	PASS
Band48	15	55315	1	#0	QPSK	20.45	N/A	PASS

Band48	15	55315	1	#Mid	QPSK	20.08	N/A	PASS
Band48	15	55315	1	#Max	QPSK	19.78	N/A	PASS
Band48	15	55315	36	#0	QPSK	20.35	N/A	PASS
Band48	15	55315	36	#Mid	QPSK	20.11	N/A	PASS
Band48	15	55315	36	#Max	QPSK	19.80	N/A	PASS
Band48	15	55315	75	#0	QPSK	20.11	N/A	PASS
Band48	15	55315	1	#0	16QAM	20.90	N/A	PASS
Band48	15	55315	1	#Mid	16QAM	20.57	N/A	PASS
Band48	15	55315	1	#Max	16QAM	20.27	N/A	PASS
Band48	15	55315	36	#0	16QAM	20.40	N/A	PASS
Band48	15	55315	36	#Mid	16QAM	20.15	N/A	PASS
Band48	15	55315	36	#Max	16QAM	19.84	N/A	PASS
Band48	15	55315	75	#0	16QAM	20.08	N/A	PASS
Band48	15	55990	1	#0	QPSK	22.78	N/A	PASS
Band48	15	55990	1	#Mid	QPSK	22.43	N/A	PASS
Band48	15	55990	1	#Max	QPSK	21.95	N/A	PASS
Band48	15	55990	36	#0	QPSK	21.70	N/A	PASS
Band48	15	55990	36	#Mid	QPSK	21.40	N/A	PASS
Band48	15	55990	36	#Max	QPSK	21.05	N/A	PASS
Band48	15	55990	75	#0	QPSK	21.38	N/A	PASS
Band48	15	55990	1	#0	16QAM	21.81	N/A	PASS
Band48	15	55990	1	#Mid	16QAM	21.51	N/A	PASS
Band48	15	55990	1	#Max	16QAM	21.25	N/A	PASS
Band48	15	55990	36	#0	16QAM	21.03	N/A	PASS
Band48	15	55990	36	#Mid	16QAM	20.55	N/A	PASS
Band48	15	55990	36	#Max	16QAM	20.24	N/A	PASS
Band48	15	55990	75	#0	16QAM	20.51	N/A	PASS
Band48	15	56665	1	#0	QPSK	22.12	N/A	PASS
Band48	15	56665	1	#Mid	QPSK	22.40	N/A	PASS
Band48	15	56665	1	#Max	QPSK	22.73	N/A	PASS
Band48	15	56665	36	#0	QPSK	21.16	N/A	PASS
Band48	15	56665	36	#Mid	QPSK	21.26	N/A	PASS
Band48	15	56665	36	#Max	QPSK	21.38	N/A	PASS
Band48	15	56665	75	#0	QPSK	21.28	N/A	PASS
Band48	15	56665	1	#0	16QAM	21.27	N/A	PASS
Band48	15	56665	1	#Mid	16QAM	21.46	N/A	PASS
Band48	15	56665	1	#Max	16QAM	21.80	N/A	PASS
Band48	15	56665	36	#0	16QAM	20.27	N/A	PASS
Band48	15	56665	36	#Mid	16QAM	20.42	N/A	PASS
Band48	15	56665	36	#Max	16QAM	20.45	N/A	PASS
Band48	15	56665	75	#0	16QAM	20.42	N/A	PASS
Band48	20	55340	1	#0	QPSK	20.34	N/A	PASS
Band48	20	55340	1	#Mid	QPSK	20.17	N/A	PASS
Band48	20	55340	1	#Max	QPSK	20.43	N/A	PASS
Band48	20	55340	50	#0	QPSK	20.43	N/A	PASS
Band48	20	55340	50	#Mid	QPSK	20.17	N/A	PASS
Band48	20	55340	50	#Max	QPSK	20.18	N/A	PASS
Band48	20	55340	100	#0	QPSK	20.31	N/A	PASS
Band48	20	55340	1	#0	16QAM	20.57	N/A	PASS
Band48	20	55340	1	#Mid	16QAM	20.41	N/A	PASS
Band48	20	55340	1	#Max	16QAM	20.79	N/A	PASS
Band48	20	55340	50	#0	16QAM	20.46	N/A	PASS
Band48	20	55340	50	#Mid	16QAM	20.21	N/A	PASS
Band48	20	55340	50	#Max	16QAM	20.18	N/A	PASS
Band48	20	55340	100	#0	16QAM	20.29	N/A	PASS
Band48	20	55990	1	#0	QPSK	22.65	N/A	PASS
Band48	20	55990	1	#Mid	QPSK	22.50	N/A	PASS
Band48	20	55990	1	#Max	QPSK	21.92	N/A	PASS
Band48	20	55990	50	#0	QPSK	21.73	N/A	PASS
Band48	20	55990	50	#Mid	QPSK	21.50	N/A	PASS
Band48	20	55990	50	#Max	QPSK	20.98	N/A	PASS
Band48	20	55990	100	#0	QPSK	21.37	N/A	PASS
Band48	20	55990	1	#0	16QAM	21.78	N/A	PASS
Band48	20	55990	1	#Mid	16QAM	21.62	N/A	PASS
Band48	20	55990	1	#Max	16QAM	21.05	N/A	PASS
Band48	20	55990	50	#0	16QAM	20.83	N/A	PASS
Band48	20	55990	50	#Mid	16QAM	20.56	N/A	PASS
Band48	20	55990	50	#Max	16QAM	20.08	N/A	PASS
Band48	20	55990	100	#0	16QAM	20.45	N/A	PASS
Band48	20	56640	1	#0	QPSK	21.90	N/A	PASS
Band48	20	56640	1	#Mid	QPSK	22.18	N/A	PASS
Band48	20	56640	1	#Max	QPSK	22.54	N/A	PASS
Band48	20	56640	50	#0	QPSK	21.10	N/A	PASS
Band48	20	56640	50	#Mid	QPSK	21.21	N/A	PASS
Band48	20	56640	50	#Max	QPSK	21.24	N/A	PASS
Band48	20	56640	100	#0	QPSK	21.17	N/A	PASS
Band48	20	56640	1	#0	16QAM	21.21	N/A	PASS
Band48	20	56640	1	#Mid	16QAM	21.39	N/A	PASS
Band48	20	56640	1	#Max	16QAM	21.82	N/A	PASS
Band48	20	56640	50	#0	16QAM	20.22	N/A	PASS
Band48	20	56640	50	#Mid	16QAM	20.31	N/A	PASS
Band48	20	56640	50	#Max	16QAM	20.35	N/A	PASS
Band48	20	56640	100	#0	16QAM	20.30	N/A	PASS

4. RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

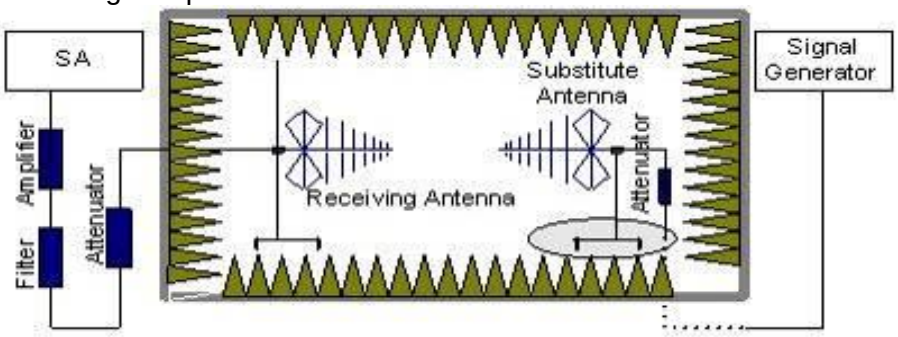
4.1 DESCRIPTION OF THE ERP/EIRP MEASUREMENT

4.1.1 MEASUREMENT METHOD

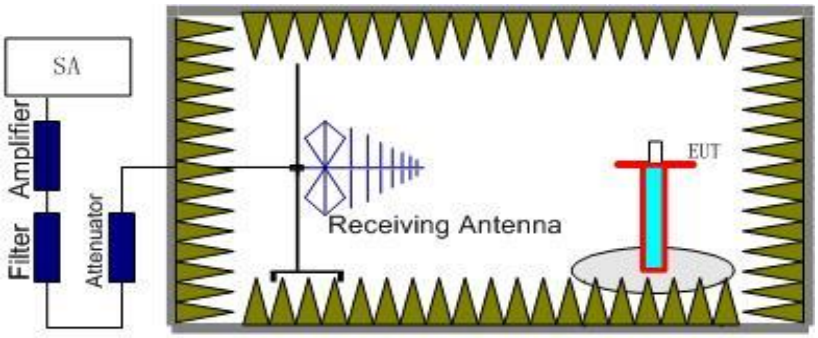
Effective radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas.
License Digital Systems. Mobile and portable (hand-held) stations operating are limited to average ERP, Equivalent isotropic radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas, Mobile and portable (hand-held) stations operating are limited to average EIRP.

4.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx (dBuV) +CL (dB) +SA (dB) +Gain (dBi) -107 (dBuV to dBm) The SA is calibrated using following setup.



b) EUT was placed on a 1.5m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:
Power=PMea+ARpl

4.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01v03r01 Section 5.6 and ANSI C63.26 2015 Section 5.2.

2. The EUT was placed on a non-conductive rotating platform 1.5 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with Peak detector.
3. During the measurement, the system simulator parameters were set to force the EUTtransmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 m in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to ANSI C63.26 2015. The EUT was replaced by dipole antenna (substitution antenna) at same location and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. EIRP=S.G Level+ Gain-Cable loss; ERP=S.G Level+ Gain-Cable loss-2.15.

5. RB Set greater than bandwidth, VB Set spectrum analyzer Maximum support.

4.1.4 TEST RESULTS

Note:
1. Test is divided into three directions, X/Y/Z. X pattern for the worst.
2. The worst case EIRP shown in this section is found with LTE operating only using 1RB. As such, the EIRP/10MHz and full channel EIRP values will be identical since 1RB is fully contained within all available channel bandwidths for LTE Band 48 (i.e. 5, 10, 15, 20MHz).

Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	S.G.Lev(dBm)	Ant(dBi)	EIRP(dBm/10MHz)	Limit(dBm/10MHz)	Margin(dB)	Polarity
5.00	55265.00	1.00	#0	QPSK	10.82	6.59	17.41	23.00	-5.59	H
5.00	55265.00	1.00	#Mid	QPSK	10.62	6.59	17.21	23.00	-5.79	H
5.00	55265.00	1.00	#Max	QPSK	10.17	6.59	16.76	23.00	-6.24	H
5.00	55265.00	1.00	#0	16QAM	10.13	6.59	16.72	23.00	-6.28	H
5.00	55265.00	1.00	#Mid	16QAM	10.03	6.59	16.62	23.00	-6.38	H
5.00	55265.00	1.00	#Max	16QAM	10.27	6.59	16.86	23.00	-6.14	H
5.00	55990.00	1.00	#0	QPSK	10.73	6.03	16.76	23.00	-6.24	H
5.00	55990.00	1.00	#Mid	QPSK	10.38	6.03	16.41	23.00	-6.59	H
5.00	55990.00	1.00	#Max	QPSK	10.17	6.03	16.20	23.00	-6.80	H
5.00	55990.00	1.00	#0	16QAM	10.00	6.03	16.03	23.00	-6.97	H
5.00	55990.00	1.00	#Mid	16QAM	9.65	6.03	15.68	23.00	-7.32	H
5.00	55990.00	1.00	#Max	16QAM	9.28	6.03	15.31	23.00	-7.69	H
5.00	56715.00	1.00	#0	QPSK	9.46	5.49	14.95	23.00	-8.05	H
5.00	56715.00	1.00	#Mid	QPSK	9.25	5.49	14.74	23.00	-8.26	H
5.00	56715.00	1.00	#Max	QPSK	9.17	5.49	14.66	23.00	-8.34	H
5.00	56715.00	1.00	#0	16QAM	9.00	5.49	14.49	23.00	-8.51	H
5.00	56715.00	1.00	#Mid	16QAM	8.19	5.49	13.68	23.00	-9.32	H
5.00	56715.00	1.00	#Max	16QAM	8.03	5.49	13.52	23.00	-9.48	H
10.00	55290.00	1.00	#0	QPSK	9.27	6.57	15.84	23.00	-7.16	H
10.00	55290.00	1.00	#Mid	QPSK	9.13	6.57	15.70	23.00	-7.30	H
10.00	55290.00	1.00	#Max	QPSK	9.65	6.57	16.22	23.00	-6.78	H
10.00	55290.00	1.00	#0	16QAM	9.15	6.57	15.72	23.00	-7.28	H
10.00	55290.00	1.00	#Mid	16QAM	9.10	6.57	15.67	23.00	-7.33	H
10.00	55290.00	1.00	#Max	16QAM	8.27	6.57	14.84	23.00	-8.16	H
10.00	55990.00	1.00	#0	QPSK	9.97	6.03	16.00	23.00	-7.00	H
10.00	55990.00	1.00	#Mid	QPSK	9.57	6.03	15.60	23.00	-7.40	H
10.00	55990.00	1.00	#Max	QPSK	9.15	6.03	15.18	23.00	-7.82	H
10.00	55990.00	1.00	#0	16QAM	9.37	6.03	15.40	23.00	-7.60	H
10.00	55990.00	1.00	#Mid	16QAM	9.46	6.03	15.49	23.00	-7.51	H
10.00	55990.00	1.00	#Max	16QAM	9.58	6.03	15.61	23.00	-7.39	H
10.00	56690.00	1.00	#0	QPSK	9.57	5.51	15.08	23.00	-7.92	H
10.00	56690.00	1.00	#Mid	QPSK	9.44	5.51	14.95	23.00	-8.05	H
10.00	56690.00	1.00	#Max	QPSK	9.37	5.51	14.88	23.00	-8.12	H
10.00	56690.00	1.00	#0	16QAM	8.93	5.51	14.44	23.00	-8.56	H
10.00	56690.00	1.00	#Mid	16QAM	8.77	5.51	14.28	23.00	-8.72	H
10.00	56690.00	1.00	#Max	16QAM	8.56	5.51	14.07	23.00	-8.93	H
15.00	55315.00	1.00	#0	QPSK	10.05	7.85	17.90	23.00	-5.10	H
15.00	55315.00	1.00	#Mid	QPSK	9.93	7.85	17.78	23.00	-5.22	H
15.00	55315.00	1.00	#Max	QPSK	9.77	7.85	17.62	23.00	-5.38	H
15.00	55315.00	1.00	#0	16QAM	9.58	7.85	17.43	23.00	-5.57	H
15.00	55315.00	1.00	#Mid	16QAM	9.50	7.85	17.35	23.00	-5.65	H
15.00	55315.00	1.00	#Max	16QAM	9.43	7.85	17.28	23.00	-5.72	H

15.00	55990.00	1.00	#0	QPSK	9.52	7.80	17.32	23.00	-5.68	H
15.00	55990.00	1.00	#Mid	QPSK	9.22	7.80	17.02	23.00	-5.98	H
15.00	55990.00	1.00	#Max	QPSK	9.14	7.80	16.94	23.00	-6.06	H
15.00	55990.00	1.00	#0	16QAM	8.85	7.80	16.65	23.00	-6.35	H
15.00	55990.00	1.00	#Mid	16QAM	8.56	7.80	16.36	23.00	-6.64	H
15.00	55990.00	1.00	#Max	16QAM	8.09	7.80	15.89	23.00	-7.11	H
15.00	56665.00	1.00	#0	QPSK	9.12	7.75	16.87	23.00	-6.13	H
15.00	56665.00	1.00	#Mid	QPSK	9.04	7.75	16.79	23.00	-6.21	H
15.00	56665.00	1.00	#Max	QPSK	9.00	7.75	16.75	23.00	-6.25	H
15.00	56665.00	1.00	#0	16QAM	8.71	7.75	16.46	23.00	-6.54	H
15.00	56665.00	1.00	#Mid	16QAM	8.62	7.75	16.37	23.00	-6.63	H
15.00	56665.00	1.00	#Max	16QAM	8.43	7.75	16.18	23.00	-6.82	H
20.00	55340.00	1.00	#0	QPSK	10.12	7.85	17.97	23.00	-5.03	H
20.00	55340.00	1.00	#Mid	QPSK	10.05	7.85	17.90	23.00	-5.10	H
20.00	55340.00	1.00	#Max	QPSK	9.98	7.85	17.83	23.00	-5.17	H
20.00	55340.00	1.00	#0	16QAM	9.24	7.85	17.09	23.00	-5.91	H
20.00	55340.00	1.00	#Mid	16QAM	9.07	7.85	16.92	23.00	-6.08	H
20.00	55340.00	1.00	#Max	16QAM	8.63	7.85	16.48	23.00	-6.52	H
20.00	55990.00	1.00	#0	QPSK	9.65	7.80	17.45	23.00	-5.55	H
20.00	55990.00	1.00	#Mid	QPSK	9.53	7.80	17.33	23.00	-5.67	H
20.00	55990.00	1.00	#Max	QPSK	9.42	7.80	17.22	23.00	-5.78	H
20.00	55990.00	1.00	#0	16QAM	8.69	7.80	16.49	23.00	-6.51	H
20.00	55990.00	1.00	#Mid	16QAM	8.51	7.80	16.31	23.00	-6.69	H
20.00	55990.00	1.00	#Max	16QAM	8.29	7.80	16.09	23.00	-6.91	H
20.00	56640.00	1.00	#0	QPSK	10.08	7.75	17.83	23.00	-5.17	H
20.00	56640.00	1.00	#Mid	QPSK	9.86	7.75	17.61	23.00	-5.39	H
20.00	56640.00	1.00	#Max	QPSK	9.57	7.75	17.32	23.00	-5.68	H
20.00	56640.00	1.00	#0	16QAM	9.76	7.75	17.51	23.00	-5.49	H
20.00	56640.00	1.00	#Mid	16QAM	9.52	7.75	17.27	23.00	-5.73	H
20.00	56640.00	1.00	#Max	16QAM	9.41	7.75	17.16	23.00	-5.84	H

Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	S.G.Lev(dBm)	Ant(dBi)	EIRP(dBm/10MHz)	Limit(dBm/10MHz)	Margin(dB)	Polarity
5.00	55265.00	1.00	#0	QPSK	12.25	6.59	18.84	23.00	-4.16	V
5.00	55265.00	1.00	#Mid	QPSK	12.03	6.59	18.62	23.00	-4.38	V
5.00	55265.00	1.00	#Max	QPSK	13.27	6.59	19.86	23.00	-3.14	V
5.00	55265.00	1.00	#0	16QAM	12.82	6.59	19.41	23.00	-3.59	V
5.00	55265.00	1.00	#Mid	16QAM	12.60	6.59	19.19	23.00	-3.81	V
5.00	55265.00	1.00	#Max	16QAM	12.53	6.59	19.12	23.00	-3.88	V
5.00	55990.00	1.00	#0	QPSK	12.46	6.03	18.49	23.00	-4.51	V
5.00	55990.00	1.00	#Mid	QPSK	12.36	6.03	18.39	23.00	-4.61	V
5.00	55990.00	1.00	#Max	QPSK	12.29	6.03	18.32	23.00	-4.68	V
5.00	55990.00	1.00	#0	16QAM	12.00	6.03	18.03	23.00	-4.97	V
5.00	55990.00	1.00	#Mid	16QAM	12.65	6.03	18.68	23.00	-4.32	V
5.00	55990.00	1.00	#Max	16QAM	12.65	6.03	18.68	23.00	-4.32	V
5.00	56715.00	1.00	#0	QPSK	12.63	5.49	18.12	23.00	-4.88	V
5.00	56715.00	1.00	#Mid	QPSK	12.76	5.49	18.25	23.00	-4.75	V
5.00	56715.00	1.00	#Max	QPSK	12.92	5.49	18.41	23.00	-4.59	V
5.00	56715.00	1.00	#0	16QAM	12.09	5.49	17.58	23.00	-5.42	V
5.00	56715.00	1.00	#Mid	16QAM	12.09	5.49	17.58	23.00	-5.42	V
5.00	56715.00	1.00	#Max	16QAM	12.30	5.49	17.79	23.00	-5.21	V
10.00	55290.00	1.00	#0	QPSK	13.11	6.57	19.68	23.00	-3.32	V
10.00	55290.00	1.00	#Mid	QPSK	13.10	6.57	19.67	23.00	-3.33	V
10.00	55290.00	1.00	#Max	QPSK	12.64	6.57	19.21	23.00	-3.79	V
10.00	55290.00	1.00	#0	16QAM	12.59	6.57	19.16	23.00	-3.84	V
10.00	55290.00	1.00	#Mid	16QAM	12.58	6.57	19.15	23.00	-3.85	V
10.00	55290.00	1.00	#Max	16QAM	12.90	6.57	19.47	23.00	-3.53	V
10.00	55990.00	1.00	#0	QPSK	12.91	6.03	18.94	23.00	-4.06	V
10.00	55990.00	1.00	#Mid	QPSK	12.50	6.03	18.53	23.00	-4.47	V
10.00	55990.00	1.00	#Max	QPSK	13.16	6.03	19.19	23.00	-3.81	V
10.00	55990.00	1.00	#0	16QAM	13.08	6.03	19.11	23.00	-3.89	V
10.00	55990.00	1.00	#Mid	16QAM	13.59	6.03	19.62	23.00	-3.38	V
10.00	55990.00	1.00	#Max	16QAM	13.30	6.03	19.33	23.00	-3.67	V
10.00	56690.00	1.00	#0	QPSK	12.25	5.51	17.76	23.00	-5.24	V
10.00	56690.00	1.00	#Mid	QPSK	13.44	5.51	18.95	23.00	-4.05	V
10.00	56690.00	1.00	#Max	QPSK	13.64	5.51	19.15	23.00	-3.85	V
10.00	56690.00	1.00	#0	16QAM	12.64	5.51	18.15	23.00	-4.85	V
10.00	56690.00	1.00	#Mid	16QAM	12.46	5.51	17.97	23.00	-5.03	V
10.00	56690.00	1.00	#Max	16QAM	12.75	5.51	18.26	23.00	-4.74	V
15.00	55315.00	1.00	#0	QPSK	12.45	7.85	20.30	23.00	-2.70	V
15.00	55315.00	1.00	#Mid	QPSK	12.08	7.85	19.93	23.00	-3.07	V
15.00	55315.00	1.00	#Max	QPSK	11.78	7.85	19.63	23.00	-3.37	V
15.00	55315.00	1.00	#0	16QAM	11.90	7.85	19.75	23.00	-3.25	V
15.00	55315.00	1.00	#Mid	16QAM	11.57	7.85	19.42	23.00	-3.58	V
15.00	55315.00	1.00	#Max	16QAM	11.27	7.85	19.12	23.00	-3.88	V
15.00	55990.00	1.00	#0	QPSK	11.78	7.80	19.58	23.00	-3.42	V
15.00	55990.00	1.00	#Mid	QPSK	11.43	7.80	19.23	23.00	-3.77	V
15.00	55990.00	1.00	#Max	QPSK	11.95	7.80	19.75	23.00	-3.25	V
15.00	55990.00	1.00	#0	16QAM	11.81	7.80	19.61	23.00	-3.39	V
15.00	55990.00	1.00	#Mid	16QAM	11.51	7.80	19.31	23.00	-3.69	V
15.00	55990.00	1.00	#Max	16QAM	11.15	7.80	18.95	23.00	-4.05	V

15.00	56665.00	1.00	#0	QPSK	12.12	7.75	19.87	23.00	-3.13	V
15.00	56665.00	1.00	#Mid	QPSK	11.40	7.75	19.15	23.00	-3.85	V
15.00	56665.00	1.00	#Max	QPSK	11.73	7.75	19.48	23.00	-3.52	V
15.00	56665.00	1.00	#0	16QAM	12.17	7.75	19.92	23.00	-3.08	V
15.00	56665.00	1.00	#Mid	16QAM	12.46	7.75	20.21	23.00	-2.79	V
15.00	56665.00	1.00	#Max	16QAM	11.80	7.75	19.55	23.00	-3.45	V
20.00	55340.00	1.00	#0	QPSK	12.34	7.85	20.19	23.00	-2.81	V
20.00	55340.00	1.00	#Mid	QPSK	12.17	7.85	20.02	23.00	-2.98	V
20.00	55340.00	1.00	#Max	QPSK	11.43	7.85	19.28	23.00	-3.72	V
20.00	55340.00	1.00	#0	16QAM	11.57	7.85	19.42	23.00	-3.58	V
20.00	55340.00	1.00	#Mid	16QAM	11.41	7.85	19.26	23.00	-3.74	V
20.00	55340.00	1.00	#Max	16QAM	11.79	7.85	19.64	23.00	-3.36	V
20.00	55990.00	1.00	#0	QPSK	12.65	7.80	20.45	23.00	-2.55	V
20.00	55990.00	1.00	#Mid	QPSK	12.50	7.80	20.30	23.00	-2.70	V
20.00	55990.00	1.00	#Max	QPSK	11.92	7.80	19.72	23.00	-3.28	V
20.00	55990.00	1.00	#0	16QAM	11.78	7.80	19.58	23.00	-3.42	V
20.00	55990.00	1.00	#Mid	16QAM	11.62	7.80	19.42	23.00	-3.58	V
20.00	55990.00	1.00	#Max	16QAM	11.05	7.80	18.85	23.00	-4.15	V
20.00	56640.00	1.00	#0	QPSK	11.90	7.75	19.65	23.00	-3.35	V
20.00	56640.00	1.00	#Mid	QPSK	12.18	7.75	19.93	23.00	-3.07	V
20.00	56640.00	1.00	#Max	QPSK	12.54	7.75	20.29	23.00	-2.71	V
20.00	56640.00	1.00	#0	16QAM	11.21	7.75	18.96	23.00	-4.04	V
20.00	56640.00	1.00	#Mid	16QAM	11.39	7.75	19.14	23.00	-3.86	V
20.00	56640.00	1.00	#Max	16QAM	11.82	7.75	19.57	23.00	-3.43	V

5. OCCUPIED BANDWIDTH

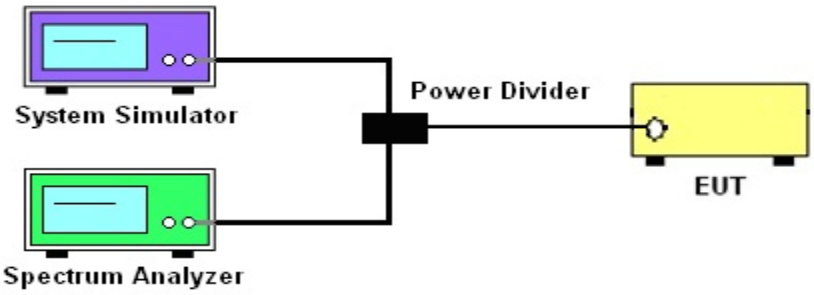
5.1 DESCRIPTION OF OCCUPIED BANDWIDTH MEASUREMENT

5.1.1 MEASUREMENT METHOD

1.The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

2.The 26 db emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 db below the maximum in-band spectral density of the modulated signal. spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

5.1.2 TEST SETUP



5.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01 v03r01 Section 4.2 and 4.3.

2. The EUT was connected to spectrum and system simulator via a power divider.

3. Select lowest, middle, and highest channels for each band and different modulation.

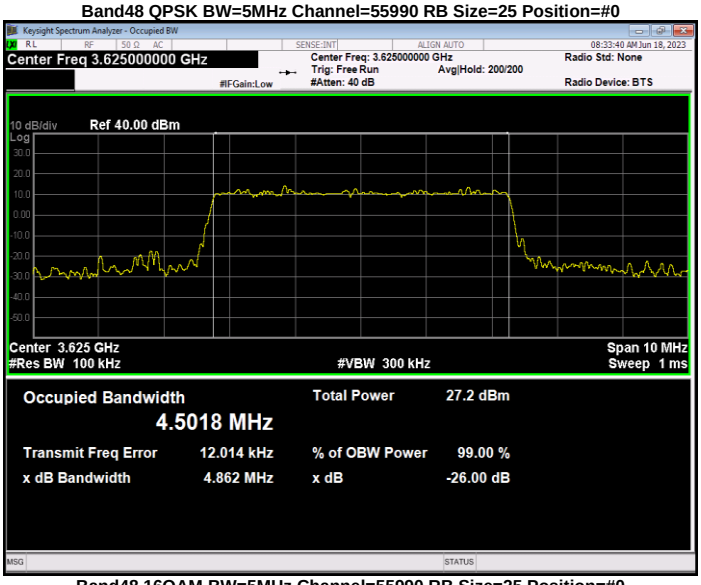
4. Set the test probe and measure the Occupied Bandwidth of the spectrum analyzer.

5. Measure and record the Occupied Bandwidth from the Spectrum Analyzer.

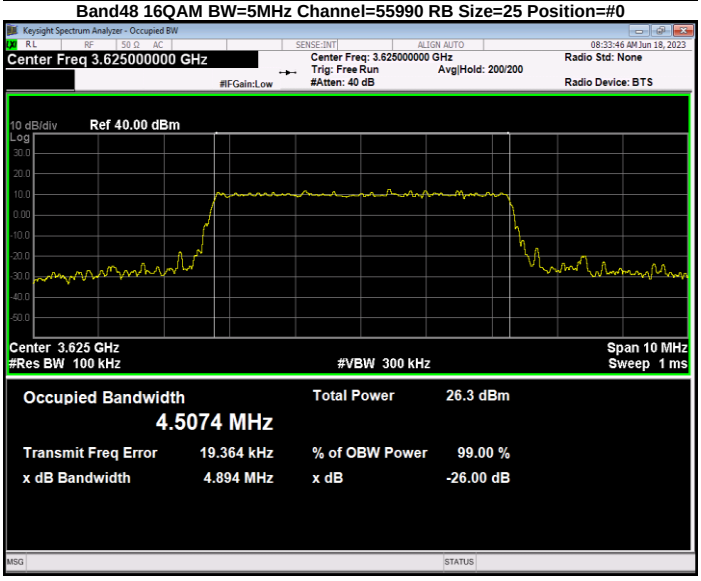
5.1.4 MEASUREMENT RESULT

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)	Verdict
Band48	5	55990	25	#0	QPSK	4.502	4.862	PASS
Band48	5	55990	25	#0	16QAM	4.507	4.894	PASS
Band48	10	55990	50	#0	QPSK	9.012	9.592	PASS
Band48	10	55990	50	#0	16QAM	8.990	9.518	PASS
Band48	15	55990	75	#0	QPSK	13.478	16.259	PASS
Band48	15	55990	75	#0	16QAM	13.425	15.266	PASS
Band48	20	55990	100	#0	QPSK	17.927	19.310	PASS
Band48	20	55990	100	#0	16QAM	17.899	19.231	PASS

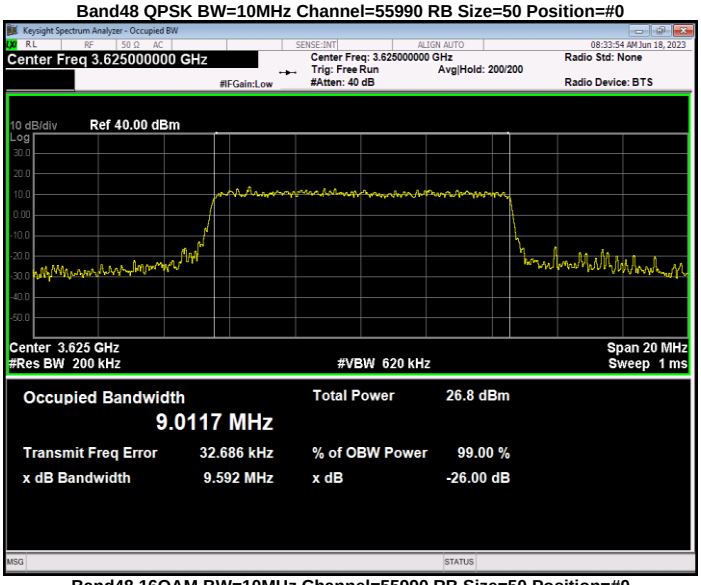
Band48 QPSK BW=5MHz Channel=55990 RB Size=25 Position=#0



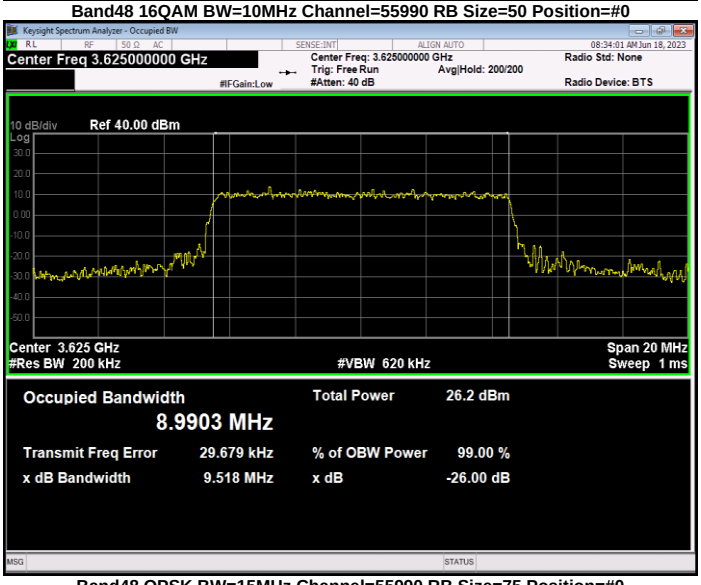
Band48 16QAM BW=5MHz Channel=55990 RB Size=25 Position=#0



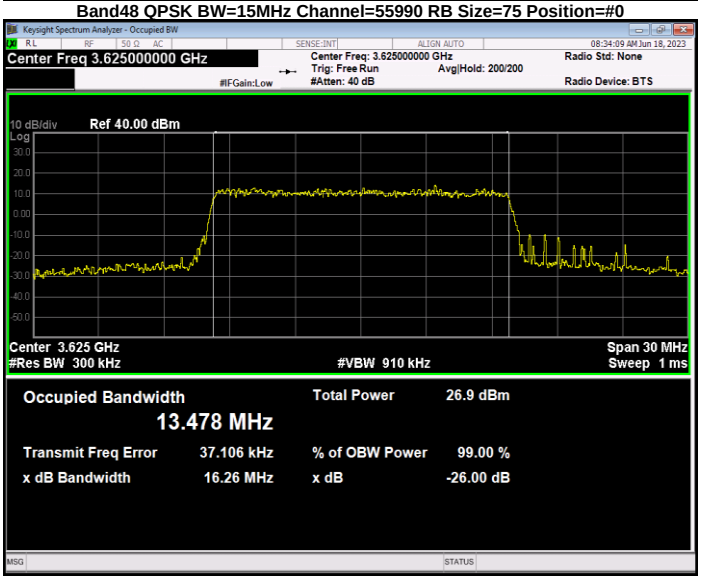
Band48 QPSK BW=10MHz Channel=55990 RB Size=50 Position=#0



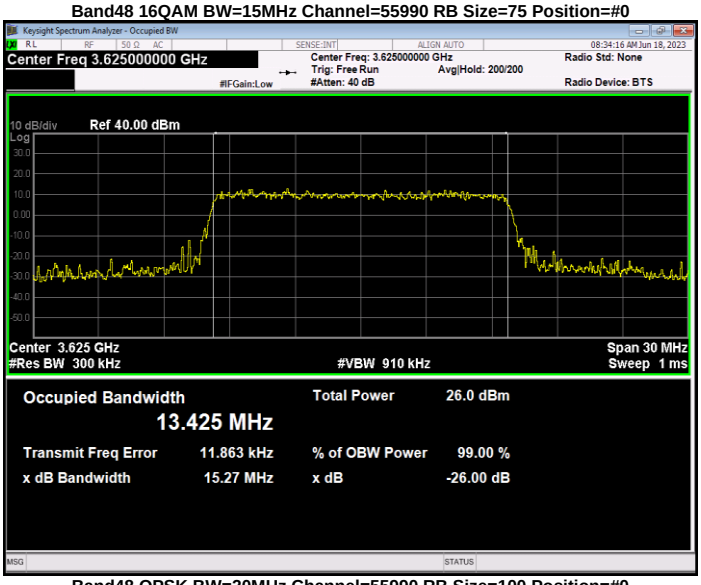
Band48 16QAM BW=10MHz Channel=55990 RB Size=50 Position=#0



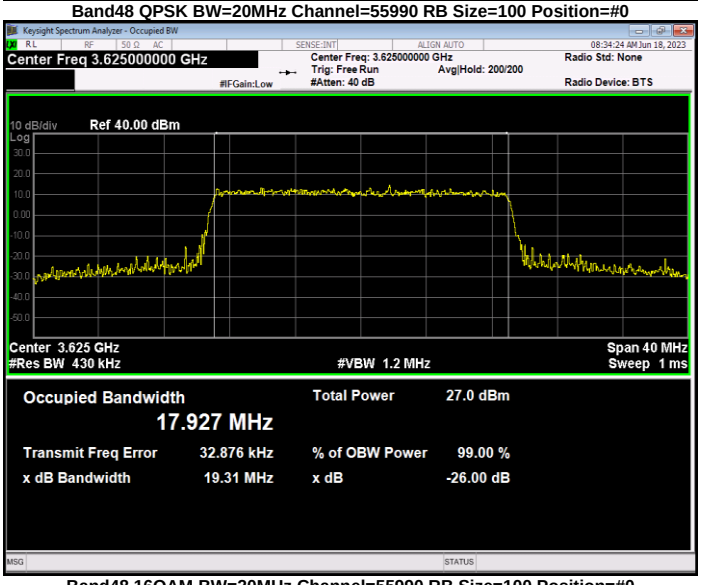
Band48 QPSK BW=15MHz Channel=55990 RB Size=75 Position=#0



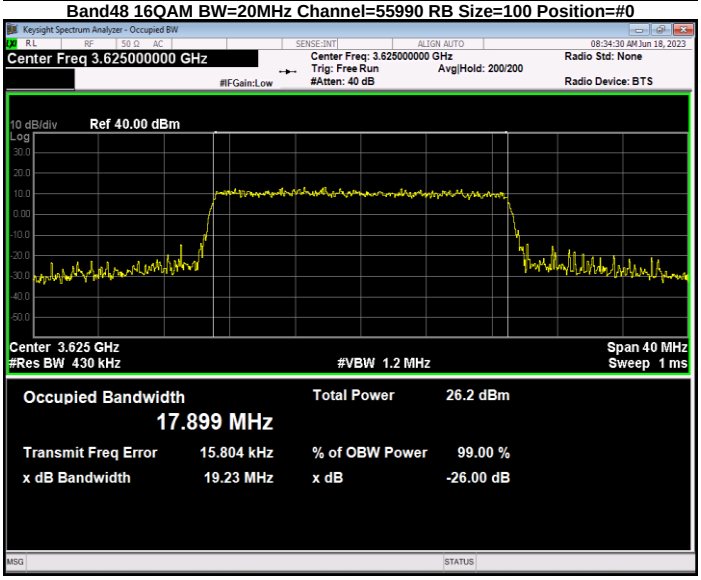
Band48 16QAM BW=15MHz Channel=55990 RB Size=75 Position=#0



Band48 QPSK BW=20MHz Channel=55990 RB Size=100 Position=#0



Band48 16QAM BW=20MHz Channel=55990 RB Size=100 Position=#0



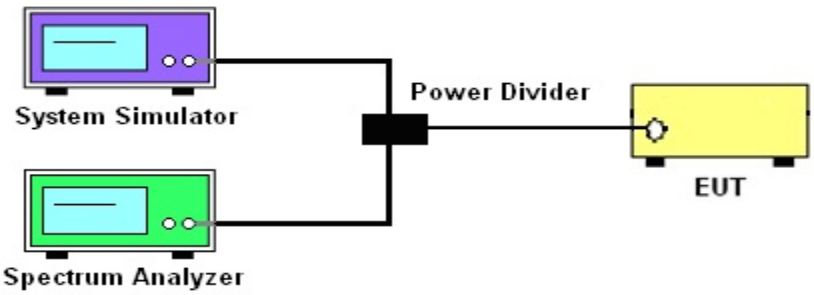
6. CONDUCTED SPURIOUS EMISSION

6.1 DESCRIPTION OF CONDUCTED SPURIOUS EMISSION MEASUREMENT

6.1.1 MEASUREMENT METHOD

The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

6.1.2 TEST SETUP



6.1.3 TEST PROCEDURES

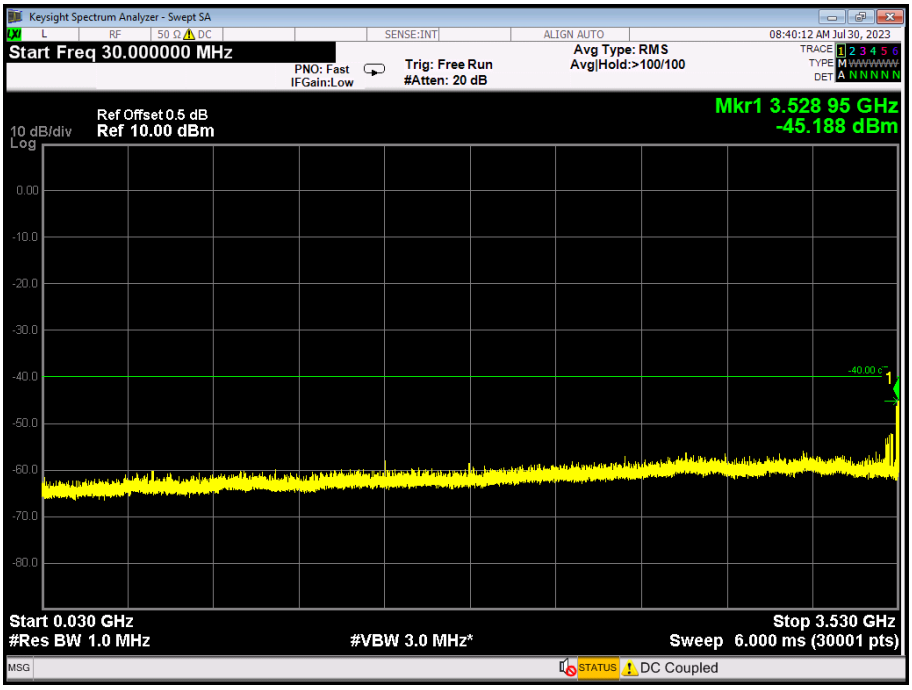
1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26 2015 Section 5.7.

2. The EUT was connected to spectrum analyzer and system simulator via a power divider.

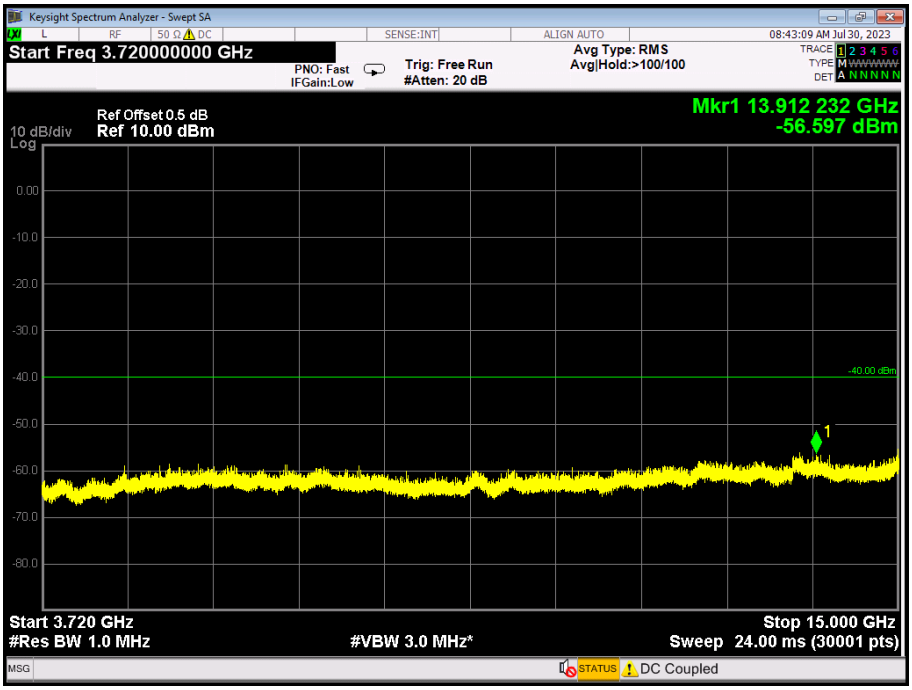
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement
4. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
5. The RF fundamental frequency should be excluded against the limit line in the operating frquency band.

6.1.4 TEST RESULTS

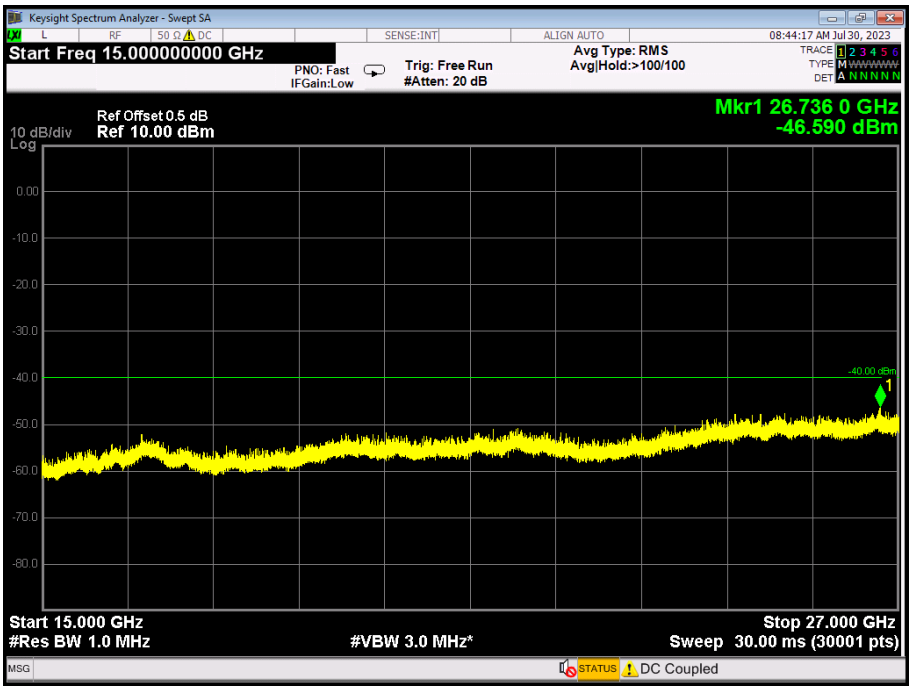
Remark: In frequency ranges above 27GHz no any other harmonic emissions detected which are tested to compliance with the limit. No recording in the test report. No any other emissions level which are attenuated less than 20dB below the limit. No recording in the test report.



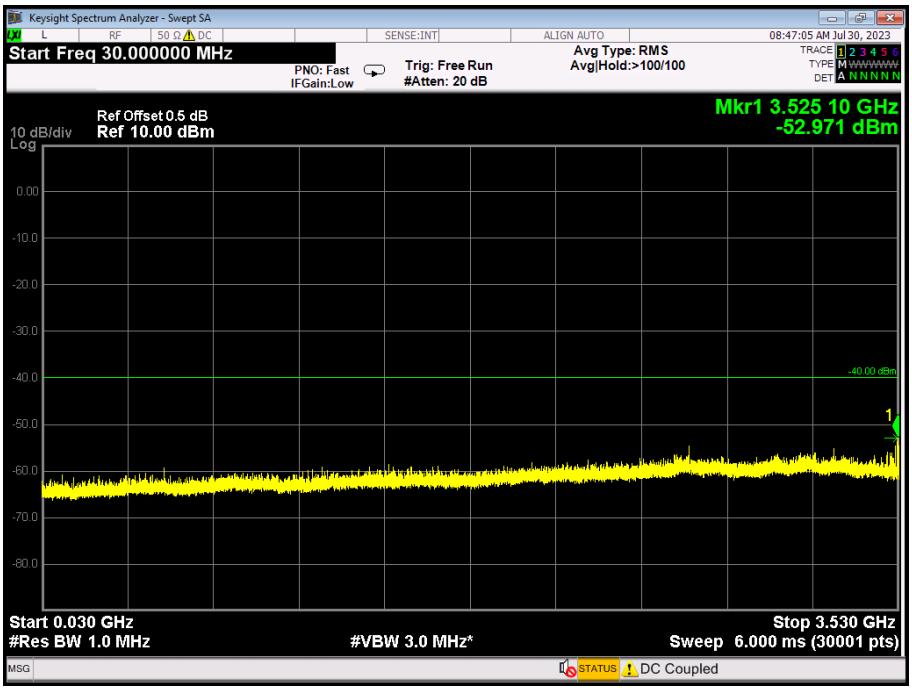
Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



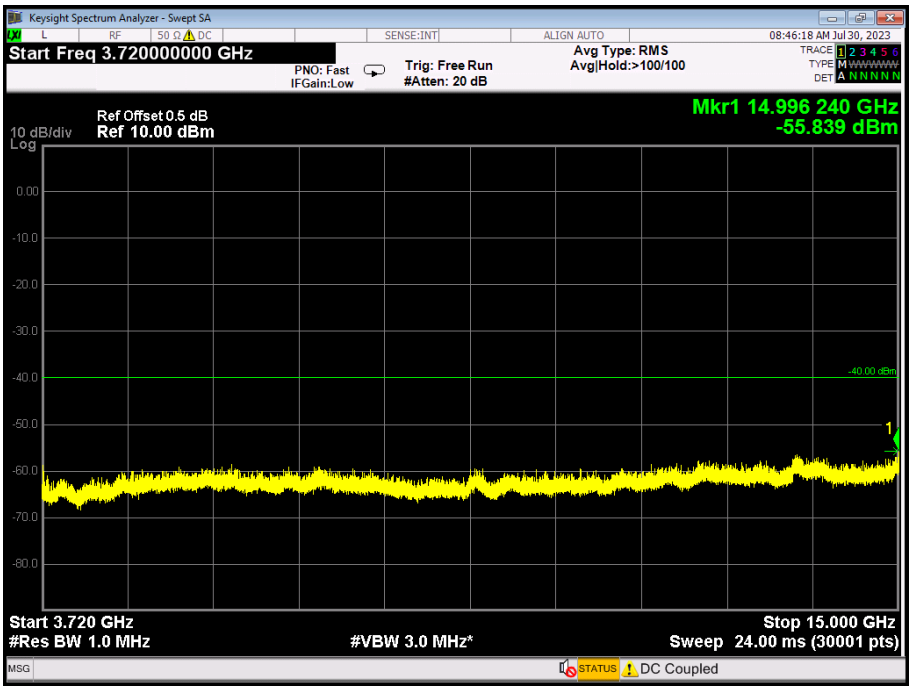
Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



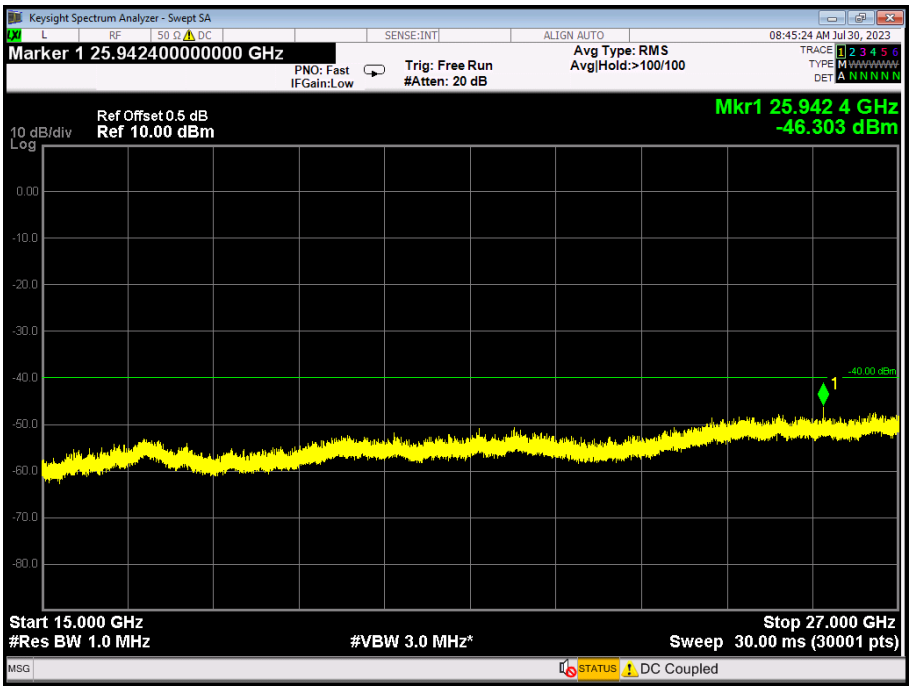
Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



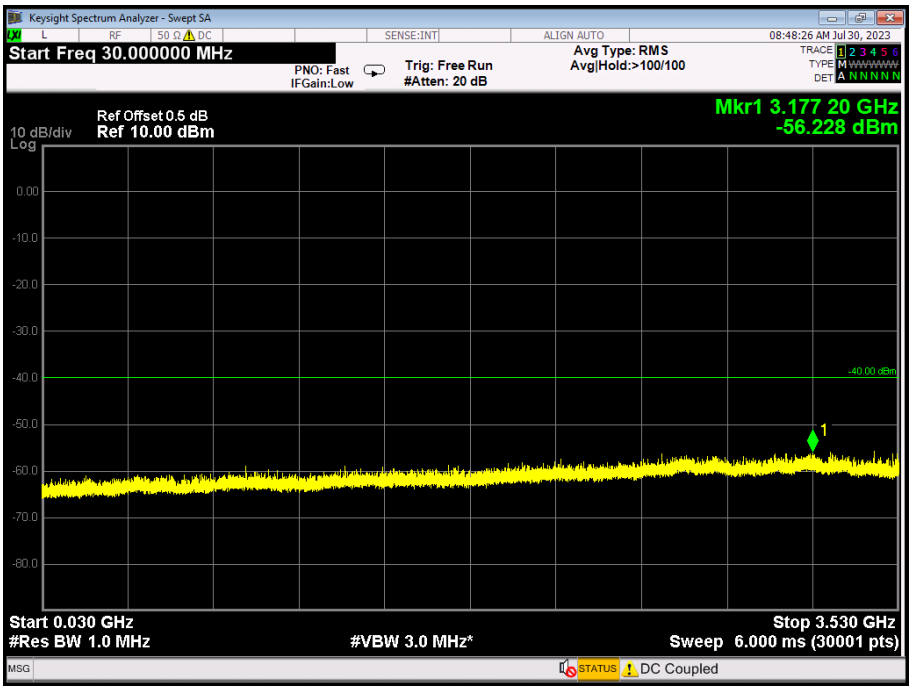
Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



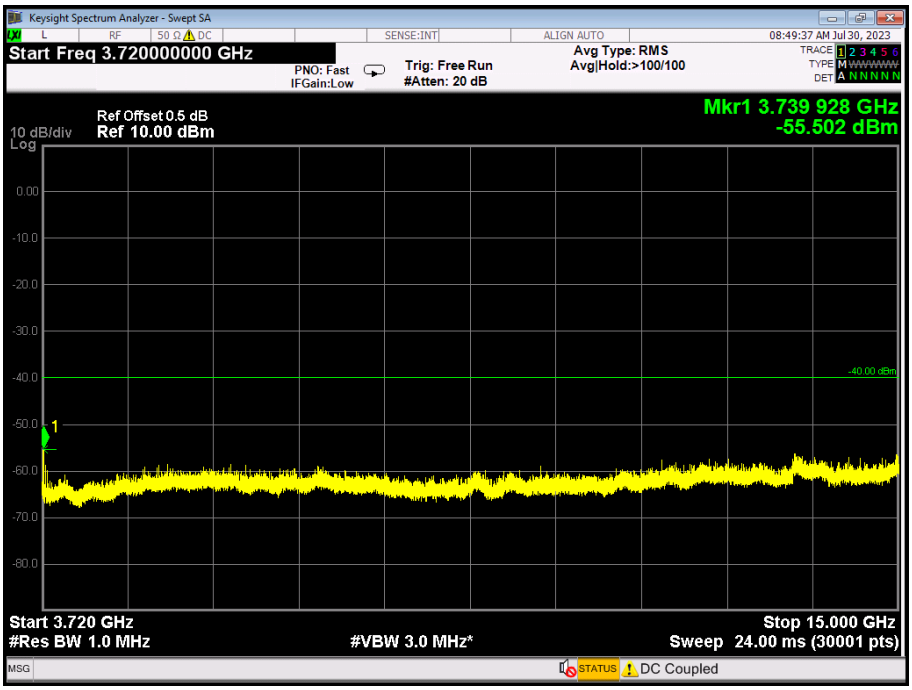
Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



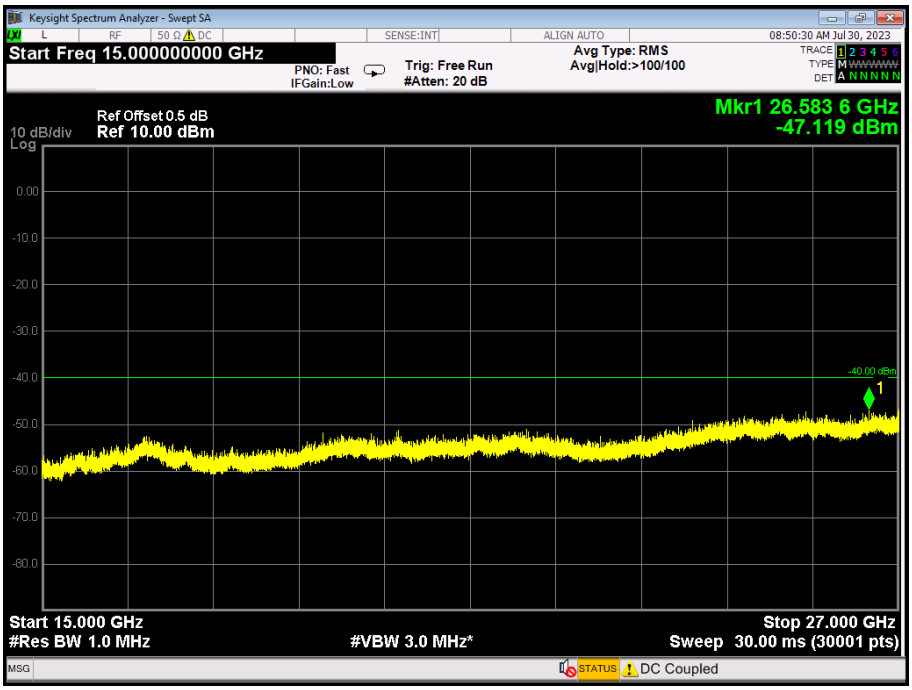
Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Conducted Spurious Plot (Band 48 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

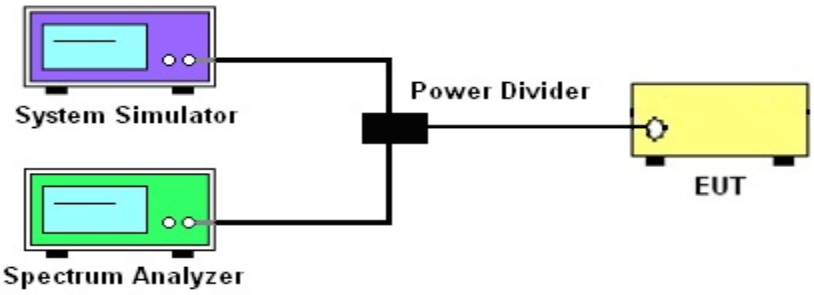
7. CONDUCTED BAND EDGE

7.1 DESCRIPTION OF CONDUCTED BAND EDGE MEASUREMENT

7.1.1 MEASUREMENT METHOD

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.
The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed −25 dBm/MHz.
The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/Mhz.

7.1.2 TEST SETUP



7.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26 2015 Section 5.7.

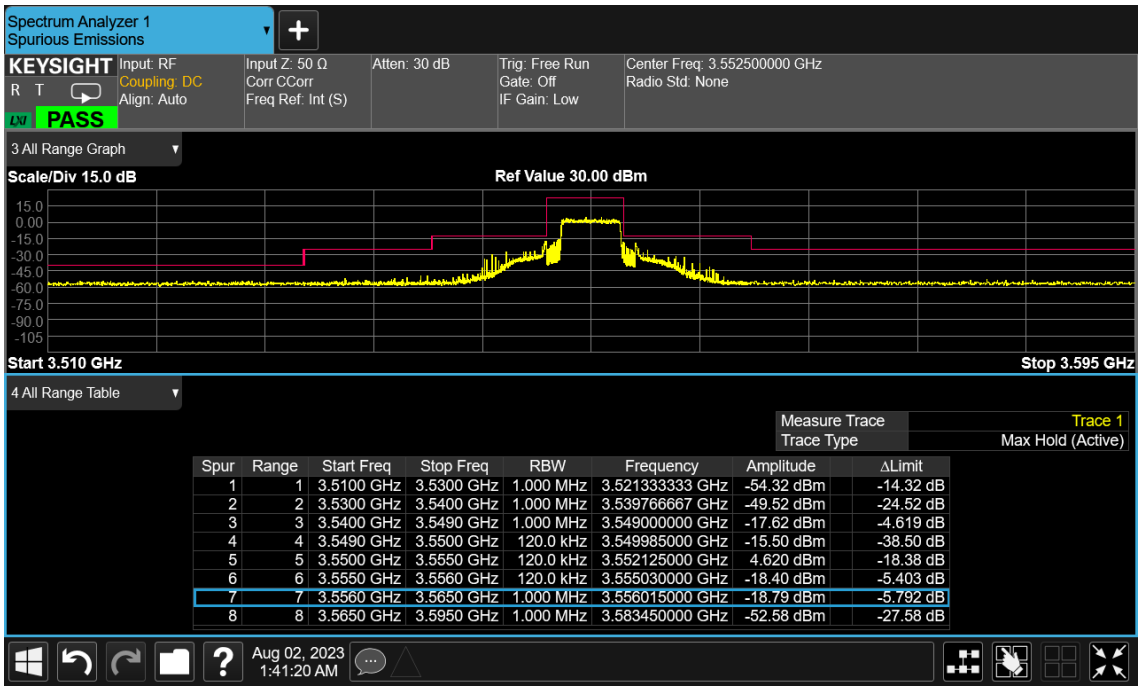
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.

3. The band edges of low and high channels for the highest RF powers were measured. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.

4. Set spectrum analyzer with RMS/AVG detector.

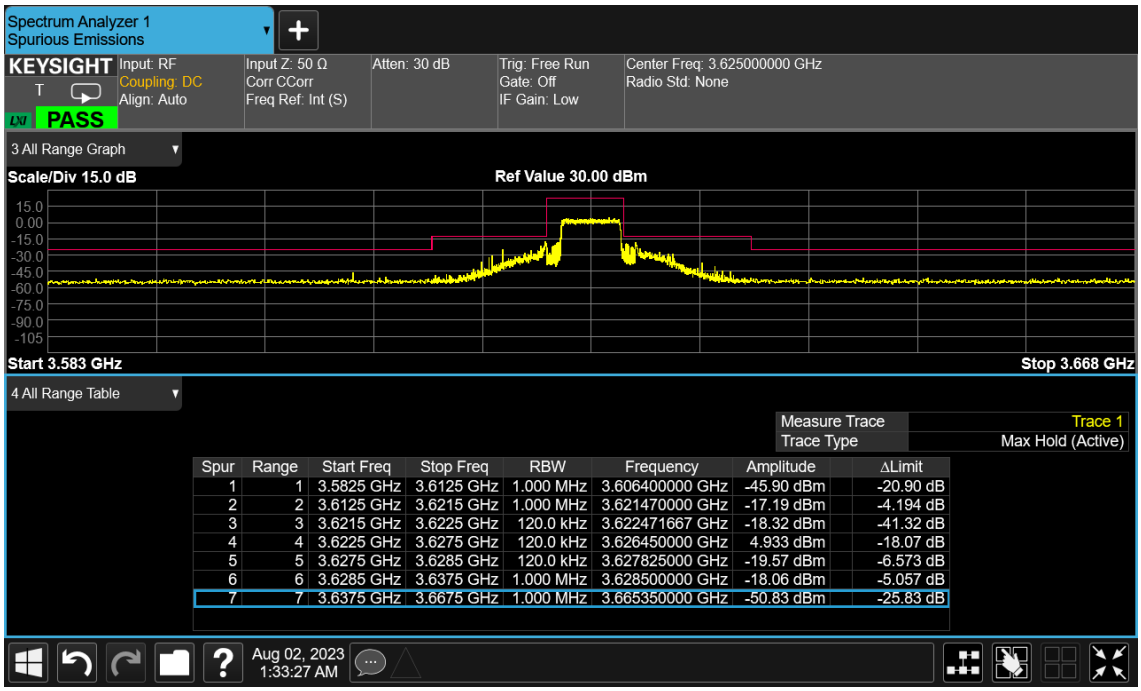
5. The RF fundamental frequency should be excluded against the limit line in the operating frquency band.

7.1.4 MEASUREMENT RESULT



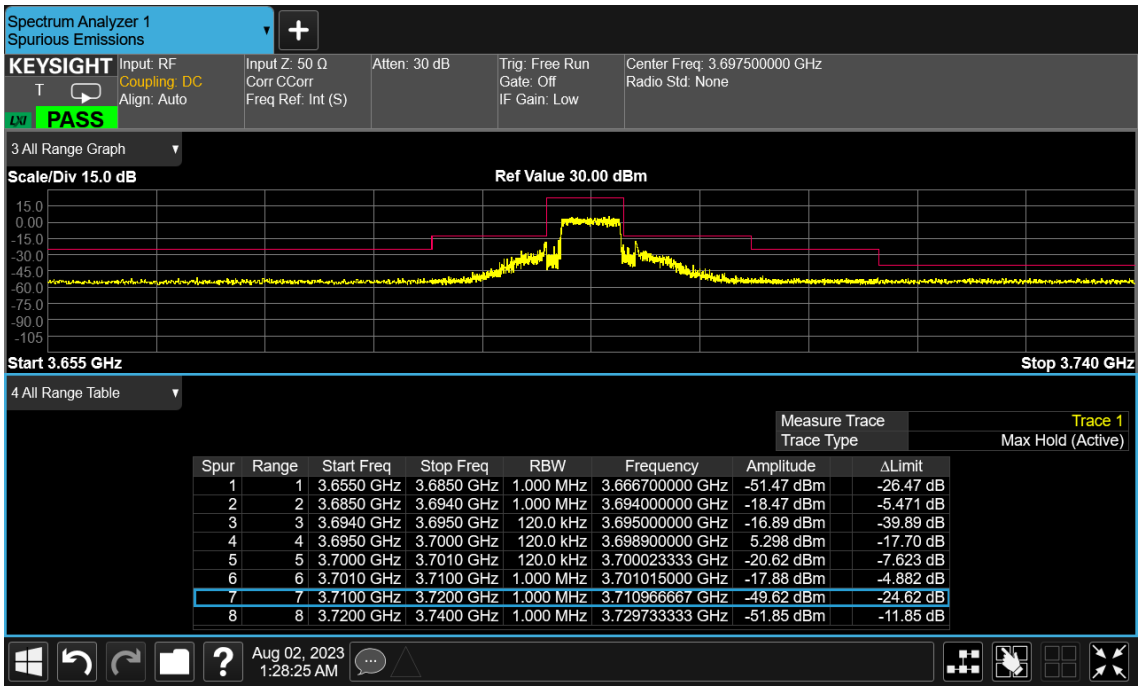
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5100 GHz	3.5300 GHz	1.000 MHz	3.521333333 GHz	-54.32 dBm	-14.32 dB
2	2	3.5300 GHz	3.5400 GHz	1.000 MHz	3.539766667 GHz	-49.52 dBm	-24.52 dB
3	3	3.5400 GHz	3.5490 GHz	1.000 MHz	3.549000000 GHz	-17.62 dBm	-4.619 dB
4	4	3.5490 GHz	3.5500 GHz	120.0 kHz	3.549985000 GHz	-15.50 dBm	-38.50 dB
5	5	3.5500 GHz	3.5550 GHz	120.0 kHz	3.552125000 GHz	4.620 dBm	-18.38 dB
6	6	3.5550 GHz	3.5560 GHz	120.0 kHz	3.555030000 GHz	-18.40 dBm	-5.403 dB
7	7	3.5560 GHz	3.5650 GHz	1.000 MHz	3.556015000 GHz	-18.79 dBm	-5.792 dB
8	8	3.5650 GHz	3.5950 GHz	1.000 MHz	3.583450000 GHz	-52.58 dBm	-27.58 dB

Low Channel Edge Plot (Band 48 - 5.0MHz QPSK - Full RB Configuration)



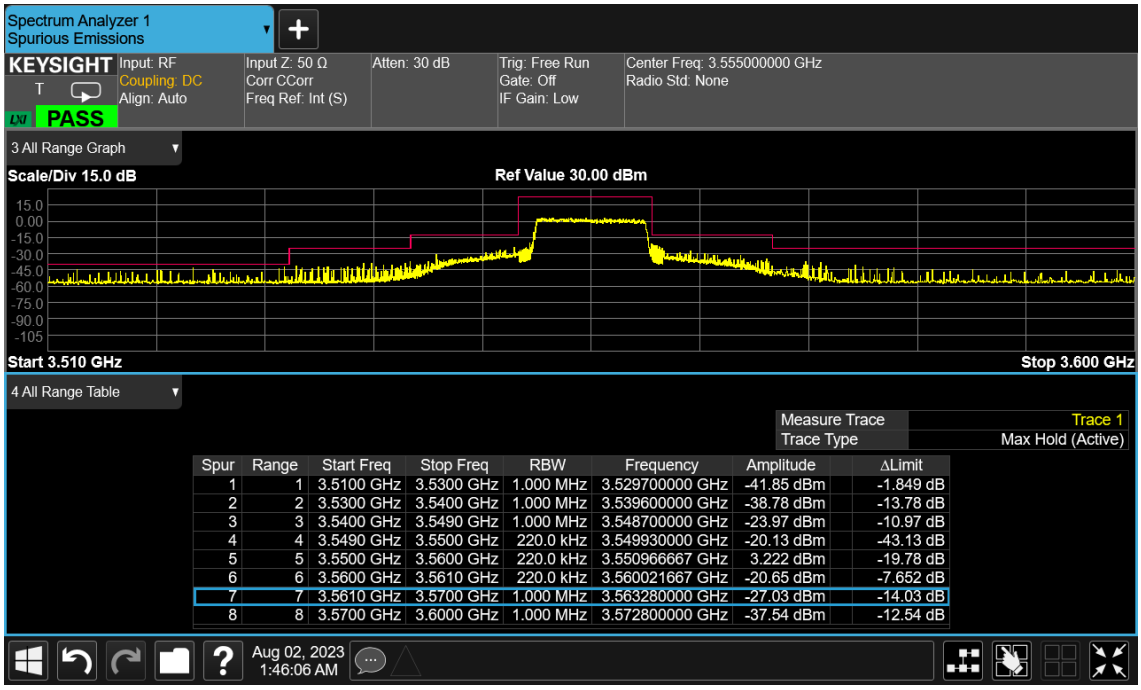
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5825 GHz	3.6125 GHz	1.000 MHz	3.606400000 GHz	-45.90 dBm	-20.90 dB
2	2	3.6125 GHz	3.6215 GHz	1.000 MHz	3.621470000 GHz	-17.19 dBm	-4.194 dB
3	3	3.6215 GHz	3.6225 GHz	120.0 kHz	3.622471667 GHz	-18.32 dBm	-41.32 dB
4	4	3.6225 GHz	3.6275 GHz	120.0 kHz	3.626450000 GHz	4.933 dBm	-18.07 dB
5	5	3.6275 GHz	3.6285 GHz	120.0 kHz	3.627825000 GHz	-19.57 dBm	-6.573 dB
6	6	3.6285 GHz	3.6375 GHz	1.000 MHz	3.628500000 GHz	-18.06 dBm	-5.057 dB
7	7	3.6375 GHz	3.6675 GHz	1.000 MHz	3.665350000 GHz	-50.83 dBm	-25.83 dB

Mid Channel Edge Plot (Band 48 - 5.0MHz QPSK - Full RB Configuration)



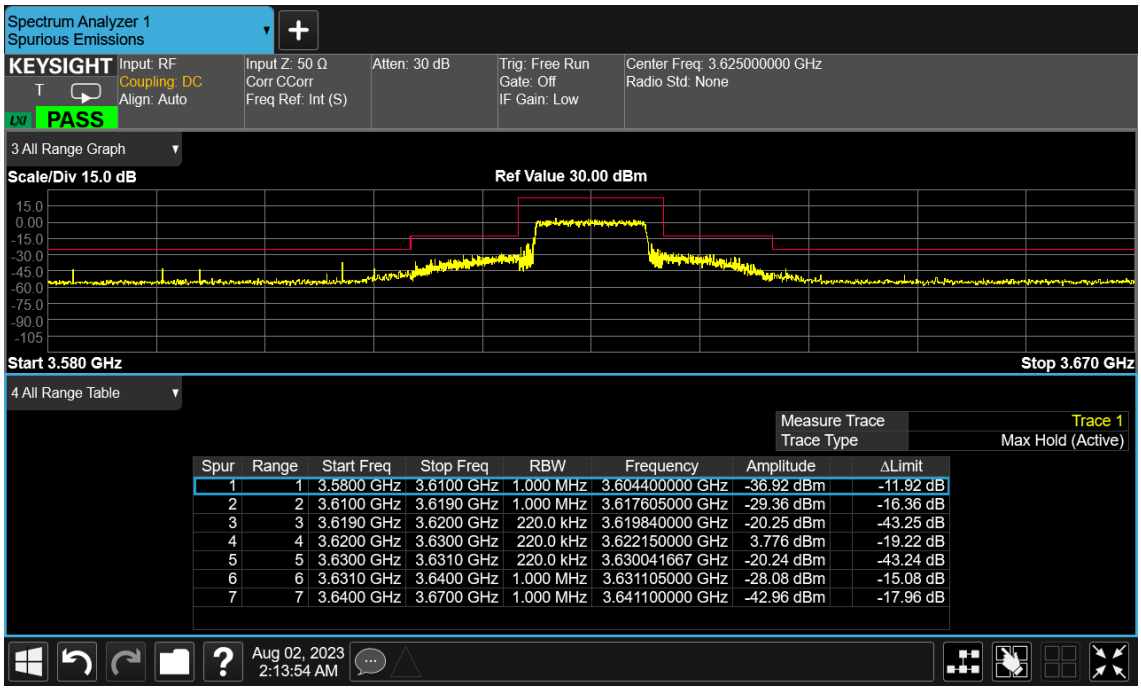
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.6550 GHz	3.6850 GHz	1.000 MHz	3.666700000 GHz	-51.47 dBm	-26.47 dB
2	2	3.6850 GHz	3.6940 GHz	1.000 MHz	3.694000000 GHz	-18.47 dBm	-5.471 dB
3	3	3.6940 GHz	3.6950 GHz	120.0 kHz	3.695000000 GHz	-16.89 dBm	-39.89 dB
4	4	3.6950 GHz	3.7000 GHz	120.0 kHz	3.698900000 GHz	5.298 dBm	-17.70 dB
5	5	3.7000 GHz	3.7010 GHz	120.0 kHz	3.700023333 GHz	-20.62 dBm	-7.623 dB
6	6	3.7010 GHz	3.7100 GHz	1.000 MHz	3.701015000 GHz	-17.88 dBm	-4.882 dB
7	7	3.7100 GHz	3.7200 GHz	1.000 MHz	3.710966667 GHz	-49.62 dBm	-24.62 dB
8	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.729733333 GHz	-51.85 dBm	-11.85 dB

High Channel Edge Plot (Band 48 - 5.0MHz QPSK - Full RB Configuration)



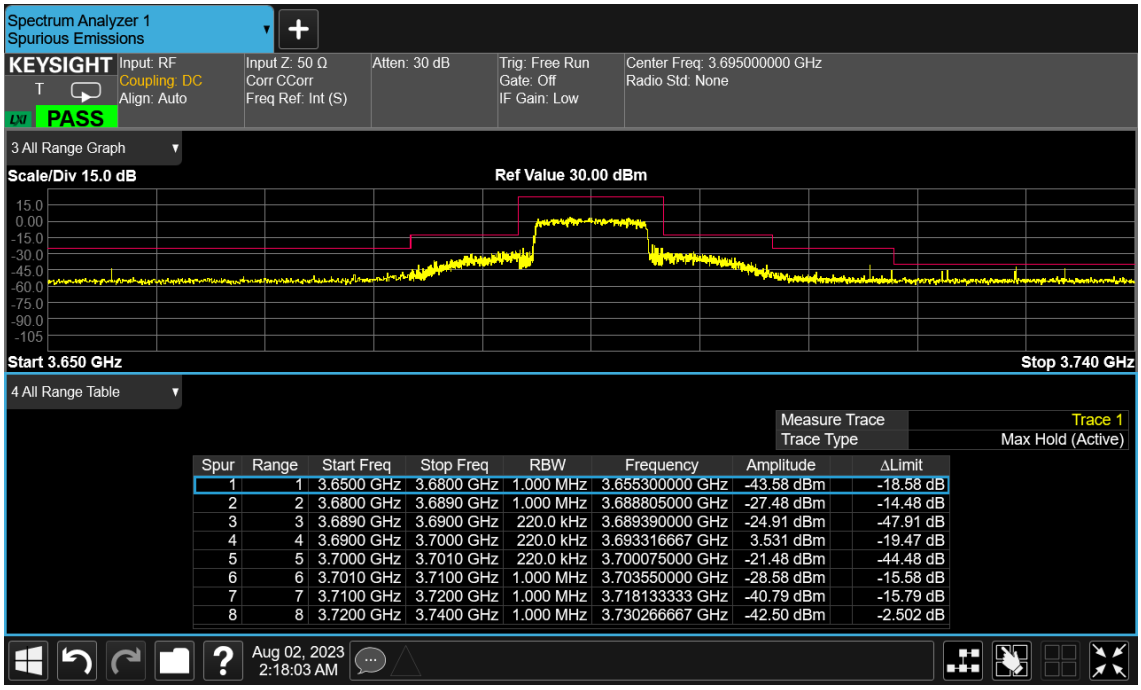
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5100 GHz	3.5300 GHz	1.000 MHz	3.529700000 GHz	-41.85 dBm	-1.849 dB
2	2	3.5300 GHz	3.5400 GHz	1.000 MHz	3.539600000 GHz	-38.78 dBm	-13.78 dB
3	3	3.5400 GHz	3.5490 GHz	1.000 MHz	3.548700000 GHz	-23.97 dBm	-10.97 dB
4	4	3.5490 GHz	3.5500 GHz	220.0 kHz	3.549930000 GHz	-20.13 dBm	-43.13 dB
5	5	3.5500 GHz	3.5600 GHz	220.0 kHz	3.550966667 GHz	3.222 dBm	-19.78 dB
6	6	3.5600 GHz	3.5610 GHz	220.0 kHz	3.560021667 GHz	-20.65 dBm	-7.652 dB
7	7	3.5610 GHz	3.5700 GHz	1.000 MHz	3.563280000 GHz	-27.03 dBm	-14.03 dB
8	8	3.5700 GHz	3.6000 GHz	1.000 MHz	3.572800000 GHz	-37.54 dBm	-12.54 dB

Low Channel Edge Plot (Band 48 - 10MHz QPSK - Full RB Configuration)



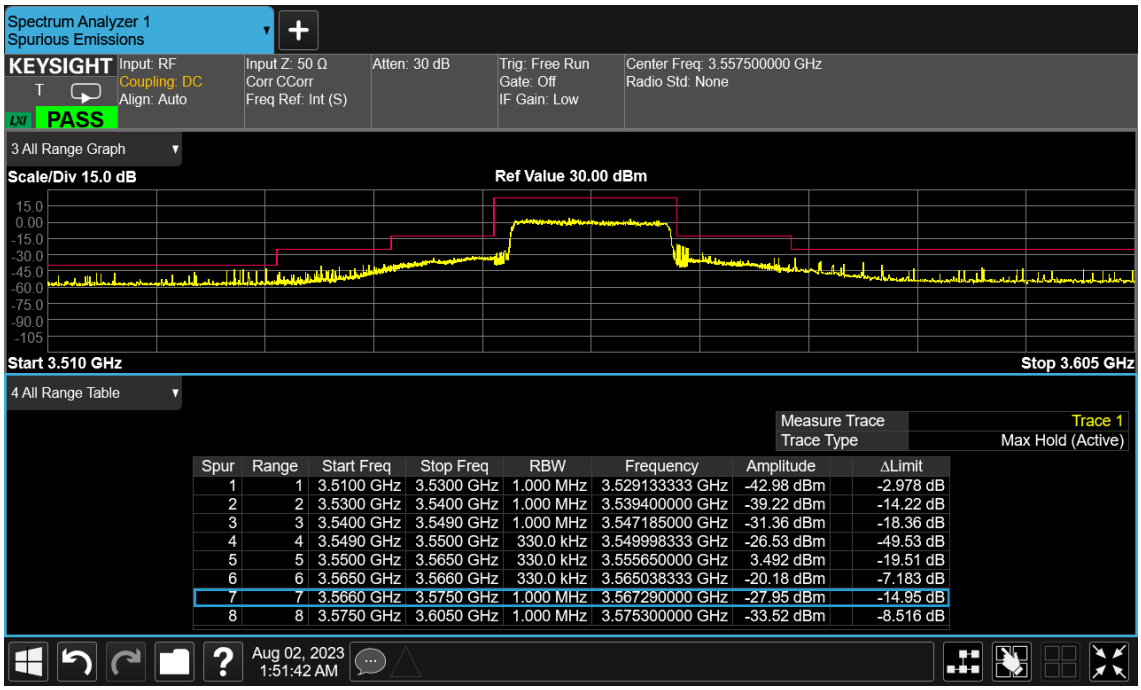
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5800 GHz	3.6100 GHz	1.000 MHz	3.604400000 GHz	-36.92 dBm	-11.92 dB
2	2	3.6100 GHz	3.6190 GHz	1.000 MHz	3.617605000 GHz	-29.36 dBm	-16.36 dB
3	3	3.6190 GHz	3.6200 GHz	220.0 kHz	3.619840000 GHz	-20.25 dBm	-43.25 dB
4	4	3.6200 GHz	3.6300 GHz	220.0 kHz	3.622150000 GHz	3.776 dBm	-19.22 dB
5	5	3.6300 GHz	3.6310 GHz	220.0 kHz	3.630041667 GHz	-20.24 dBm	-43.24 dB
6	6	3.6310 GHz	3.6400 GHz	1.000 MHz	3.631105000 GHz	-28.08 dBm	-15.08 dB
7	7	3.6400 GHz	3.6700 GHz	1.000 MHz	3.641100000 GHz	-42.96 dBm	-17.96 dB

Mid Channel Edge Plot (Band 48 - 10MHz QPSK - Full RB Configuration)



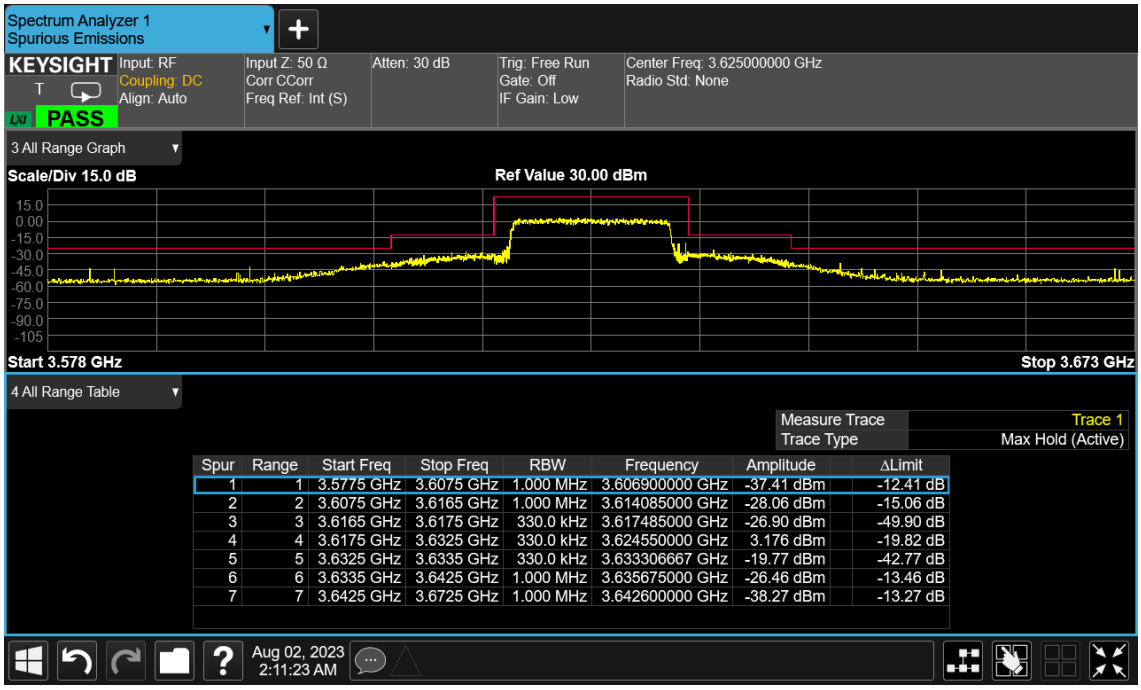
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.6500 GHz	3.6800 GHz	1.000 MHz	3.655300000 GHz	-43.58 dBm	-18.58 dB
2	2	3.6800 GHz	3.6890 GHz	1.000 MHz	3.688805000 GHz	-27.48 dBm	-14.48 dB
3	3	3.6890 GHz	3.6900 GHz	220.0 kHz	3.689390000 GHz	-24.91 dBm	-47.91 dB
4	4	3.6900 GHz	3.7000 GHz	220.0 kHz	3.693316667 GHz	3.531 dBm	-19.47 dB
5	5	3.7000 GHz	3.7010 GHz	220.0 kHz	3.700075000 GHz	-21.48 dBm	-44.48 dB
6	6	3.7010 GHz	3.7100 GHz	1.000 MHz	3.703550000 GHz	-28.58 dBm	-15.58 dB
7	7	3.7100 GHz	3.7200 GHz	1.000 MHz	3.718133333 GHz	-40.79 dBm	-15.79 dB
8	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.730266667 GHz	-42.50 dBm	-2.502 dB

High Channel Edge Plot (Band 48 - 10MHz QPSK - Full RB Configuration)



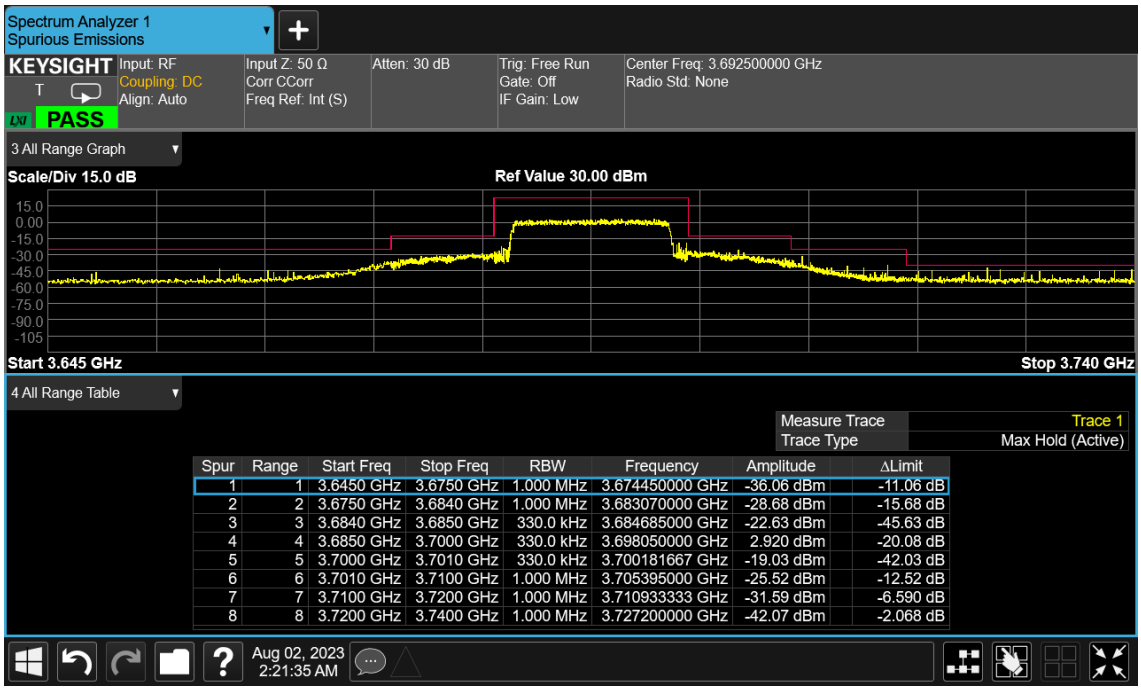
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5100 GHz	3.5300 GHz	1.000 MHz	3.529133333 GHz	-42.98 dBm	-2.978 dB
2	2	3.5300 GHz	3.5400 GHz	1.000 MHz	3.539400000 GHz	-39.22 dBm	-14.22 dB
3	3	3.5400 GHz	3.5490 GHz	1.000 MHz	3.547185000 GHz	-31.36 dBm	-18.36 dB
4	4	3.5490 GHz	3.5500 GHz	330.0 kHz	3.549998333 GHz	-26.53 dBm	-49.53 dB
5	5	3.5500 GHz	3.5650 GHz	330.0 kHz	3.555650000 GHz	3.492 dBm	-19.51 dB
6	6	3.5650 GHz	3.5660 GHz	330.0 kHz	3.565038333 GHz	-20.18 dBm	-7.183 dB
7	7	3.5660 GHz	3.5750 GHz	1.000 MHz	3.567290000 GHz	-27.95 dBm	-14.95 dB
8	8	3.5750 GHz	3.6050 GHz	1.000 MHz	3.575300000 GHz	-33.52 dBm	-8.516 dB

Low Channel Edge Plot (Band 48 - 15MHz QPSK - Full RB Configuration)



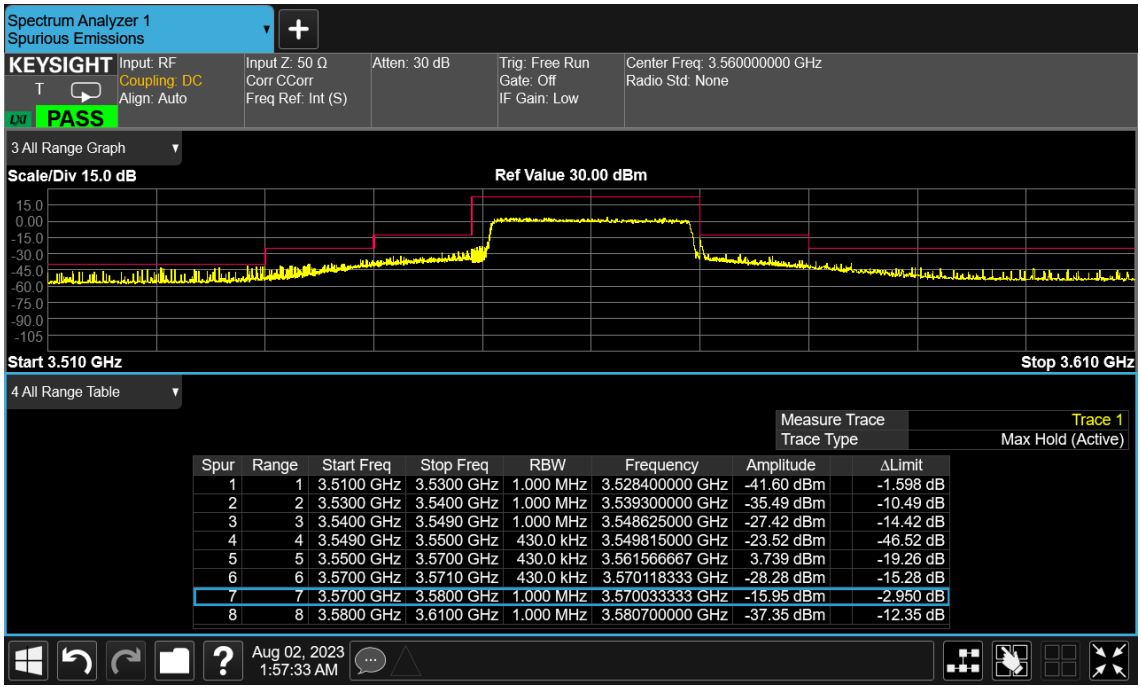
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5775 GHz	3.6075 GHz	1.000 MHz	3.606900000 GHz	-37.41 dBm	-12.41 dB
2	2	3.6075 GHz	3.6165 GHz	1.000 MHz	3.614085000 GHz	-28.06 dBm	-15.06 dB
3	3	3.6165 GHz	3.6175 GHz	330.0 kHz	3.617485000 GHz	-26.90 dBm	-49.90 dB
4	4	3.6175 GHz	3.6325 GHz	330.0 kHz	3.624550000 GHz	3.176 dBm	-19.82 dB
5	5	3.6325 GHz	3.6335 GHz	330.0 kHz	3.633306667 GHz	-19.77 dBm	-42.77 dB
6	6	3.6335 GHz	3.6425 GHz	1.000 MHz	3.635675000 GHz	-26.46 dBm	-13.46 dB
7	7	3.6425 GHz	3.6725 GHz	1.000 MHz	3.642600000 GHz	-38.27 dBm	-13.27 dB

Mid Channel Edge Plot (Band 48 - 15MHz QPSK - Full RB Configuration)



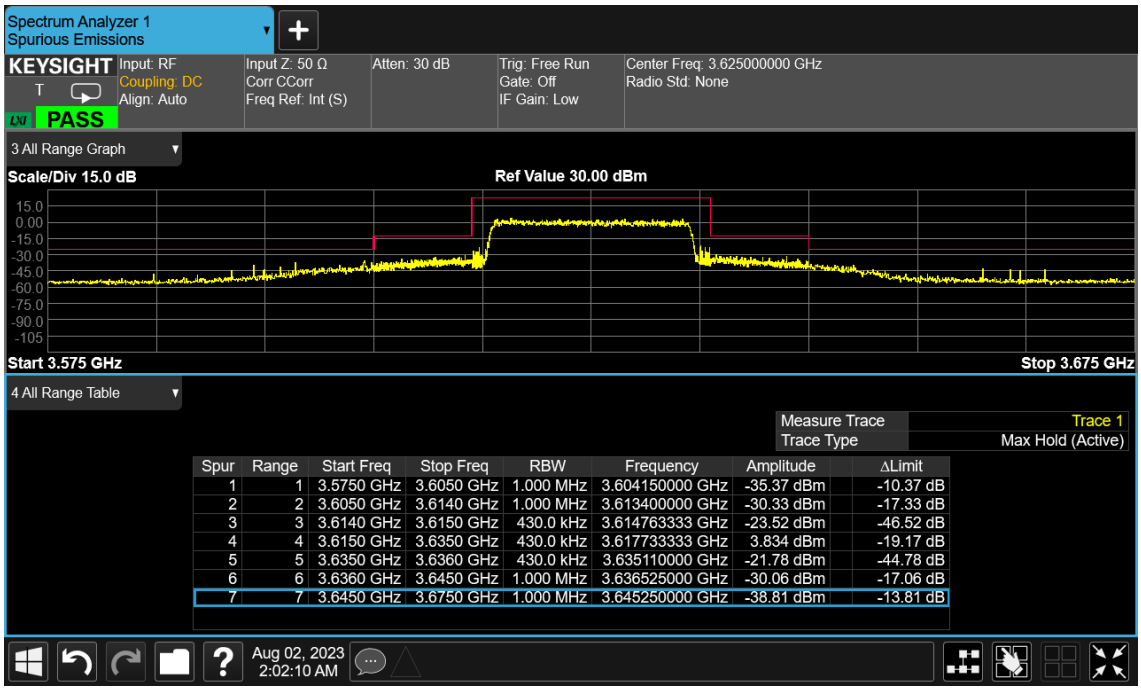
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.6450 GHz	3.6750 GHz	1.000 MHz	3.674450000 GHz	-36.06 dBm	-11.06 dB
2	2	3.6750 GHz	3.6840 GHz	1.000 MHz	3.683070000 GHz	-28.68 dBm	-15.68 dB
3	3	3.6840 GHz	3.6850 GHz	330.0 kHz	3.684685000 GHz	-22.63 dBm	-45.63 dB
4	4	3.6850 GHz	3.7000 GHz	330.0 kHz	3.698050000 GHz	2.920 dBm	-20.08 dB
5	5	3.7000 GHz	3.7010 GHz	330.0 kHz	3.700181667 GHz	-19.03 dBm	-42.03 dB
6	6	3.7010 GHz	3.7100 GHz	1.000 MHz	3.705395000 GHz	-25.52 dBm	-12.52 dB
7	7	3.7100 GHz	3.7200 GHz	1.000 MHz	3.710933333 GHz	-31.59 dBm	-6.590 dB
8	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.727200000 GHz	-42.07 dBm	-2.068 dB

High Channel Edge Plot (Band 48 - 15MHz QPSK - Full RB Configuration)



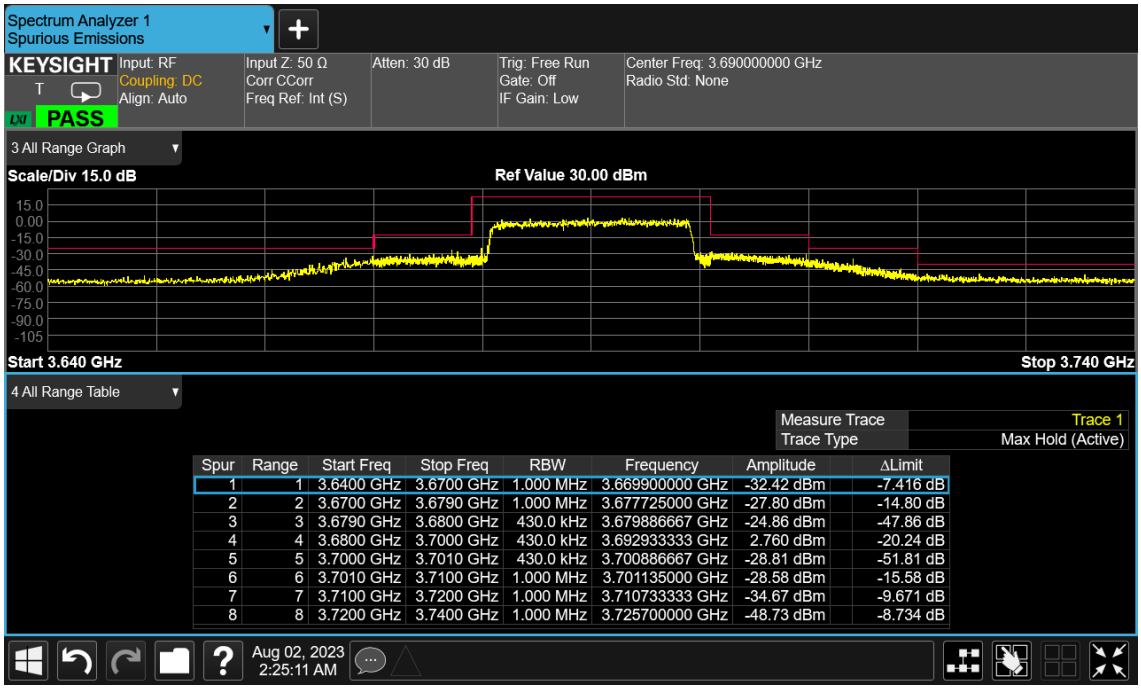
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5100 GHz	3.5300 GHz	1.000 MHz	3.528400000 GHz	-41.60 dBm	-1.598 dB
2	2	3.5300 GHz	3.5400 GHz	1.000 MHz	3.539300000 GHz	-35.49 dBm	-10.49 dB
3	3	3.5400 GHz	3.5490 GHz	1.000 MHz	3.548625000 GHz	-27.42 dBm	-14.42 dB
4	4	3.5490 GHz	3.5500 GHz	430.0 kHz	3.549815000 GHz	-23.52 dBm	-46.52 dB
5	5	3.5500 GHz	3.5700 GHz	430.0 kHz	3.561566667 GHz	3.739 dBm	-19.26 dB
6	6	3.5700 GHz	3.5710 GHz	430.0 kHz	3.570118333 GHz	-28.28 dBm	-15.28 dB
7	7	3.5700 GHz	3.5800 GHz	1.000 MHz	3.570033333 GHz	-15.95 dBm	-2.950 dB
8	8	3.5800 GHz	3.6100 GHz	1.000 MHz	3.580700000 GHz	-37.35 dBm	-12.35 dB

Low Channel Edge Plot (Band 48 - 20MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.5750 GHz	3.6050 GHz	1.000 MHz	3.604150000 GHz	-35.37 dBm	-10.37 dB
2	2	3.6050 GHz	3.6140 GHz	1.000 MHz	3.613400000 GHz	-30.33 dBm	-17.33 dB
3	3	3.6140 GHz	3.6150 GHz	430.0 kHz	3.614763333 GHz	-23.52 dBm	-46.52 dB
4	4	3.6150 GHz	3.6350 GHz	430.0 kHz	3.617733333 GHz	3.834 dBm	-19.17 dB
5	5	3.6350 GHz	3.6360 GHz	430.0 kHz	3.635110000 GHz	-21.78 dBm	-44.78 dB
6	6	3.6360 GHz	3.6450 GHz	1.000 MHz	3.636525000 GHz	-30.06 dBm	-17.06 dB
7	7	3.6450 GHz	3.6750 GHz	1.000 MHz	3.645250000 GHz	-38.81 dBm	-13.81 dB

Mid Channel Edge Plot (Band 48 - 20MHz QPSK - Full RB Configuration)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
1	1	3.6400 GHz	3.6700 GHz	1.000 MHz	3.669900000 GHz	-32.42 dBm	-7.416 dB
2	2	3.6700 GHz	3.6790 GHz	1.000 MHz	3.677725000 GHz	-27.80 dBm	-14.80 dB
3	3	3.6790 GHz	3.6800 GHz	430.0 kHz	3.679886667 GHz	-24.86 dBm	-47.86 dB
4	4	3.6800 GHz	3.7000 GHz	430.0 kHz	3.692933333 GHz	2.760 dBm	-20.24 dB
5	5	3.7000 GHz	3.7010 GHz	430.0 kHz	3.700886667 GHz	-28.81 dBm	-51.81 dB
6	6	3.7010 GHz	3.7100 GHz	1.000 MHz	3.701135000 GHz	-28.58 dBm	-15.58 dB
7	7	3.7100 GHz	3.7200 GHz	1.000 MHz	3.710733333 GHz	-34.67 dBm	-9.671 dB
8	8	3.7200 GHz	3.7400 GHz	1.000 MHz	3.725700000 GHz	-48.73 dBm	-8.734 dB

High Channel Edge Plot (Band 48 - 20MHz QPSK - Full RB Configuration)

8. RADIATED SPURIOUS EMISSION

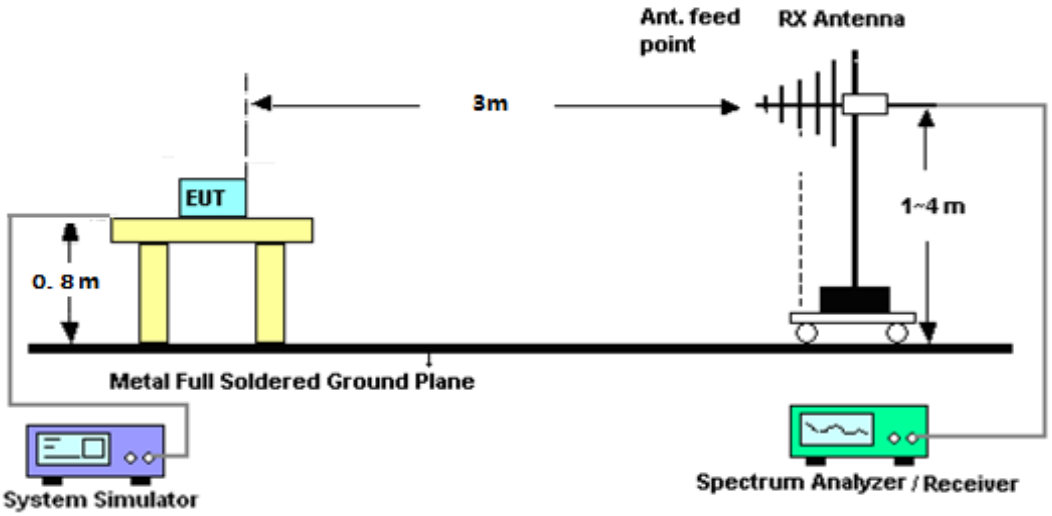
8.1 DESCRIPTION OF RADIATED SPURIOUS EMISSION

8.1.1 MEASUREMENT METHOD

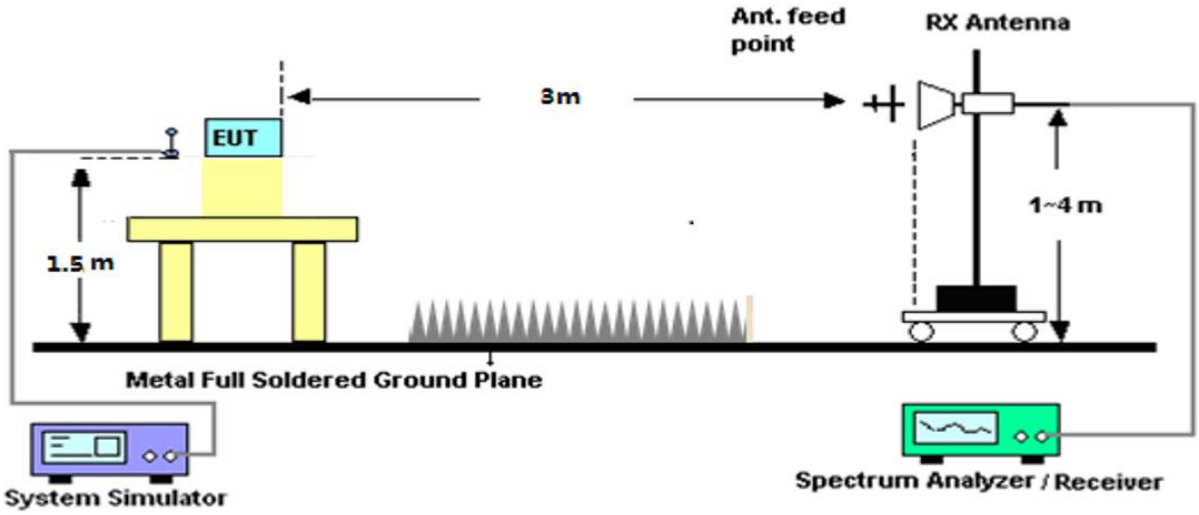
Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

8.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx (dBuV) +CL (dB) +SA (dB) +Gain (dBi) -107 (dBuV to dBm) The SA is calibrated using following setup.
b) EUT was placed on 1.5 m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.
Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl
For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz



8.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 Section 7 and ANSI C63.26 2015 Section 5.5.

2. The EUT was placed on a rotatable wooden table with 1.5 meter above ground.

3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.

4. The table was rotated 360 degrees to determine the position of the highest spurious emission.

5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations

6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.

7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.

8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

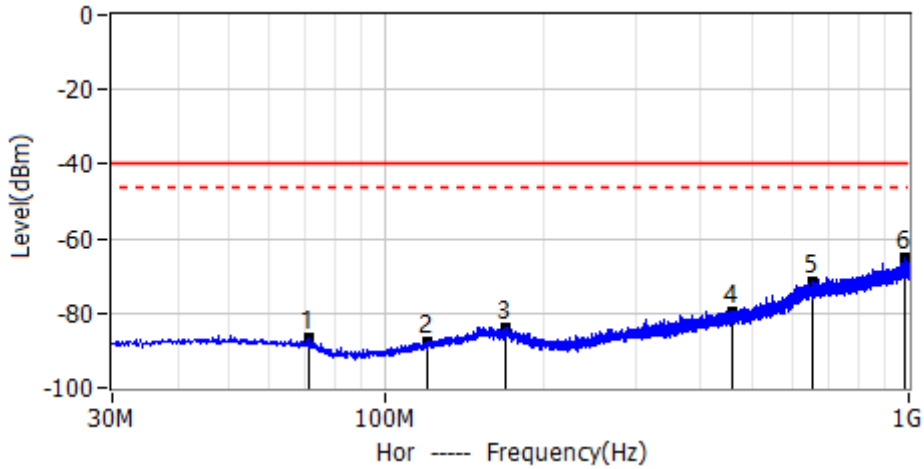
9. Taking the record of output power at antenna port.

10. Repeat step 7 to step 8 for another polarization.

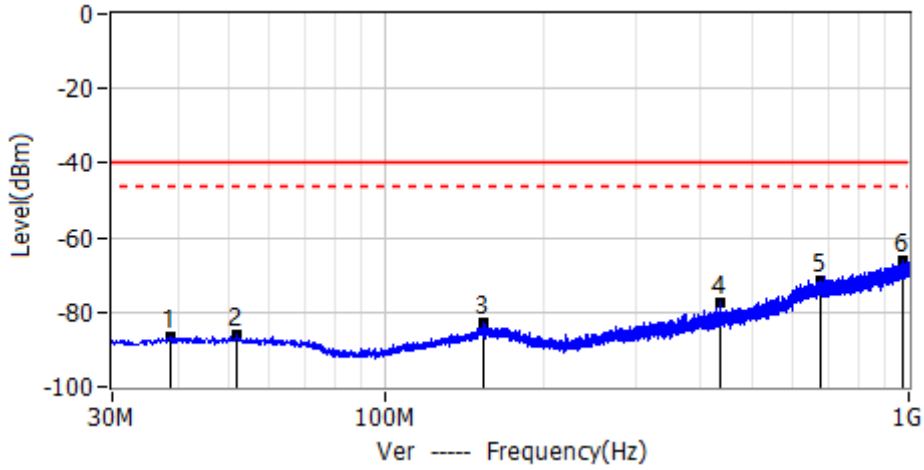
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

8.1.4 TEST RESULTS

Project: LGT23E031	Test Engineer: LiuH
EUT: Duet	Temperature: 23.9℃
M/N: HM-1005	Humidity: 40%RH
Test Voltage: Battery	Test Data: 2023-08-01
Test Mode: LTE Band 48 Lower	
Note:	

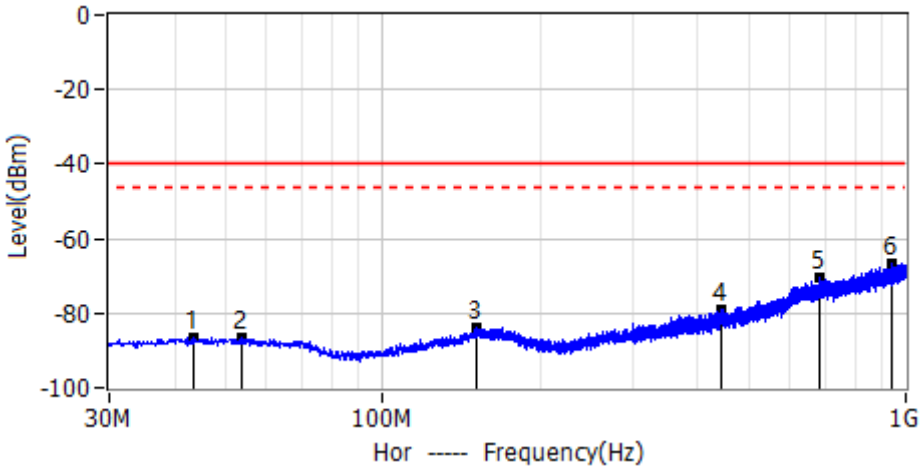


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	70.9825MHz	-86.70	-40.00	-46.70	RMS	Hor
2*	120.3313MHz	-87.90	-40.00	-47.90	RMS	Hor
3*	168.9525MHz	-83.63	-40.00	-43.63	RMS	Hor
4*	460.3163MHz	-79.36	-40.00	-39.36	RMS	Hor
5*	657.1050MHz	-71.44	-40.00	-31.44	RMS	Hor
6*	984.1163MHz	-65.27	-40.00	-25.27	RMS	Hor

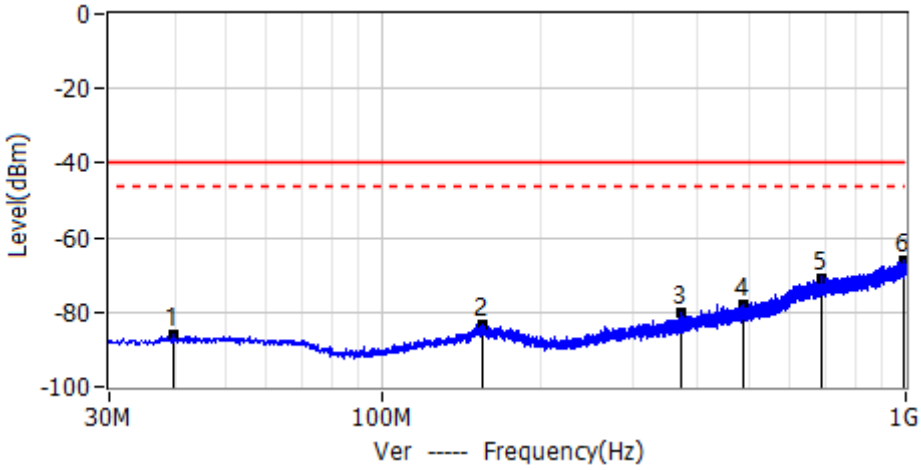


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	38.8513MHz	-86.69	-40.00	-46.69	RMS	Ver
2*	51.8250MHz	-85.98	-40.00	-45.98	RMS	Ver
3*	153.5538MHz	-82.73	-40.00	-42.73	RMS	Ver
4*	437.5213MHz	-77.29	-40.00	-37.29	RMS	Ver
5*	680.0213MHz	-71.58	-40.00	-31.58	RMS	Ver
6*	971.2638MHz	-66.38	-40.00	-26.38	RMS	Ver

Project: LGT23E031	Test Engineer: LiuH
EUT: Duet	Temperature: 23.9℃
M/N: HM-1005	Humidity: 40%RH
Test Voltage: Battery	Test Data: 2023-08-01
Test Mode: LTE Band 48 Middle	
Note:	

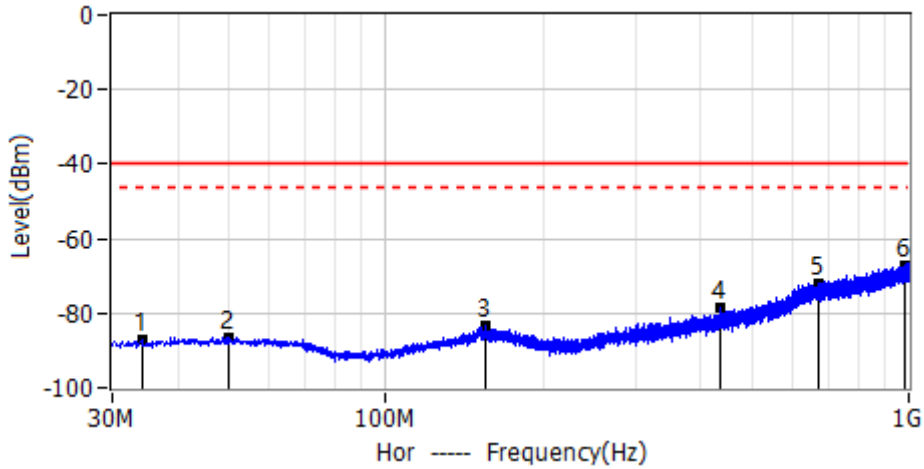


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	43.4588MHz	-86.57	-40.00	-46.57	RMS	Hor
2*	53.6438MHz	-86.60	-40.00	-46.60	RMS	Hor
3*	151.2500MHz	-83.62	-40.00	-43.62	RMS	Hor
4*	444.1900MHz	-79.25	-40.00	-39.25	RMS	Hor
5*	686.8113MHz	-70.49	-40.00	-30.49	RMS	Hor
6*	943.7400MHz	-66.75	-40.00	-26.75	RMS	Hor

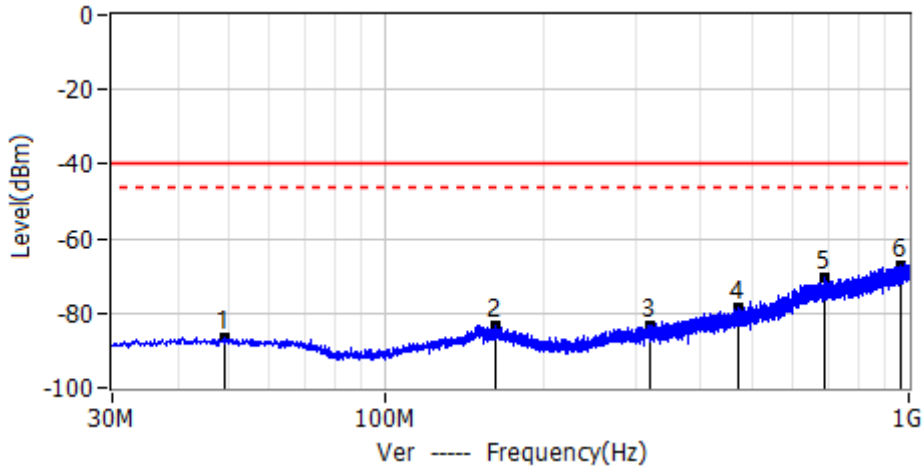


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	39.8213MHz	-86.08	-40.00	-46.08	RMS	Ver
2*	154.7663MHz	-83.37	-40.00	-43.37	RMS	Ver
3*	371.9250MHz	-80.35	-40.00	-40.35	RMS	Ver
4*	489.1738MHz	-78.17	-40.00	-38.17	RMS	Ver
5*	687.5388MHz	-70.70	-40.00	-30.70	RMS	Ver
6*	992.2400MHz	-66.27	-40.00	-26.27	RMS	Ver

Project: LGT23E031	Test Engineer: LiuH
EUT: Duet	Temperature: 23.9℃
M/N: HM-1005	Humidity: 40%RH
Test Voltage: Battery	Test Data: 2023-08-01
Test Mode: LTE Band 48 Upper	
Note:	

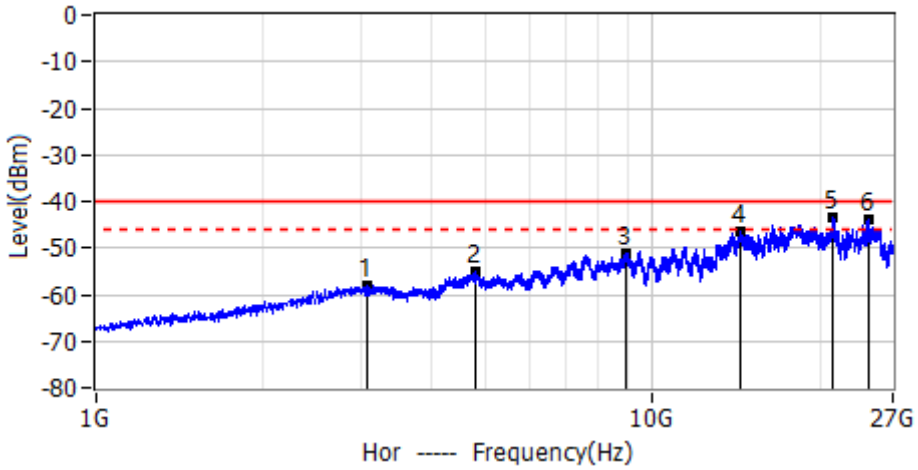


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	34.2438MHz	-87.34	-40.00	-47.34	RMS	Hor
2*	49.8850MHz	-86.36	-40.00	-46.36	RMS	Hor
3*	155.4938MHz	-83.55	-40.00	-43.55	RMS	Hor
4*	435.2175MHz	-78.47	-40.00	-38.47	RMS	Hor
5*	669.9575MHz	-71.98	-40.00	-31.98	RMS	Hor
6*	979.3875MHz	-67.23	-40.00	-27.23	RMS	Hor

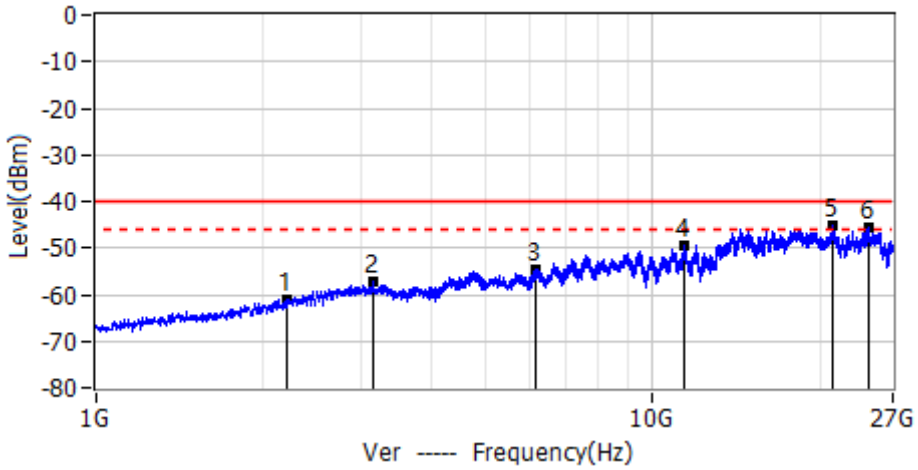


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	49.4000MHz	-86.55	-40.00	-46.55	RMS	Ver
2*	161.4350MHz	-83.39	-40.00	-43.39	RMS	Ver
3*	320.1513MHz	-83.25	-40.00	-43.25	RMS	Ver
4*	473.1688MHz	-78.71	-40.00	-38.71	RMS	Ver
5*	687.5388MHz	-70.53	-40.00	-30.53	RMS	Ver
6*	966.6563MHz	-67.24	-40.00	-27.24	RMS	Ver

Project: LGT23E031	Test Engineer: LiuH
EUT: Duet	Temperature: 23.9℃
M/N: HM-1005	Humidity: 40%RH
Test Voltage: Battery	Test Data: 2023-08-01
Test Mode: LTE Band 48 Lower	
Note:	

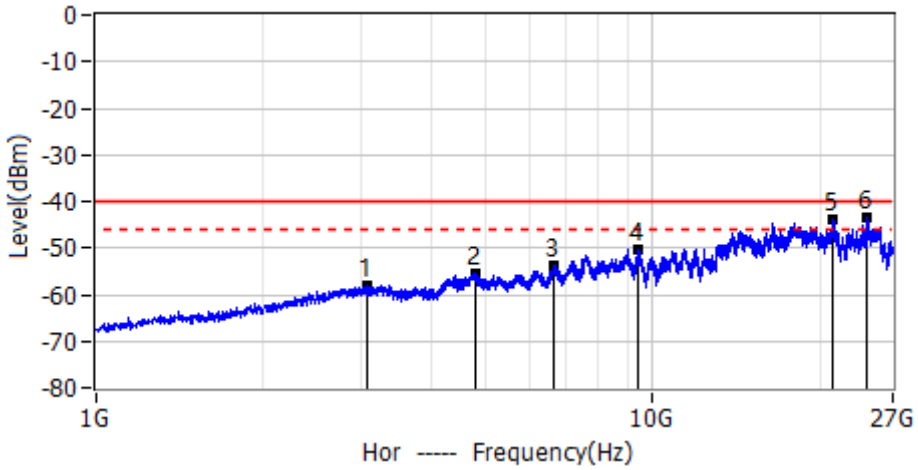


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	3.0605GHz	-58.20	-40.00	-18.20	RMS	Hor
2*	4.7992GHz	-55.02	-40.00	-15.02	RMS	Hor
3*	8.9300GHz	-51.10	-40.00	-11.10	RMS	Hor
4*	14.3445GHz	-46.64	-40.00	-6.64	RMS	Hor
5*	21.0492GHz	-43.62	-40.00	-3.62	RMS	Hor
6*	24.3512GHz	-44.07	-40.00	-4.07	RMS	Hor

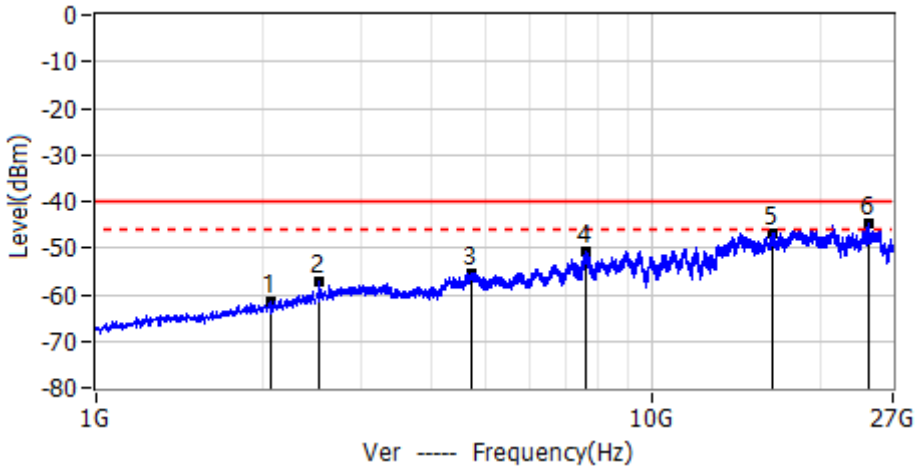


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	2.2057GHz	-61.02	-40.00	-21.02	RMS	Ver
2*	3.1320GHz	-57.28	-40.00	-17.28	RMS	Ver
3*	6.1642GHz	-54.70	-40.00	-14.70	RMS	Ver
4*	11.3967GHz	-49.41	-40.00	-9.41	RMS	Ver
5*	21.0590GHz	-45.06	-40.00	-5.06	RMS	Ver
6*	24.3545GHz	-45.76	-40.00	-5.76	RMS	Ver

Project: LGT23E031	Test Engineer: LiuH
EUT: Duet	Temperature: 23.9℃
M/N: HM-1005	Humidity: 40%RH
Test Voltage: Battery	Test Data: 2023-08-01
Test Mode: LTE Band 48 Middle	
Note:	

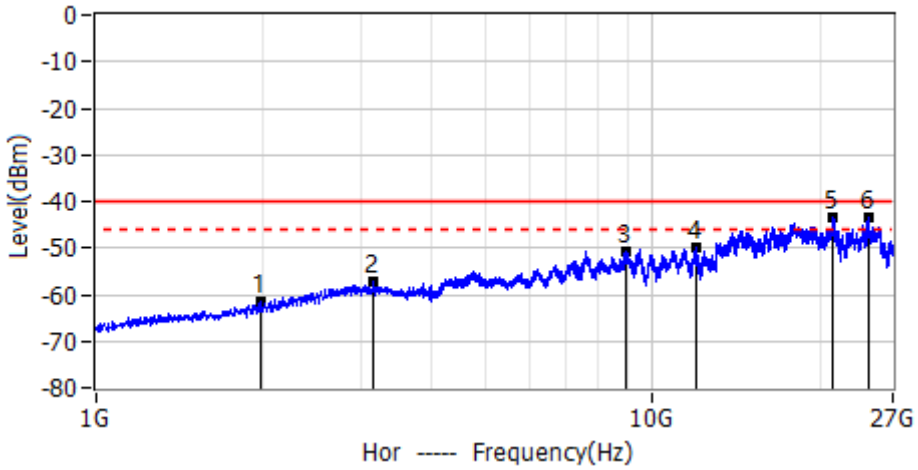


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	3.0605GHz	-58.27	-40.00	-18.27	RMS	Hor
2*	4.7927GHz	-55.27	-40.00	-15.27	RMS	Hor
3*	6.6647GHz	-53.85	-40.00	-13.85	RMS	Hor
4*	9.4240GHz	-50.38	-40.00	-10.38	RMS	Hor
5*	21.0557GHz	-43.69	-40.00	-3.69	RMS	Hor
6*	24.2992GHz	-43.56	-40.00	-3.56	RMS	Hor

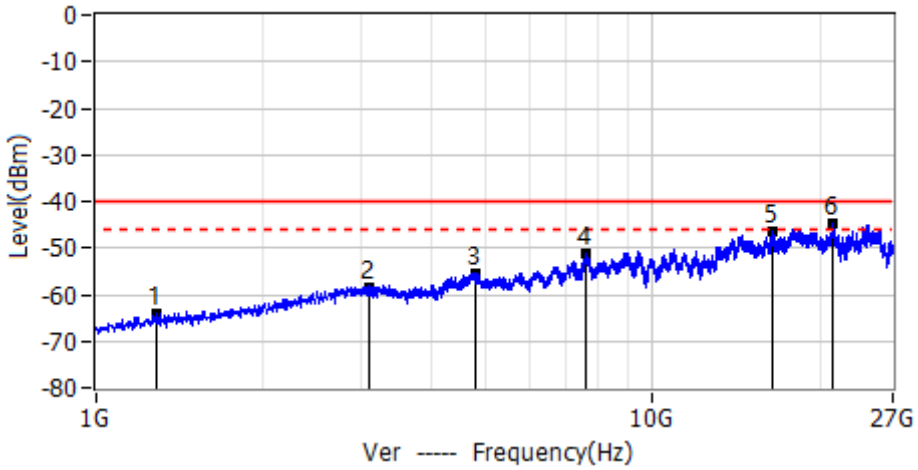


No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	2.0562GHz	-61.67	-40.00	-21.67	RMS	Ver
2*	2.5210GHz	-57.40	-40.00	-17.40	RMS	Ver
3*	4.7147GHz	-55.37	-40.00	-15.37	RMS	Ver
4*	7.6007GHz	-50.71	-40.00	-10.71	RMS	Ver
5*	16.3790GHz	-46.71	-40.00	-6.71	RMS	Ver
6*	24.3707GHz	-44.91	-40.00	-4.91	RMS	Ver

Project: LGT23E031	Test Engineer: LiuH
EUT: Duet	Temperature: 23.9℃
M/N: HM-1005	Humidity: 40%RH
Test Voltage: Battery	Test Data: 2023-08-01
Test Mode: LTE Band 48 Upper	
Note:	



No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	1.9717GHz	-61.64	-40.00	-21.64	RMS	Hor
2*	3.1352GHz	-57.14	-40.00	-17.14	RMS	Hor
3*	8.9365GHz	-50.95	-40.00	-10.95	RMS	Hor
4*	11.9362GHz	-49.78	-40.00	-9.78	RMS	Hor
5*	21.0590GHz	-43.46	-40.00	-3.46	RMS	Hor
6*	24.3870GHz	-43.28	-40.00	-3.28	RMS	Hor



No.	Frequency	Level dBm	Limit dBm	Margin dB	Detector	Polar
1*	1.2795GHz	-64.09	-40.00	-24.09	RMS	Ver
2*	3.0962GHz	-58.28	-40.00	-18.28	RMS	Ver
3*	4.7830GHz	-55.40	-40.00	-15.40	RMS	Ver
4*	7.5975GHz	-51.00	-40.00	-11.00	RMS	Ver
5*	16.3757GHz	-46.49	-40.00	-6.49	RMS	Ver
6*	21.0655GHz	-44.68	-40.00	-4.68	RMS	Ver

Remark: In frequency ranges above 27GHz no any other harmonic emissions detected which are tested to compliance with the limit. No recording in the test report. No any other emissions level which are attenuated less than 20dB below the limit. No recording in the test report.

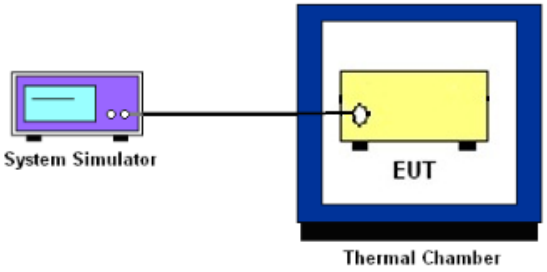
9. FREQUENCY STABILITY

9.1 DESCRIPTION OF FREQUENCY STABILITY MEASUREMENT

9.1.1 MEASUREMENT METHOD

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:
a.) Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.
For Part 96, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

9.1.2 TEST SETUP



9.1.3 TEST PROCEDURES FOR TEMPERATURE VARIATION

1. The EUT was set up in the thermal chamber and connected with the system simulator.

2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

9.1.4 TEST PROCEDURES FOR VOLTAGE VARIATION

1. The testing follows FCC KDB 971168 D01v01r03 Section 9.

2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simlator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.

4. The variation in frequency was measured for the worst case.

9.1.5 TEST RESULTS

LTE Band 48(QPSK) / 3625MHz / BW10M					
Temperature (°C)	**Voltage**	**Freq. Dev.**	**Freq. Dev.**	**Limit**	**Result**
	(Volt)	**(Hz)**	**(ppm)**		
50	Normal Voltage	21.61	0.009	2.5ppm	PASS
40		28.57	0.011		
30		27.53	0.011		
20		15.42	0.006		
10		32.28	0.013		
0		18.13	0.007		
-10		12.44	0.005		
-20		17.56	0.007		
-30		34.91	0.014		
20	Maximum Voltage	20.14	0.008		
20	BEP	16.43	0.006		

LTE Band 48 (QPSK) / 3625MHz / BW20M					
Temperature (°C)	**Voltage**	**Freq. Dev.**	**Freq. Dev.**	**Limit**	**Result**
	(Volt)	**(Hz)**	**(ppm)**		
50	Normal Voltage	35.00	0.014	2.5ppm	PASS
40		34.41	0.014		
30		30.41	0.012		
20		22.58	0.009		
10		34.39	0.014		
0		15.86	0.006		
-10		34.82	0.014		
-20		16.77	0.007		
-30		17.72	0.007		
20	Maximum Voltage	11.97	0.005		
20	BEP	22.36	0.009		

※※※※※END OF THE REPORT※※※※※