

FCC Test Report

(Part 90)

Product Name : WCDMA/LTE/5G Mobile Phone
Model No : EA211001,EC211001,EC211004
FCC ID : RYQEA211001

Applicant : FIH CO., LTD.

Address : No.4, Minsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan

Date of Receipt : 2021/04/23
Issued Date : 2021/06/22
Report No. : 2150419R-E3042110014
Report Version : V2.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Report

Issued Date : 2021/06/22

Report No.: 2150419R-E3042110014



Product Name : WCDMA/LTE/5G Mobile Phone
Applicant : FIH CO., LTD.
Address : No.4, Minsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan
Manufacturer : FIH CO., LTD.
Trade Name : FIH
Model No. : EA211001, EC211001, EC211004
EUT Rated Voltage : DC 3.6V~4.45V
EUT Test Voltage : DC 3.85V
Measurement Standard : FCC CFR Title 47 Part 90
Measurement Reference : FCC CFR Title 47 Part 2
TIA/EIA 603-E 2016
KDB 971168 D01V03R01
ANSI C63.26 2015
Test Result : Complied

Documented By :



(Senior Adm. Specialist / Genie Chang)

Tested By :



(Engineer / Joe Wang)

Approved By :



(Supervisor / Wen Lee)

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Revision History

Report No.	Version	Description	Issued Date
2150419R-E3042110014	V1.0	Initial issue of report.	2021-06-12
2150419R-E3042110014	V2.0	Update Product Name	2021-06-22

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	WCDMA/LTE/5G Mobile Phone
Model No.	EA211001,EC211001,EC211004
Test Sample	EA211001
Trade Name	FIH
IMEI No.	35552737
FCC ID	RYQEA211001
TX Frequency	LTE Band 14: 788~798MHz
Rx Frequency	LTE Band 14: 758~768MHz
Bandwidth	LTE Band 14: 5MHz/10MHz
2UL CA List	CA_2A-14A, CA_14A-30A, CA_14A-66A
Modulation	QPSK/16-QAM/64QAM
HW Version	5.1
SW Version	EA211001_0110U

1.2. Antenna List

No	Manufacturer	Part No	Antenna Type	Peak Gain
ANT0 (Main)	Tongda	MEFLC61001A/ MEFLC61004A	Monopole	0.6 dBi for B2 0.4 dBi for B4/B66 -4.7 dBi for B14 -0.3 dBi for B30
ANT1 (TRX)			Loop	-6.8 dBi for B2 -10.3 dBi for B4/B66 -2.0 dBi for B30
ANT2 (TRX)			Monopole	-2.5 dBi for B14

1.3. Operational Description

The EUT provide all functions described as above. The EUT is tested with maximum rated TX power via the Base Station simulator.

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined

as:

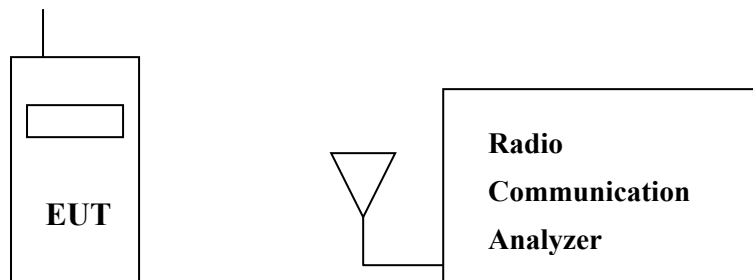
Test Mode:	LTE Band 14
	CA_2A-14A
	CA_14A-30A
	CA_14A-66A

Note:

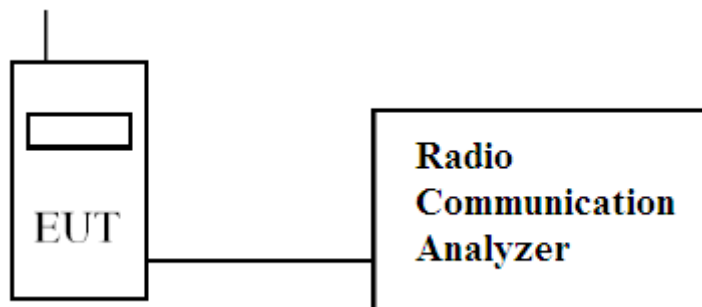
1. WWAN Module ant0 support TX/RX and support 2UL CA functions.
2. WWAN Module ant1 support TX/RX(HB) and support 2UL CA functions.
3. WWAN Module ant2 support TX/RX(LB) and support 2UL CA functions.
4. All operation modes has been verified and the report shows the worst case mode.
5. For inter-band transmission of multiple channels in different antenna combination in Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

1.4. Configuration of tested System

(a) Configuration of Radiated measurement



(b) Configuration of Conducted measurement



1.5. EUT Setup Procedures

- (1) Setup the EUT and simulators as shown on 1.3
- (2) Turn on the power of all equipments.
- (3) The EUT link with base station and it will continue receive the signal.
- (4) Repeat the above procedure (3).

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual	Laboratory
Temperature (°C)	15-35	19 ~ 25	Linkou (Valley)
Humidity (%RH)	25-75	42 ~ 58	Linkou (Valley)

USA : FCC Registration Number: TW3023

Canada : IC Registration Number: 4075A

Site Description: Accredited by TAF
Accredited Number: 3023

Test Laboratory: DEKRA Testing and Certification Co., Ltd
Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,
Taiwan, R.O.C.
Phone number: 886-2-8601-3788
Fax number: 886-2-8601-3789
Email address: info.tw@dekra.com
Website: <http://www.dekra.com.tw>

2. Technical Test

2.1. Summary of test result

Test Item	FCC Reference section	FCC Limit	Result
RF Output Power	§2.1046	<3 Watts	Pass
	§90.542(a.7)		
Occupied Bandwidth	§2.1049	Within the frequency range	Pass
	§90.209(b)		
Spurious Emission at Antenna Terminals	§2.1051	<-13dBm <-35dBm for 769-775MHz and 799-805MHz	Pass
	§90.543(e)		
Conducted Emission	§2.1051	<-13dBm	Pass
	§90.543(e)		
Field Strength of Spurious Radiation	§2.1053	<-13dBm <-40dBm for 1559-1610MHz	Pass
	§90.543(e, f)		
Frequency Stability for Temperature & Voltage	§2.1055	<±2.5 ppm	Pass
	§90.213		
Peak to Average Ratio	N/A	N/A	N/A

2.2. List of test Equipment

Conducted /CTR

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY54510357	2021/05/18
Directional coupler	Agilent	87300C	MY44300353	2020/12/03
Directional coupler	Agilent	778D-012	50550	2020/12/03
Standard Temperature & Humidity Chamber	WIT	TH-1S-B	EQ-201-00146	2021/05/18
DC power supply	Agilent	E3610A	MY40009845	2020/06/30
Communication Tester	R&S	CMW500	157304	2020/12/08

Radiated / Site3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2907	2021/02/26
Horn Antenna	R&S	9120D	556	2021/05/04
Pre-Amplifier	Agilent	87405C	MY55380068	2020/09/10
Spectrum Analyzer	Agilent	N9010A	MY54510357	2021/05/18
DC power supply	Agilent	E3610A	MY40009845	2020/06/30
Communication Tester	R&S	CMW500	157304	2020/12/08

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty of confidence of 95% is evaluated as ± 1.52 dB

Radiated Emission (Below 1GHz)

The measurement uncertainty of confidence of 95% is evaluated as ± 4.22 dB

Radiated Emission (Above 1GHz)

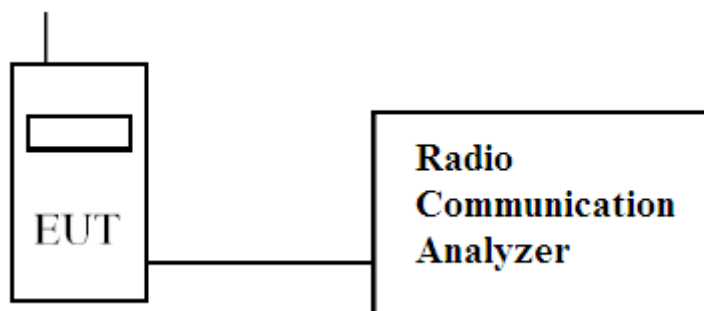
The measurement uncertainty of confidence of 95% is evaluated as ± 4.08 dB

3. Conducted Output Power Measurement

3.1. Test Specification

According to FCC Part 2.1046, 90.542

3.2. Test Setup



3.3. Limits

Band	Limit
LTE Band 14/800	<3W

3.4. Test Procedure

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

3.5. Test Result of Maximum Power Output

Channel	Modulation	LTE Band 14 (800MHz)							
		RB	RB	Maximum Conducted Output Power					
		No.	Offset	1.4M	3M	5M	10M	15M	20M
Low	QPSK	1	#0	--	--	23.09	--	--	--
		1	#Mid	--	--	23.23	--	--	--
		1	#Max	--	--	23.19	--	--	--
		50%	#0	--	--	22.14	--	--	--
		50%	#Mid	--	--	22.34	--	--	--
		50%	#Max	--	--	22.27	--	--	--
		100%	--	--	--	22.22	--	--	--
	16QAM	1	#0	--	--	22.59	--	--	--
		1	#Mid	--	--	22.56	--	--	--
		1	#Max	--	--	22.52	--	--	--
		50%	#0	--	--	21.15	--	--	--
		50%	#Mid	--	--	21.30	--	--	--
		50%	#Max	--	--	21.25	--	--	--
		100%	--	--	--	21.20	--	--	--
	64QAM	1	#0	--	--	21.46	--	--	--
		1	#Mid	--	--	21.44	--	--	--
		1	#Max	--	--	21.46	--	--	--
		50%	#0	--	--	20.16	--	--	--
		50%	#Mid	--	--	20.32	--	--	--
		50%	#Max	--	--	20.30	--	--	--
		100%	--	--	--	20.20	--	--	--
Mid	QPSK	1	#0	--	--	23.16	23.00	--	--
		1	#Mid	--	--	23.25	23.32	--	--
		1	#Max	--	--	23.18	23.02	--	--
		50%	#0	--	--	22.47	22.25	--	--
		50%	#Mid	--	--	22.37	22.33	--	--
		50%	#Max	--	--	22.24	22.25	--	--
		100%	--	--	--	22.34	22.28	--	--
	16QAM	1	#0	--	--	22.53	22.57	--	--
		1	#Mid	--	--	22.52	22.50	--	--
		1	#Max	--	--	22.58	22.58	--	--
		50%	#0	--	--	21.41	21.26	--	--

		50%	#Mid	--	--	21.36	21.37	--	--
		50%	#Max	--	--	21.21	21.24	--	--
		100%	--	--	--	21.31	21.28	--	--
	64QAM	1	#0	--	--	21.43	21.32	--	--
		1	#Mid	--	--	21.42	21.40	--	--
		1	#Max	--	--	21.45	21.31	--	--
		50%	#0	--	--	20.46	20.20	--	--
		50%	#Mid	--	--	20.37	20.32	--	--
		50%	#Max	--	--	20.22	20.22	--	--
		100%	--	--	--	20.30	20.21	--	--
High	QPSK	1	#0	--	--	23.20	--	--	--
		1	#Mid	--	--	23.22	--	--	--
		1	#Max	--	--	23.10	--	--	--
		50%	#0	--	--	22.42	--	--	--
		50%	#Mid	--	--	22.32	--	--	--
		50%	#Max	--	--	22.39	--	--	--
		100%	--	--	--	22.42	--	--	--
	16QAM	1	#0	--	--	22.52	--	--	--
		1	#Mid	--	--	22.59	--	--	--
		1	#Max	--	--	22.54	--	--	--
		50%	#0	--	--	21.39	--	--	--
		50%	#Mid	--	--	21.30	--	--	--
		50%	#Max	--	--	21.34	--	--	--
		100%	--	--	--	21.41	--	--	--
	64QAM	1	#0	--	--	21.39	--	--	--
		1	#Mid	--	--	21.48	--	--	--
		1	#Max	--	--	21.40	--	--	--
		50%	#0	--	--	20.43	--	--	--
		50%	#Mid	--	--	20.32	--	--	--
		50%	#Max	--	--	20.38	--	--	--
		100%	--	--	--	20.39	--	--	--

3.6. Maximum Conducted Power and ERP/EIRP Power

According to KDB 412172 D01 Section 1.2 Power Approach

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

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

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

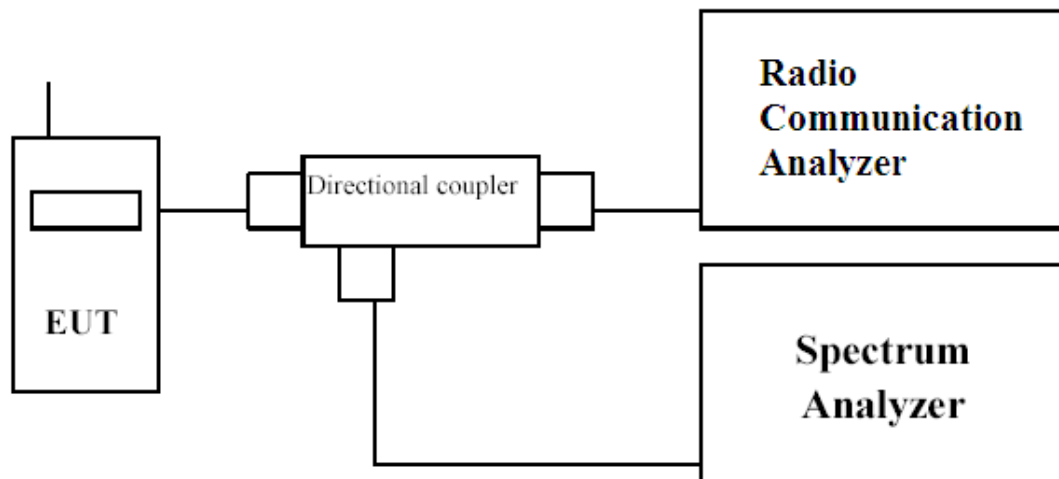
LTE Band	BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Antenna Gain (dBi)	Maximum ERP/EIRP (W)	Maximum ERP/EIRP Limit (W)
14	5M	QPSK	23.25	0.211	-2.5	0.072	3
		16QAM	22.59	0.182	-2.5	0.062	3
		64QAM	21.48	0.141	-2.5	0.048	3
	10M	QPSK	23.32	0.215	-2.5	0.074	3
		16QAM	22.58	0.181	-2.5	0.062	3
		64QAM	21.40	0.138	-2.5	0.047	3

4. Occupied Bandwidth

4.1. Test Secification

According to FCC Part 2.1049, 90.209

4.2. Test Setup



4.3. Test Procedure

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

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

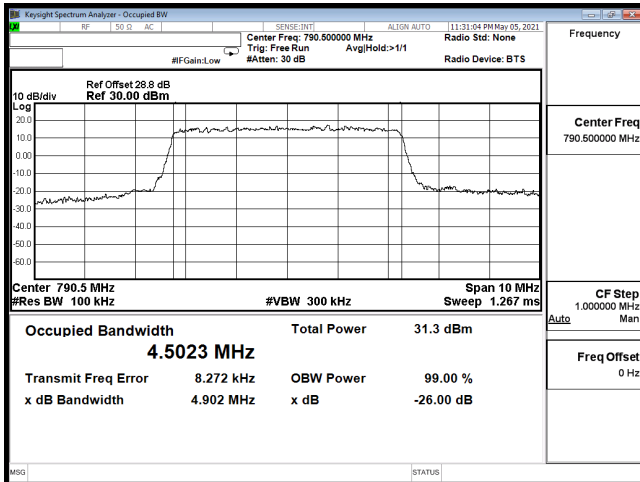
The plots below show the resultant display from the Spectrum Analyser.

4.4. Test Result of Occupied Bandwidth

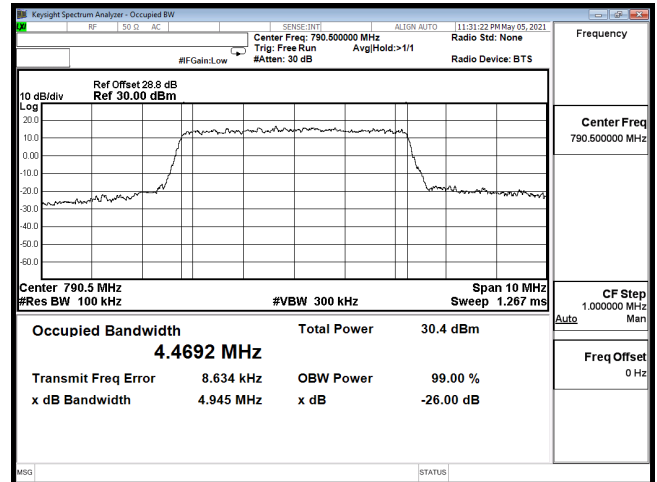
Product	WCDMA/LTE/5G Mobile Phone
Test Mode	Occupied Bandwidth
Test Site	CTR

BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			26 dB bandwidth (MHz)		
			QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
5M	23305	790.5	4.5023	4.4692	4.4789	4.902	4.945	4.920
5M	23330	793	4.5029	4.5184	4.5059	5.006	5.005	4.975
5M	23355	795.5	4.5188	4.5334	4.5215	4.994	5.005	5.001
10M	--	--	--	--	--	--	--	--
10M	23330	793	9.0514	9.0469	9.0356	10.05	9.909	9.899
10M	--	--	--	--	--	--	--	--

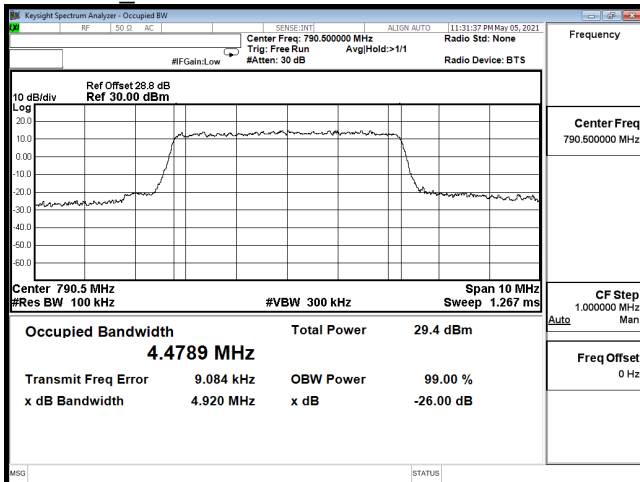
Product	WCDMA/LTE/5G Mobile Phone		
Test Mode	Occupied Bandwidth		
Date of Test	2021/05/05	Test Site	CTR
Test Condition	Band 14 QPSK/16QAM/64QAM		



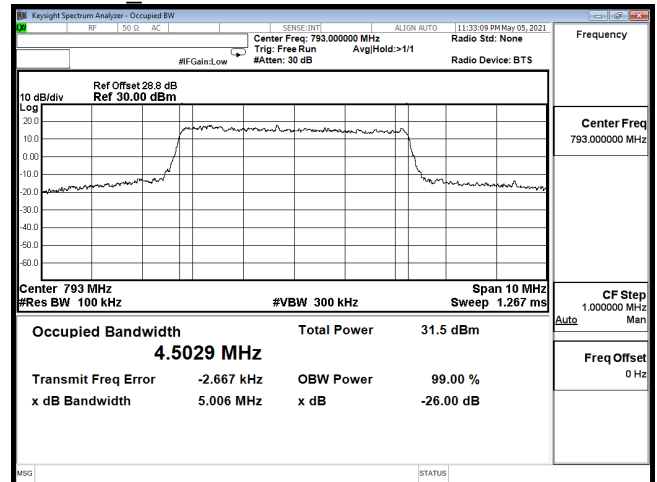
OCC-B14_5M-CH23305-QPSK



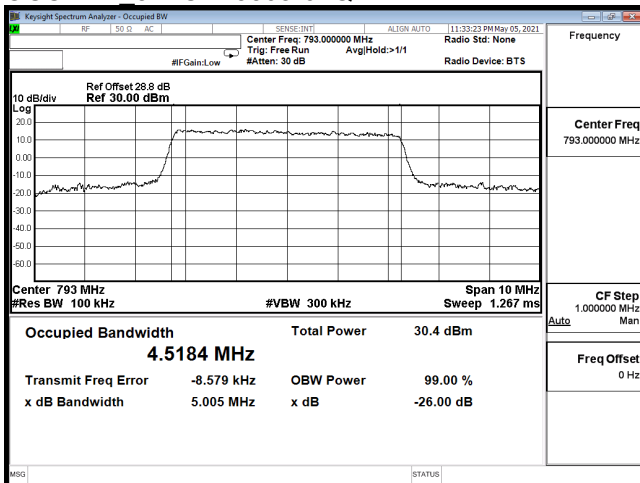
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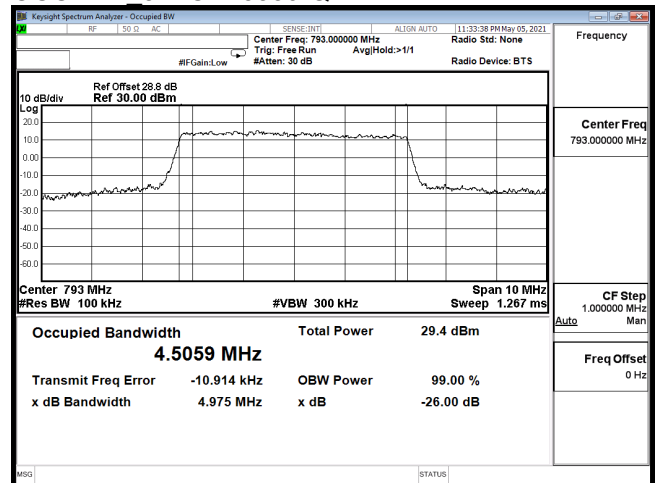
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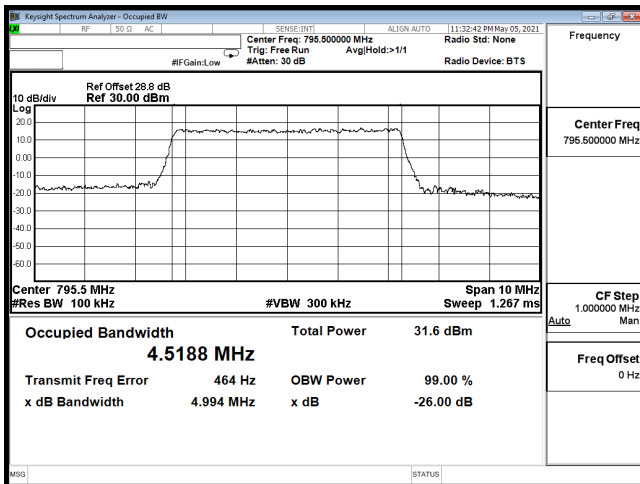
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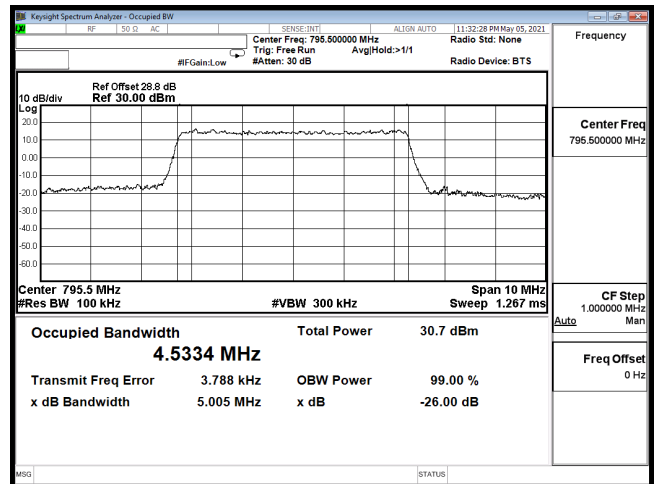
OCC-B14_5M-CH23330-16QAM



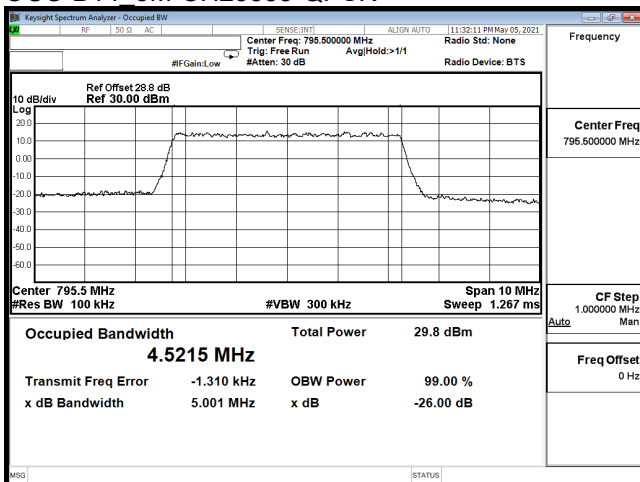
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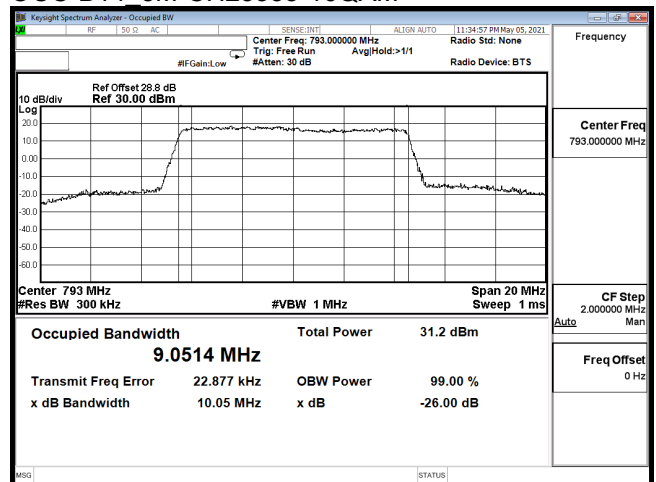
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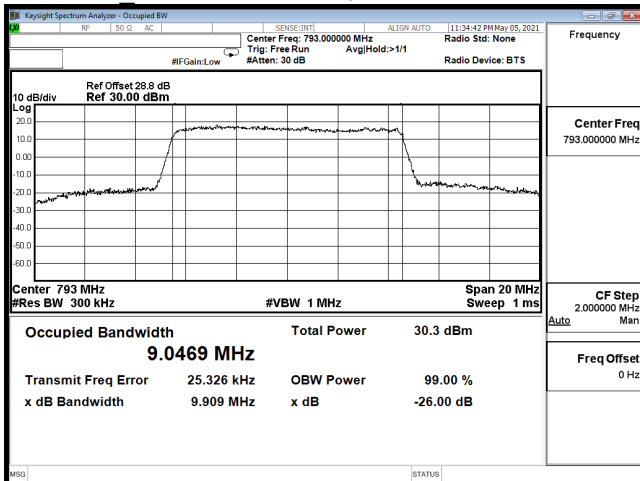
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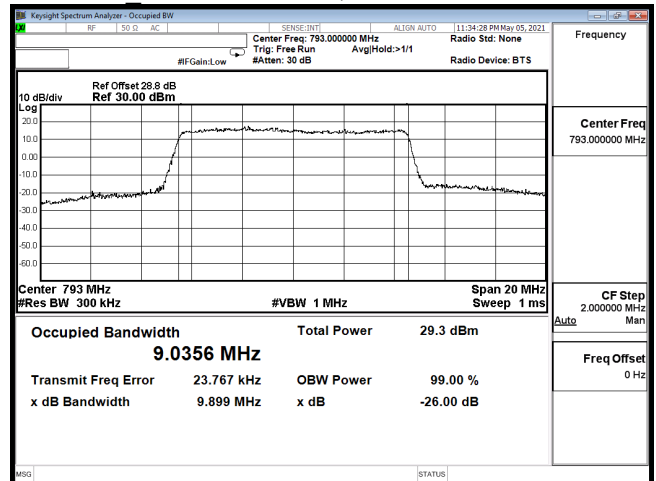
OCC-B14_5M-CH23355-64QAM



OCC-B14_10M-CH23330-QPSK



OCC-B14_10M-CH23330-16QAM



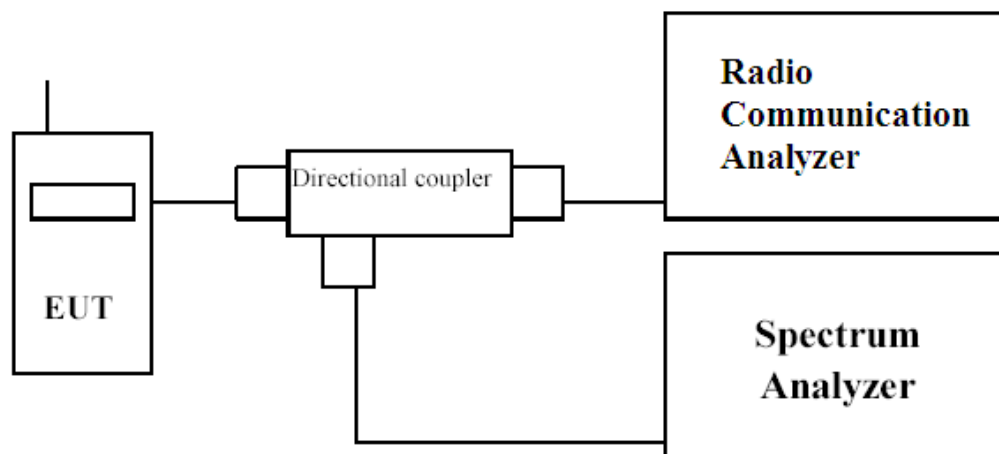
OCC-B14_10M-CH23330-64QAM

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

5.1. Test Specification

According to Part 2.1051, 90.543

5.2. Setup



5.3. Limits

The spurious (unwanted) emission limits specified in the individual FCC rule parts applicable to licensed digital transmitters (typically referred to under the heading 'emission limits') normally apply to any and all emissions that are present outside of the authorized frequency band/block and apply to emissions in both the out-of-band and spurious domains. unwanted emissions are required by the licensed rule parts to be attenuated below the transmitter power by a factor of at least $43 + 10\log(P)$ dB on any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, where P represents the transmitter power expressed in watts.

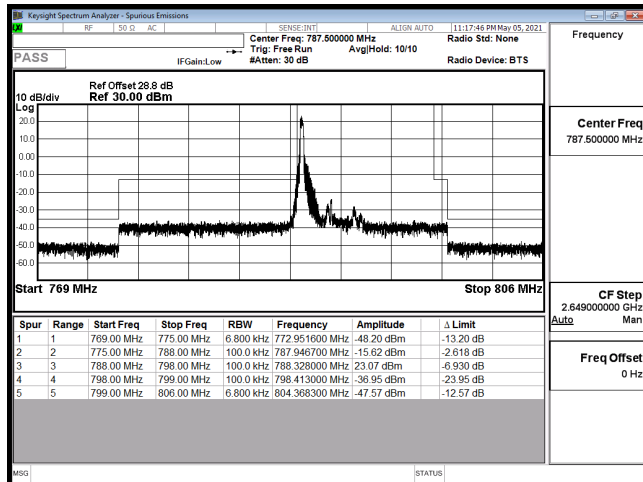
5.4. Test Procedure

In accordance with Part 90.543 (e)(3) 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 frequency block, a resolution bandwidth of 30 kHz may be employed.

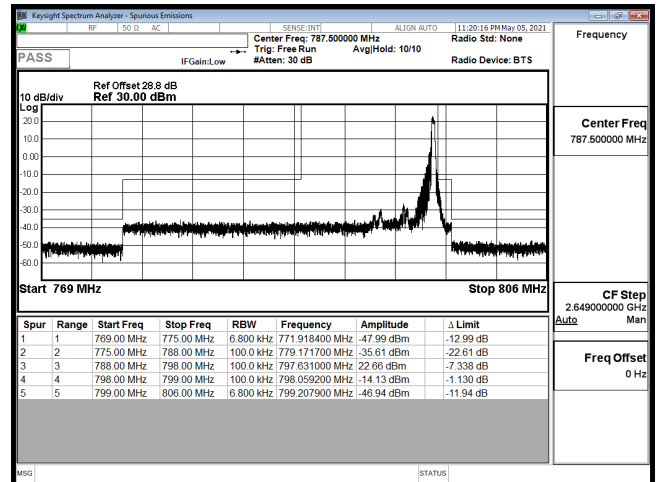
On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10\log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations

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

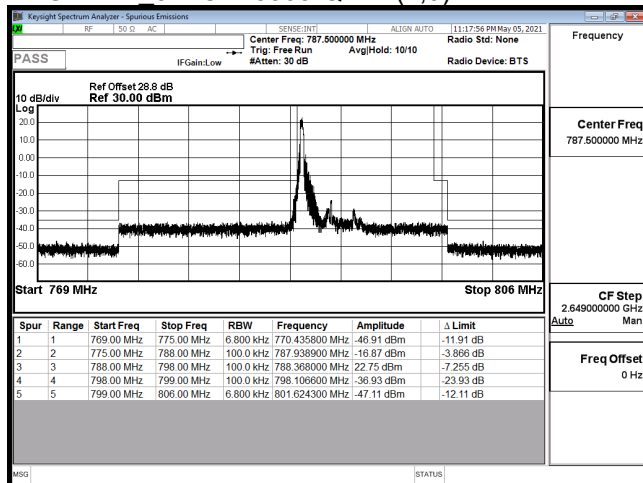
Product	WCDMA/LTE/5G Mobile Phone		
Test Mode	Spurious Emission At Antenna Terminals (+/-1MHz)		
Date of Test	2021/05/05	Test Site	CTR
Test Condition	Block Edge Test (Band 14)		



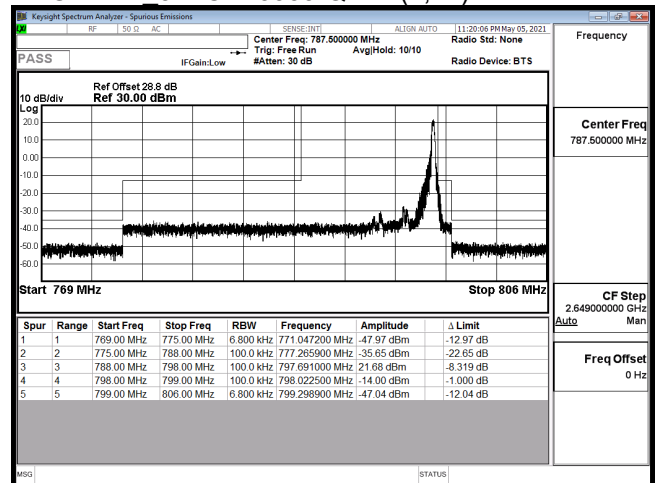
EDGE-B14 5M-CH23305-QPSK(1,0)



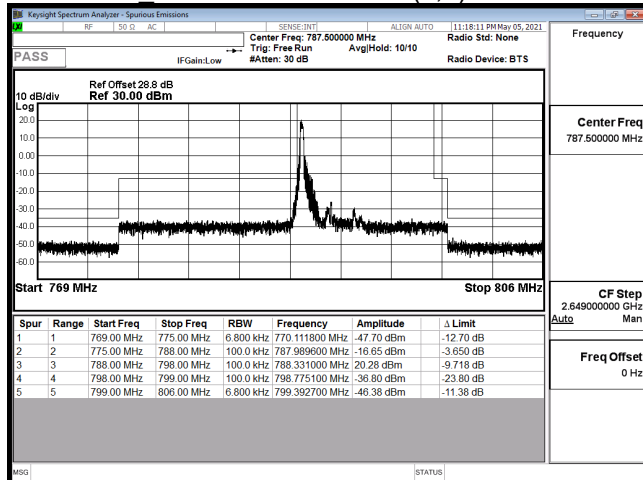
EDGE-B14 5M-CH23355-QPSK(1,24)



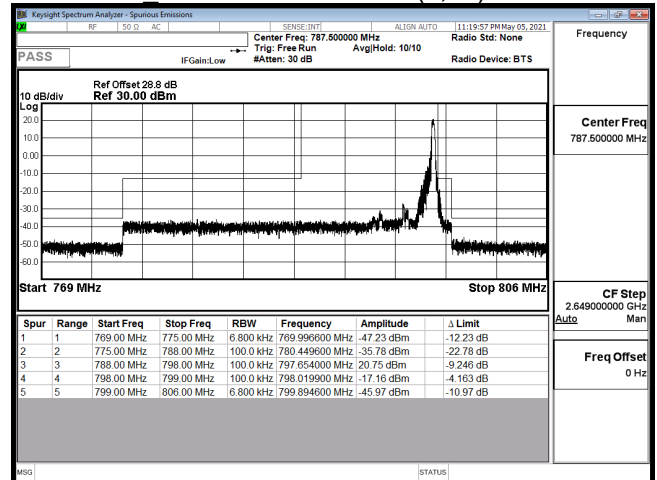
EDGE-B14 5M-CH23305-16QAM(1,0)



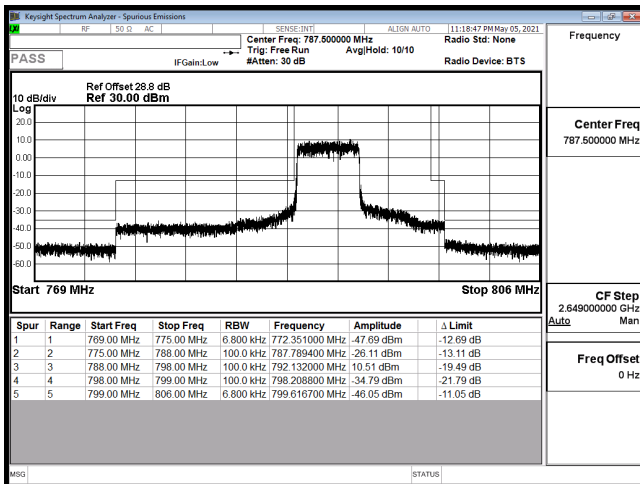
EDGE-B14 5M-CH23355-16QAM(1,24)



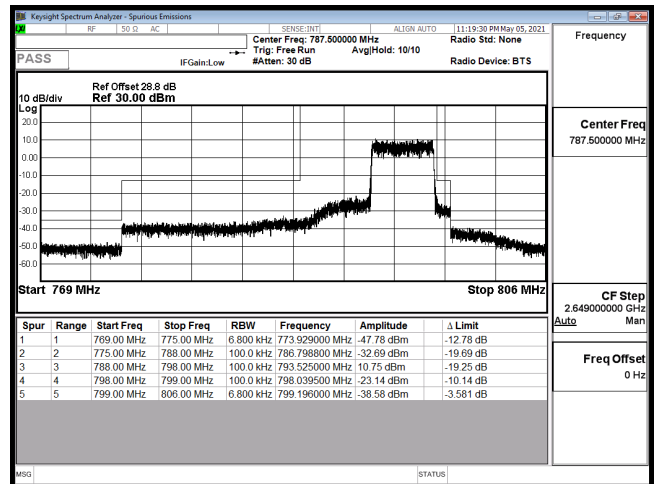
EDGE-B14_5M-CH23305-64QAM(1,0)



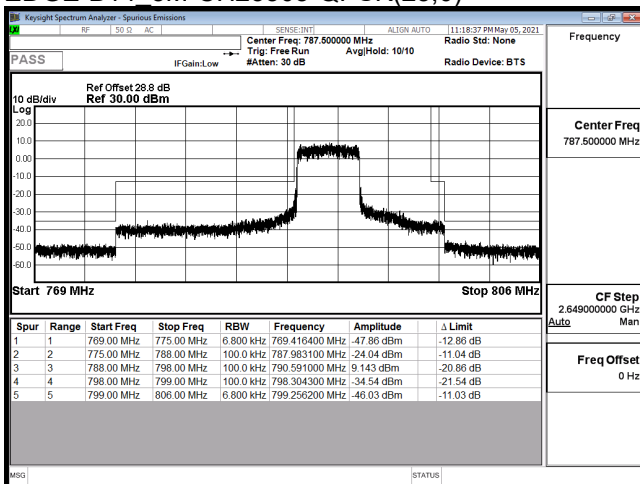
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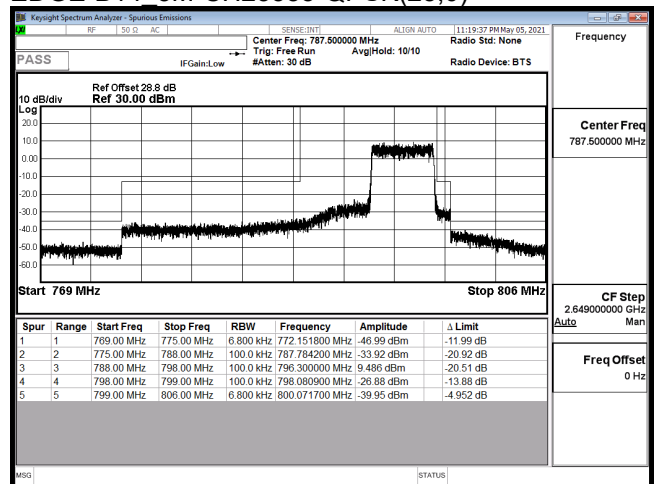
EDGE-B14 5M-CH23305-QPSK(25,0)



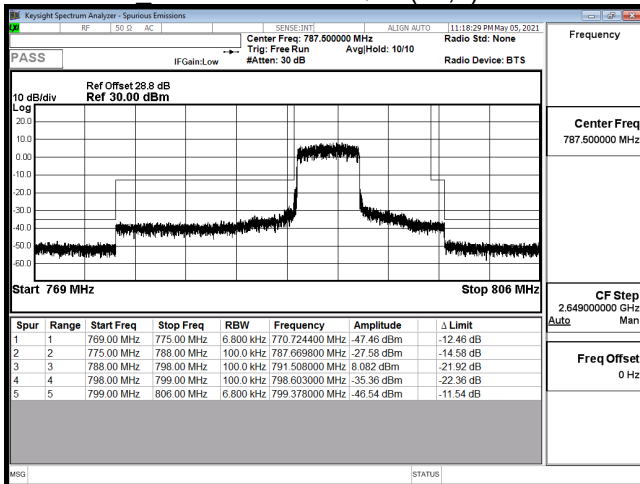
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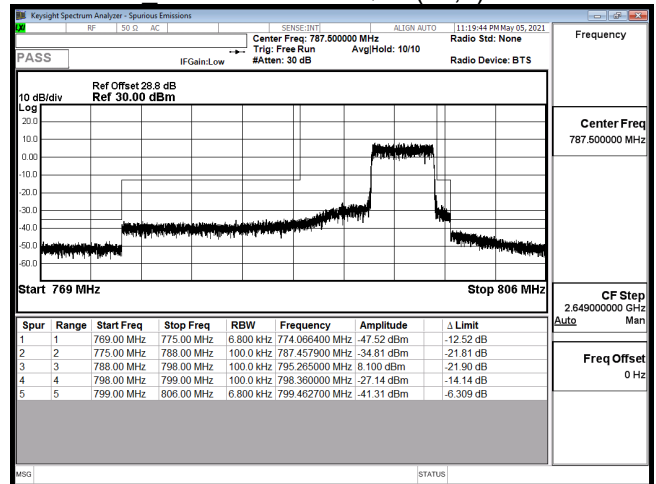
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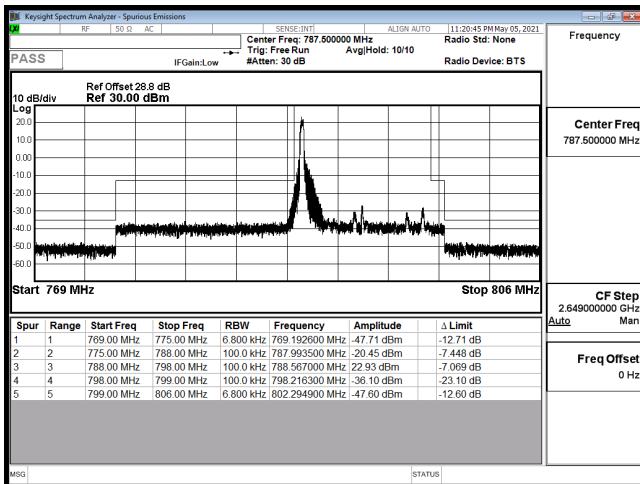
EDGE-B14 5M-CH23355-16QAM(25,0)



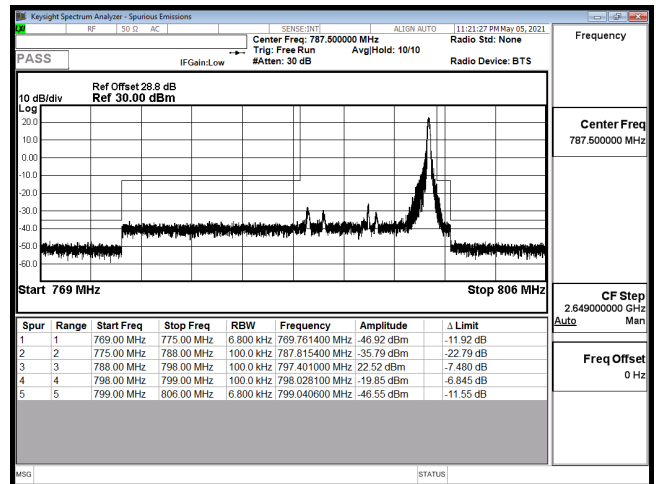
EDGE-B14_5M-CH23305-64QAM(25,0)



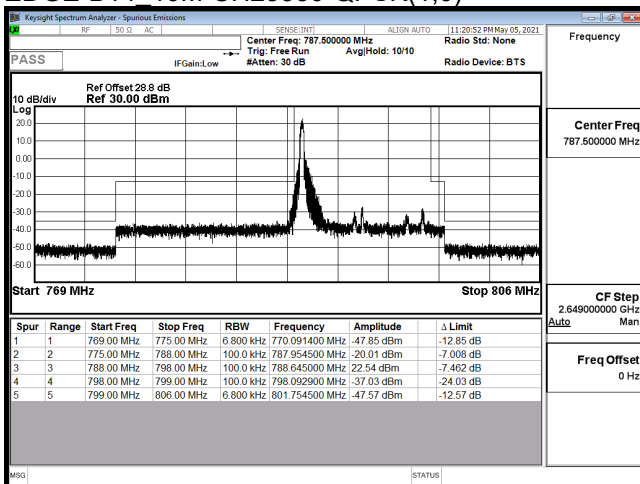
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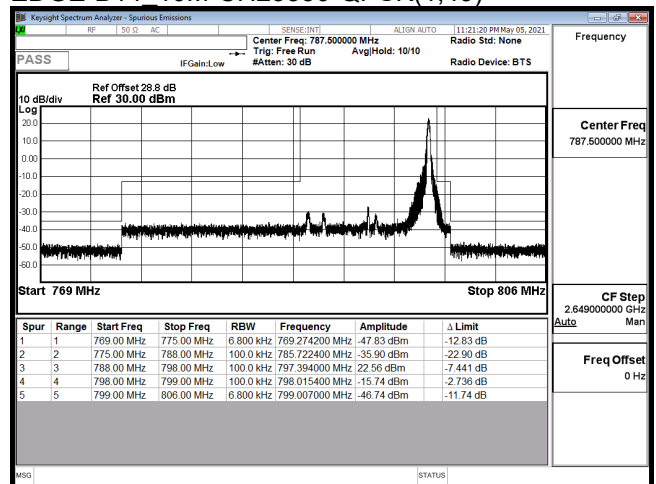
EDGE-B14 10M-CH23330-QPSK(1,0)



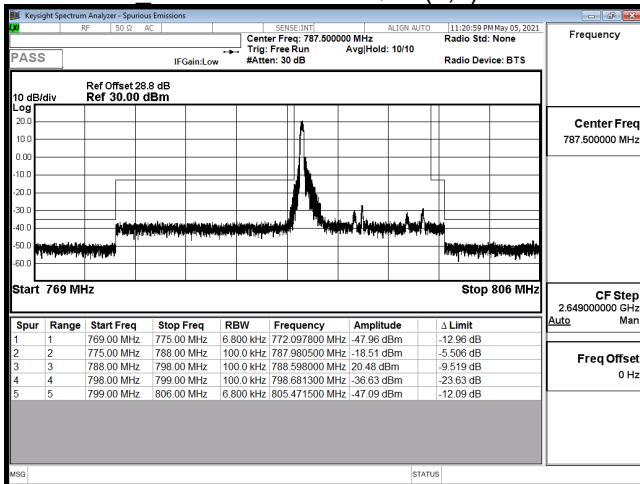
EDGE-B14 10M-CH23330-QPSK(1,49)



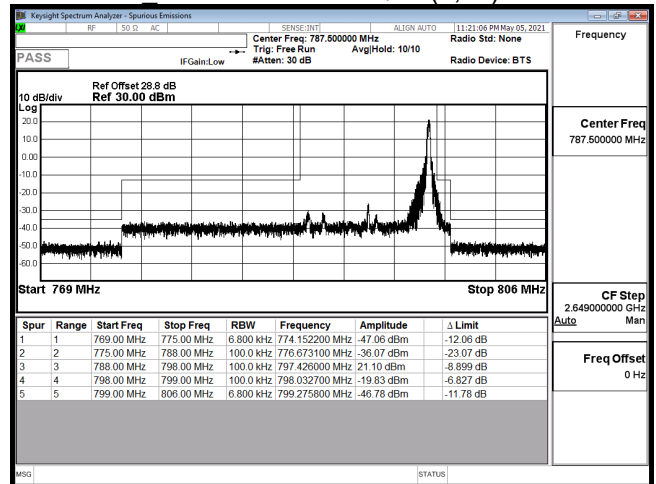
EDGE-B14 10M-CH23330-16QAM(1,0)



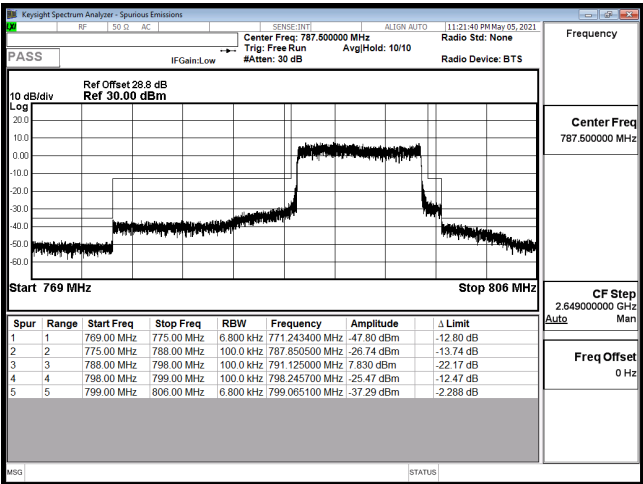
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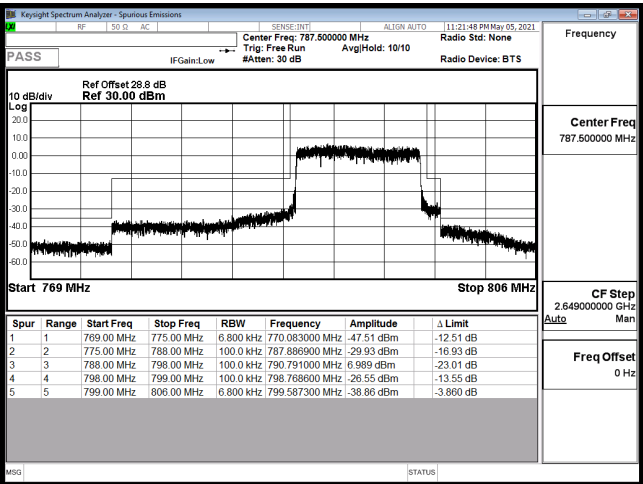
EDGE-B14_10M-CH23330-64QAM(1,0)



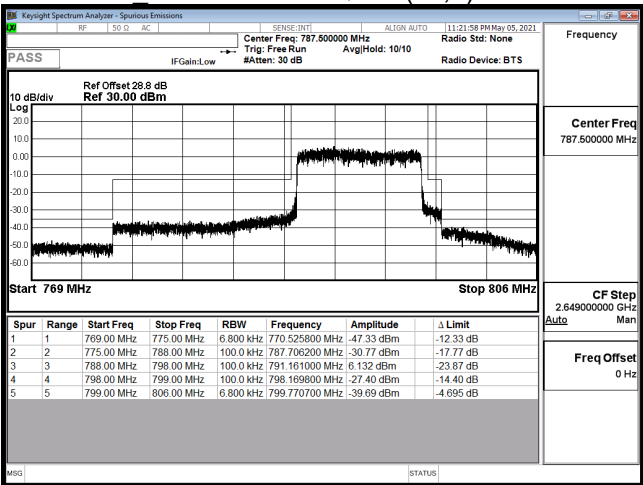
EDGE-B14_10M-CH23330-64QAM(1,49)



EDGE-B14 10M-CH23330-QPSK(50,0)



EDGE-B14_10M-CH23330-16QAM(50,0)



EDGE-B14_10M-CH23330-64QAM(50,0)

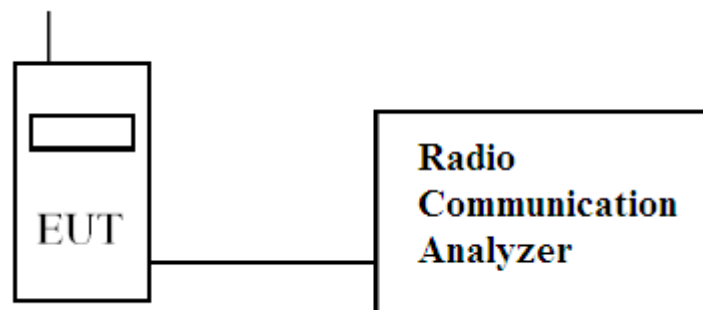
6. Spurious Emission

6.1. Test Specification

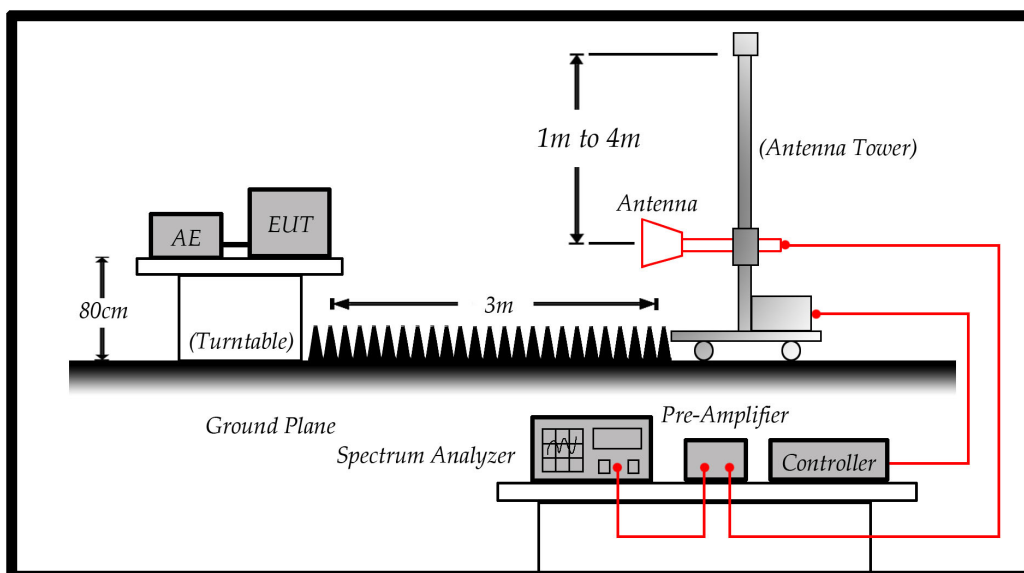
According to Part 2.1051, 90.543

6.2. Test Setup

6.2.1 Spurious emissions at antenna terminals.



6.2.2 Field strength of spurious radiation.



Note: The Worst case Mode is QPSK Mode for Radiated spurious emissions.

6.3. Limits

Limit	<-13dBm
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$43 + 10\log(P)$ down on the carrier where P is the power in Watts.

6.4. Test Procedure

In accordance with Part 2.1051, 90.543, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 30MHz to 10GHz. The EUT was set to transmit on full power. The EUT was tested on Low, middle and High channels for both power levels. The resolution and video bandwidth was set to 1MHz/3MHz in accordance with Part 2.1051, 90.543. The spectrum analyzer detector was set to Max Hold. In addition, measurements were made up to the 10th harmonic of the fundamental. The device was then replaced with a substitution antenna, which input signal was adjusted until the received level matched that of the previously detected emission.

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

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

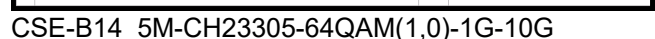
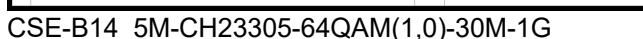
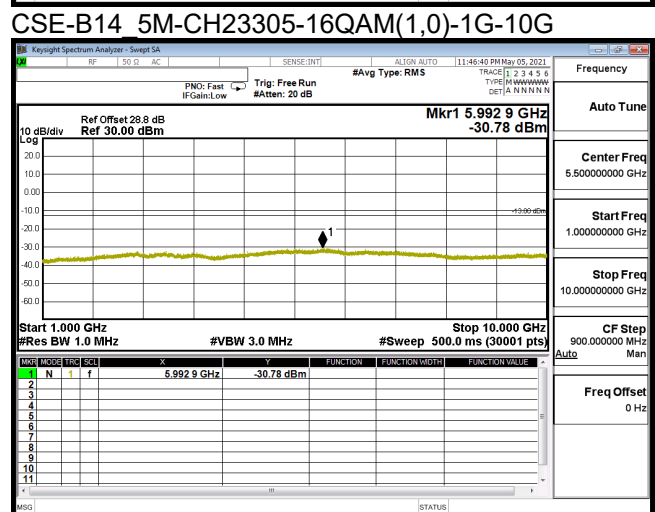
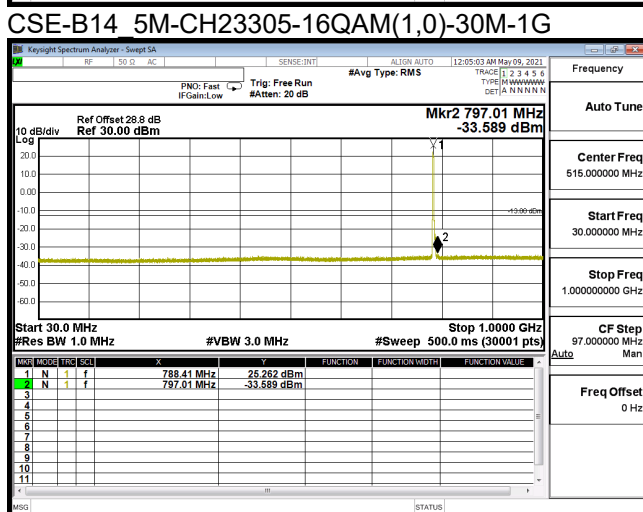
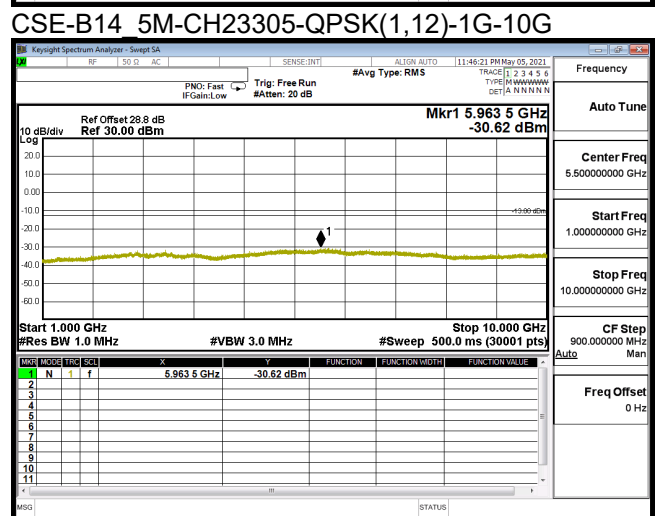
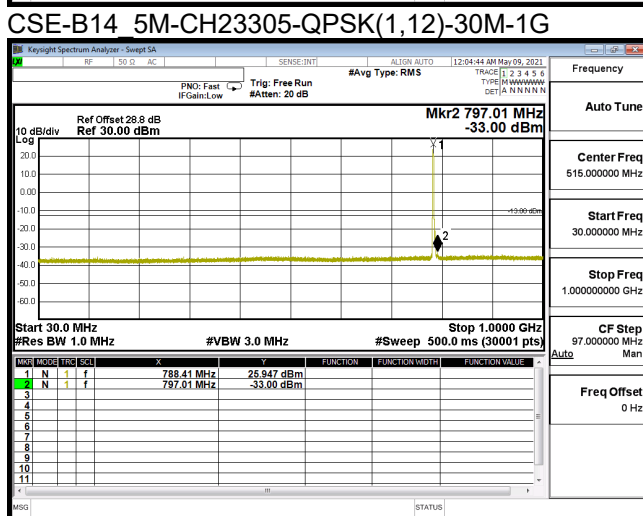
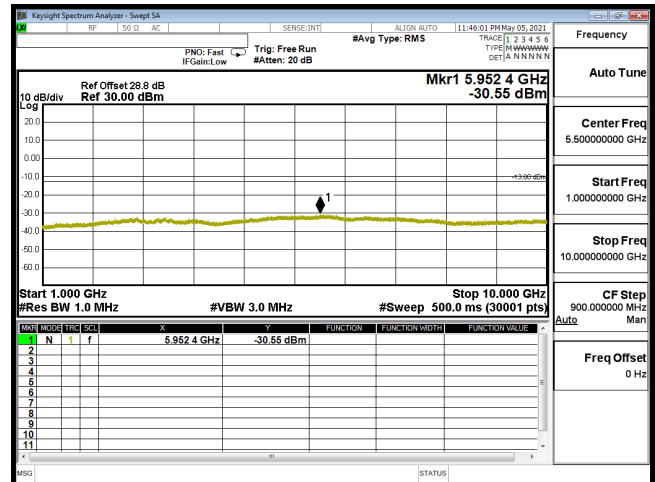
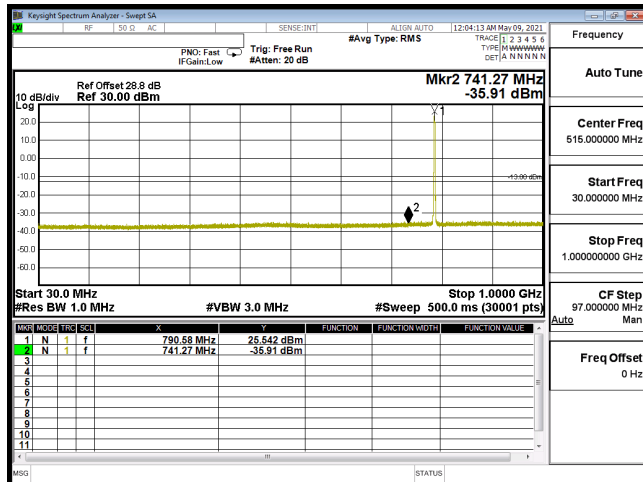
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

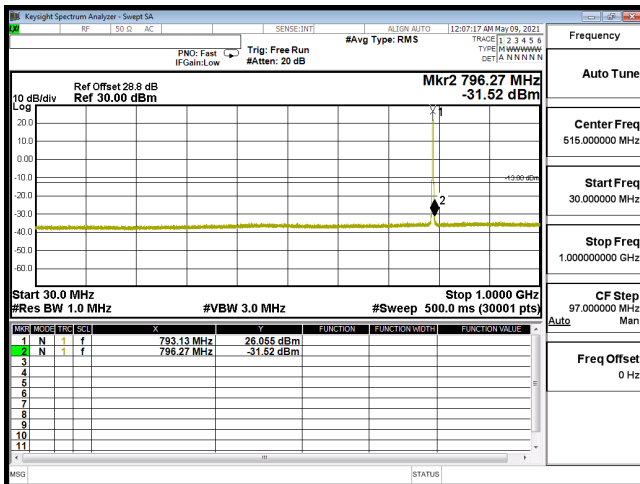
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to TIA/EIA 603-E on radiated measurement.

90.543(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

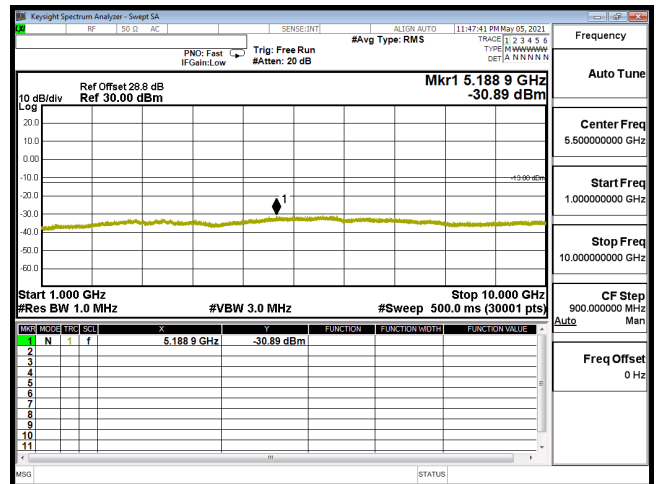
6.5. Test Result of Spurious Emission

Product	WCDMA/LTE/5G Mobile Phone		
Test Mode	Spurious Emission (Conducted)		
Date of Test	2021/05/05	Test Site	CTR
Test Condition	LTE-Band 14	Test Range	30MHz~10GHz

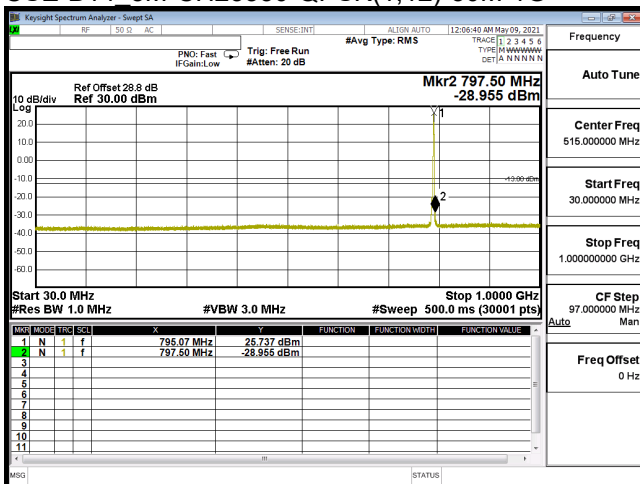




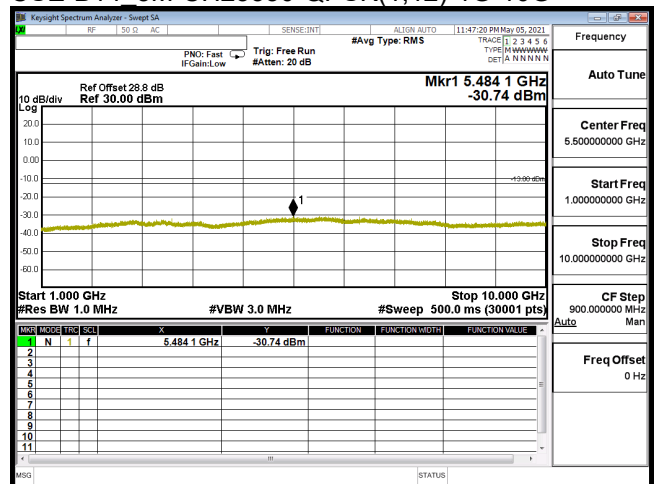
CSE-B14_5M-CH23330-QPSK(1,12)-30M-1G



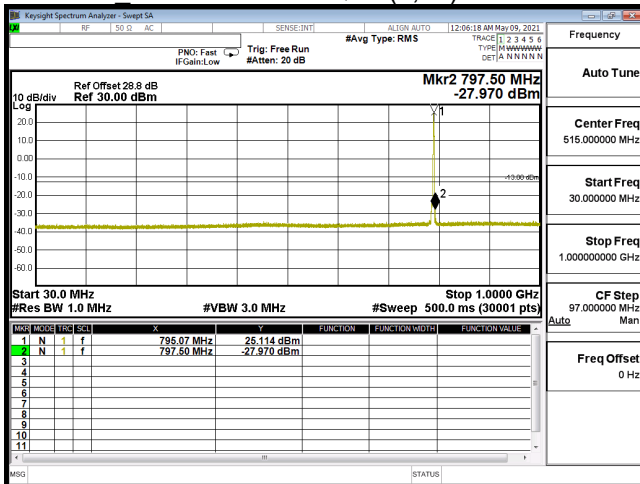
CSE-B14_5M-CH23330-QPSK(1,12)-1G-10G



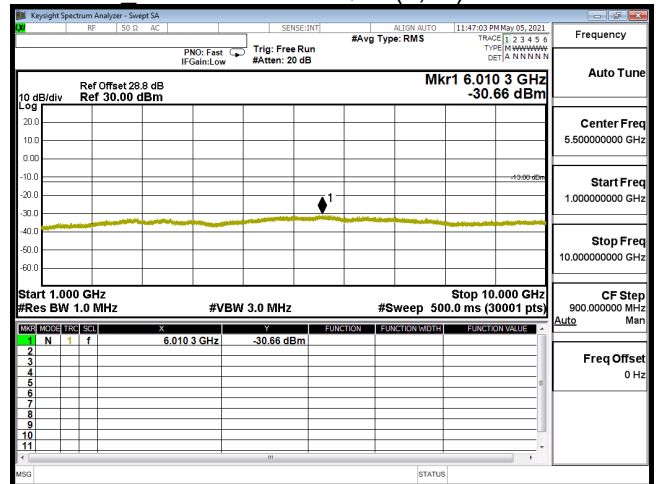
CSE-B14_5M-CH23330-16QAM(1,24)-30M-1G



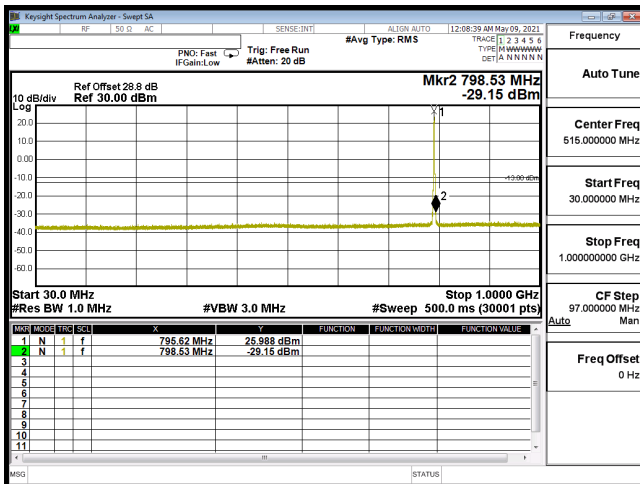
CSE-B14_5M-CH23330-16QAM(1,24)-1G-10G



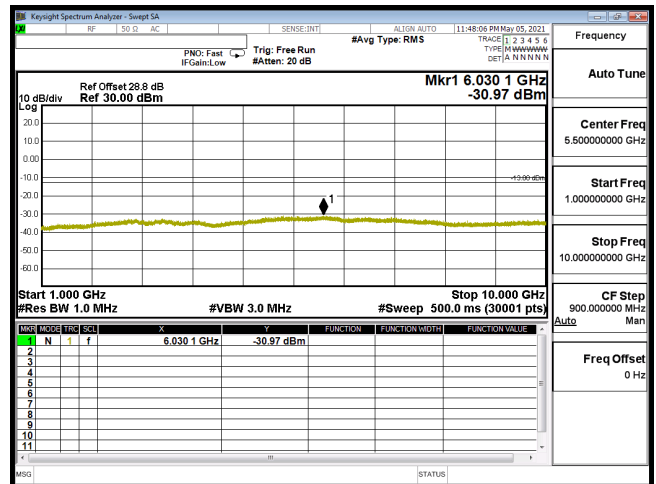
CSE-B14_5M-CH23330-64QAM(1,24)-30M-1G



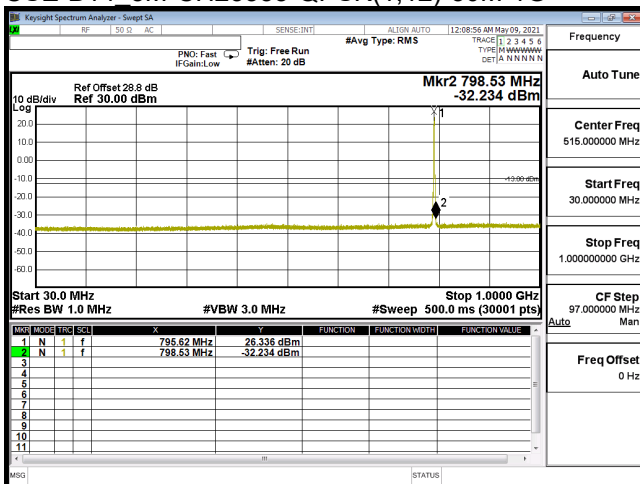
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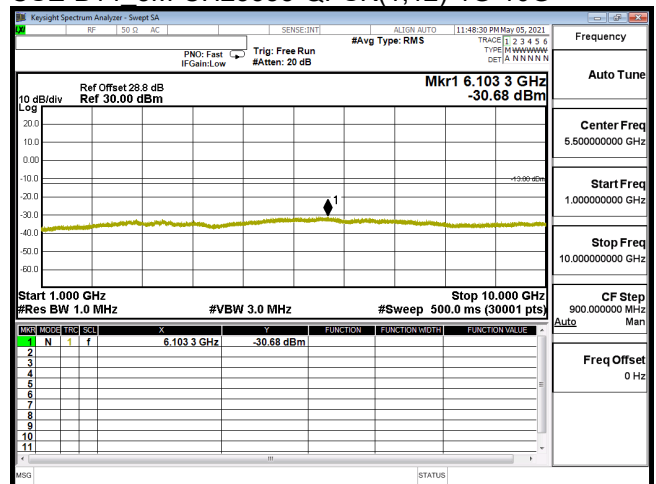
CSE-B14_5M-CH23355-QPSK(1,12)-30M-1G



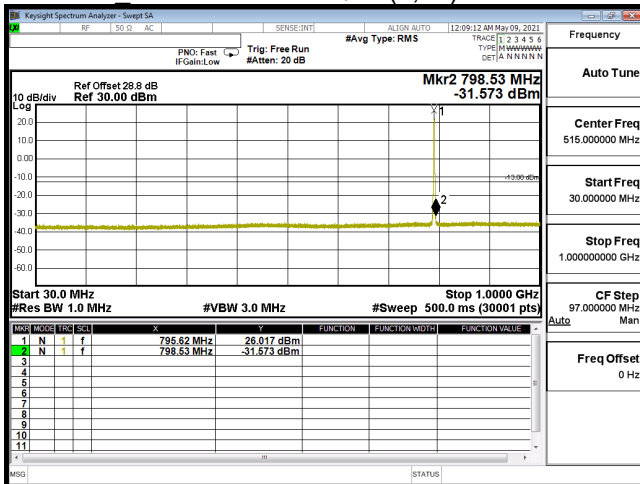
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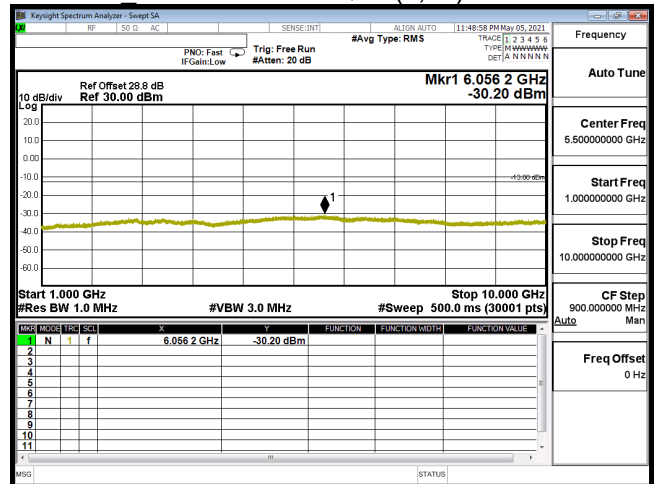
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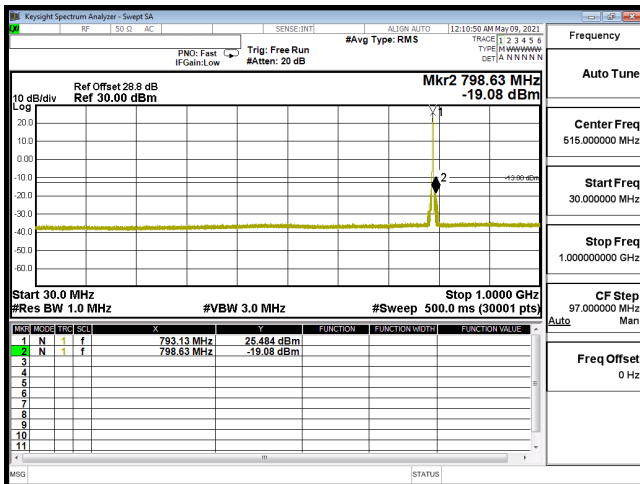
CSE-B14_5M-CH23355-16QAM(1,12)-1G-10G



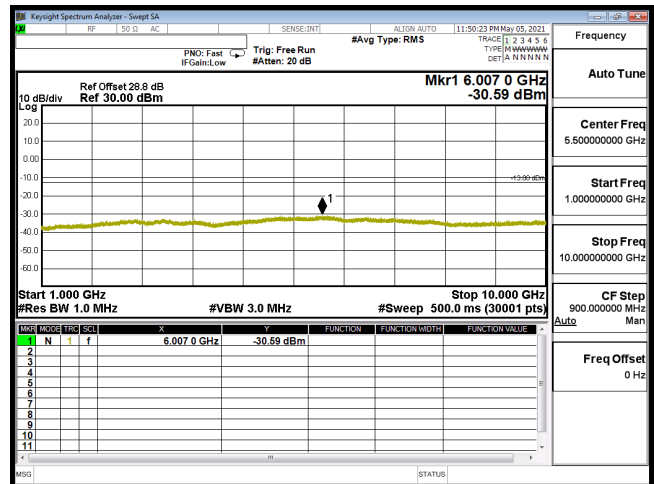
CSE-B14_5M-CH23355-64QAM(1,12)-30M-1G



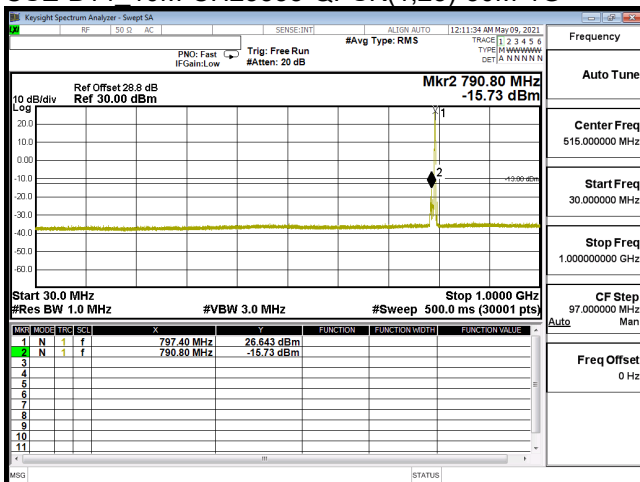
CSE-B14_5M-CH23355-64QAM(1,12)-1G-10G



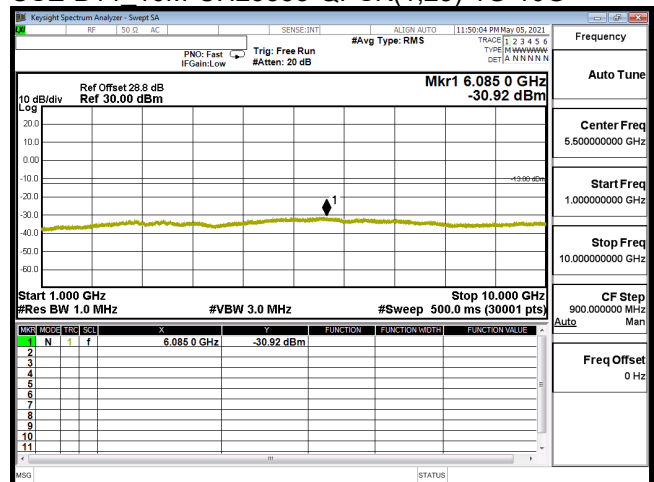
CSE-B14_10M-CH23355-QPSK(1,25)-30M-1G



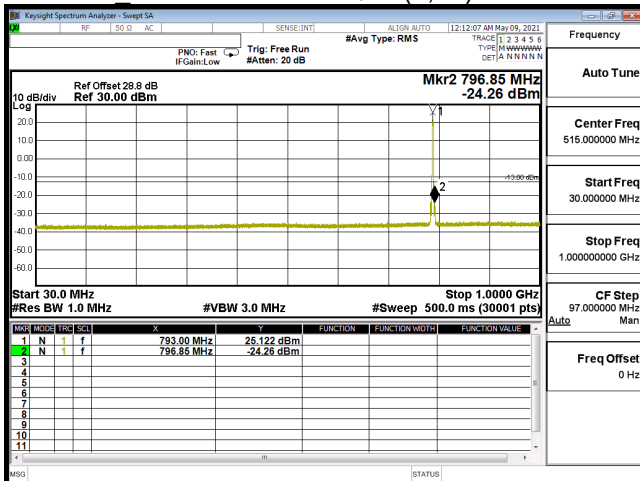
CSE-B14_10M-CH23355-QPSK(1,25)-1G-10G



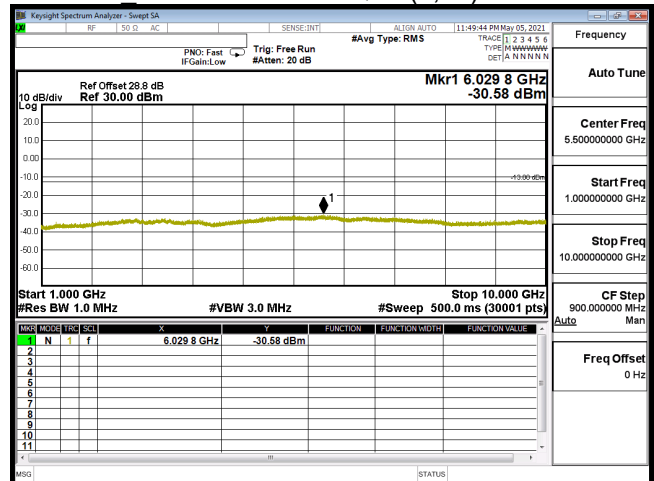
CSE-B14_10M-CH23355-16QAM(1,49)-30M-1G



CSE-B14_10M-CH23355-16QAM(1,49)-1G-10G



CSE-B14_10M-CH23355-64QAM(1,25)-30M-1G



CSE-B14_10M-CH23355-64QAM(1,25)-1G-10G

Product	WCDMA/LTE/5G Mobile Phone		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2021/06/07	Test Site	Site3
Test Condition	Band 14 (5M) QPSK	Test Range	9kHz ~10GHz

Polarity	Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
	(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)
Low Channel: 23305, Frequency: 790.5MHz RB/RB Offset: 1@12							
Horizontal	1580	-44.31	-61.56	1.74	10.00	-53.31	-40
Horizontal	2370	-37.81	-52.91	2.73	12.26	-43.38	-13
Horizontal	3160	-50.76	-64.90	2.45	12.46	-54.89	-13
Vertical	1580	-44.31	-62.06	1.74	10.00	-53.81	-40
Vertical	2370	-37.81	-52.31	2.73	12.26	-42.78	-13
Vertical	3160	-50.76	-64.51	2.45	12.46	-54.50	-13
Mid Channel: 23330, Frequency: 793MHz RB/RB Offset: 1@12							
Horizontal	1586	-43.03	-60.41	1.75	10.0	-52.16	-40
Horizontal	2379	-32.79	-47.84	2.75	12.3	-38.27	-13
Horizontal	3172	-52.06	-66.09	2.45	12.5	-56.07	-13
Vertical	1586	-44.09	-61.89	1.75	10.0	-53.64	-40
Vertical	2379	-28.94	-43.29	2.75	12.3	-33.72	-13
Vertical	3172	-52.24	-66.11	2.45	12.5	-56.10	-13
High Channel: 23355, Frequency: 795.5MHz RB/RB Offset: 1@12							
Horizontal	1591	-37.29	-54.78	1.75	10.0	-46.53	-40
Horizontal	2387	-35.89	-50.89	2.77	12.4	-41.30	-13
Horizontal	3182	-51.54	-65.48	2.45	12.5	-55.46	-13
Vertical	1591	-39.96	-57.80	1.75	10.0	-49.55	-40
Vertical	2387	-30.55	-44.78	2.77	12.4	-35.18	-13
Vertical	3182	-52.67	-66.65	2.45	12.5	-56.63	-13

Note:

1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 4 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Product	WCDMA/LTE/5G Mobile Phone		
Test Mode	Spurious Emission (Radiated)		
Date of Test	2021/06/07	Test Site	Site3
Test Condition	Band 14 (10M) QPSK	Test Range	9kHz ~10GHz

Polarity	Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
	(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)
Mid Channel: 23330, Frequency: 793MHz RB/RB Offset: 1@25							
Horizontal	1586	-42.99	-60.37	1.75	10.0	-52.12	-40
Horizontal	2379	-38.03	-53.08	2.75	12.3	-43.51	-13
Horizontal	3172	-50.04	-64.07	2.45	12.5	-54.05	-13
Vertical	1586	-38.70	-56.50	1.75	10.0	-48.25	-40
Vertical	2379	-23.75	-38.10	2.75	12.3	-28.53	-13
Vertical	3172	-48.07	-61.94	2.45	12.5	-51.93	-13

Note:

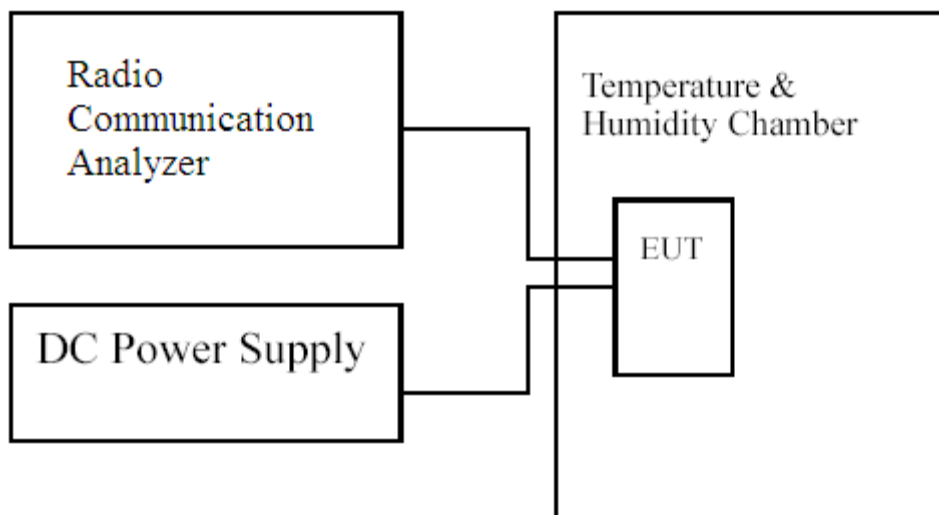
1. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 4 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

7. Frequency Stability Under Temperature & Voltage Variations

7.1. Test Specification

According to Part 2.1055, 90.213

7.2. Test Setup



7.3. Limits

Limit	<±2.5ppm
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7.4. Test Procedure

The frequency stability of transmitter is measured by:

- Temperature: The temperature is varied from -30°C to 50°C in 10°C increment using a standard temperature & Humidity chamber.
- Primary Supply Voltage: The primary supply voltage is varied 85% to 115% of the nominal value for non hand-carried equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating endpoint which shall be specified by the manufacturer.

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

7.5. Test Result of Frequency Stability Under Temperature Variations

Product	WCDMA/LTE/5G Mobile Phone		
Test Mode	Frequency Stability Under Temperature Variations & Voltage Variations		
Date of Test	2021/06/11	Test Site	CTR
Test Condition	Band 14 CH23330(793MHz) –QPSK	Test Range	-20°C~+50°C

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Channel	Deviation (kHz)						Limit (kHz)
		1.4M	3M	5M	10M	15M	20M	
-30	Mid	--	--	0.0085	0.0060	--	--	±1.98
-20	Mid	--	--	0.0112	-0.0077	--	--	±1.98
-10	Mid	--	--	-0.0097	0.0082	--	--	±1.98
0	Mid	--	--	-0.0100	0.0072	--	--	±1.98
10	Mid	--	--	-0.0096	-0.0083	--	--	±1.98
20	Mid	--	--	0.0045	-0.0054	--	--	±1.98
30	Mid	--	--	-0.0091	-0.0083	--	--	±1.98
40	Mid	--	--	-0.0102	-0.0096	--	--	±1.98
50	Mid	--	--	-0.0099	-0.0094	--	--	±1.98

Voltage Variations

DC Voltage (V)	Test Channel	Deviation (kHz)						Limit (kHz)
		1.4M	3M	5M	10M	15M	20M	
4.45	Mid	--	--	0.0117	-0.0026	--	--	±1.98
3.85	Mid	--	--	0.0045	-0.0054	--	--	±1.98
3.6	Mid	--	--	-0.0042	-0.0056	--	--	±1.98

DC Current	5M	10M
LINK	0.67	0.69
IDLE	0.12	0.11