

FCC Test Report

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	Apr 23, 2021
Issued Date	June 25, 2021
Report No.	2150419R-E3032110108
Report Version	V3.0



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.

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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: June 25, 2021

Report No.: 2150419R-E3032110108



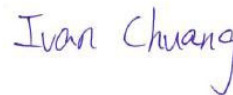
Product Name	WCDMA/LTE/5G Mobile Phone
Applicant	FIH CO., LTD.
Address	No.4, Minsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan
Manufacturer	FIH CO., LTD.
Model No.	EA211001,EC211001,EC211004
FCC ID.	RYQEA211001
EUT Rated Voltage	AC 100-240V, 50-60Hz or DC 3.85V by battery
EUT Test Voltage	AC 120V / 60Hz
Trade Name	FIH
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Genie Chang)

Tested By :



(Senior Engineer / Ivan Chuang)

Approved By :



(Senior Engineer / Vincent Yeh)

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Revision History

Report No.	Version	Description	Issued Date
2150419R-E3032110108	V1.0	Initial issue of report.	2021-06-08
2150419R-E3032110108	V2.0	Update Product Name	2021-06-22
2150419R-E3032110108	V3.0	Update Channel Number and Type of Modulation core version: V5.1	2021-06-25

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	WCDMA/LTE/5G Mobile Phone
Trade Name	FIH
Model No.	EA211001,EC211001,EC211004
FCC ID.	RYQEA211001
Frequency Range	2402 – 2480MHz
Channel Number	79
Type of Modulation	FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps)
Antenna Type	Loop Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
USB Cable	Shielded, 1m
Power Adapter	MFR: CHEN YANG, M/N: CK18W02U Input: AC 100-240V, 50-60Hz, 0.5A Output: 5V ---3A or 9V ---2A or 12V ---1.5A

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Tongda	MEFLC61001A/MEFLC61004A	Loop Antenna	-4.7dBi for 2.4GHz

Note: The antenna of EUT is conforming to FCC 15.203.

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 20:	2422 MHz	Channel 40:	2442 MHz	Channel 60:	2462 MHz
Channel 01:	2403 MHz	Channel 21:	2423 MHz	Channel 41:	2443 MHz	Channel 61:	2463 MHz
Channel 02:	2404 MHz	Channel 22:	2424 MHz	Channel 42:	2444 MHz	Channel 62:	2464 MHz
Channel 03:	2405 MHz	Channel 23:	2425 MHz	Channel 43:	2445 MHz	Channel 63:	2465 MHz
Channel 04:	2406 MHz	Channel 24:	2426 MHz	Channel 44:	2446 MHz	Channel 64:	2466 MHz
Channel 05:	2407 MHz	Channel 25:	2427 MHz	Channel 45:	2447 MHz	Channel 65:	2467 MHz
Channel 06:	2408 MHz	Channel 26:	2428 MHz	Channel 46:	2448 MHz	Channel 66:	2468 MHz
Channel 07:	2409 MHz	Channel 27:	2429 MHz	Channel 47:	2449 MHz	Channel 67:	2469 MHz
Channel 08:	2410 MHz	Channel 28:	2430 MHz	Channel 48:	2450 MHz	Channel 68:	2470 MHz
Channel 09:	2411 MHz	Channel 29:	2431 MHz	Channel 49:	2451 MHz	Channel 69:	2471 MHz
Channel 10:	2412 MHz	Channel 30:	2432 MHz	Channel 50:	2452 MHz	Channel 70:	2472 MHz
Channel 11:	2413 MHz	Channel 31:	2433 MHz	Channel 51:	2453 MHz	Channel 71:	2473 MHz
Channel 12:	2414 MHz	Channel 32:	2434 MHz	Channel 52:	2454 MHz	Channel 72:	2474 MHz
Channel 13:	2415 MHz	Channel 33:	2435 MHz	Channel 53:	2455 MHz	Channel 73:	2475 MHz
Channel 14:	2416 MHz	Channel 34:	2436 MHz	Channel 54:	2456 MHz	Channel 74:	2476 MHz
Channel 15:	2417 MHz	Channel 35:	2437 MHz	Channel 55:	2457 MHz	Channel 75:	2477 MHz
Channel 16:	2418 MHz	Channel 36:	2438 MHz	Channel 56:	2458 MHz	Channel 76:	2478 MHz
Channel 17:	2419 MHz	Channel 37:	2439 MHz	Channel 57:	2459 MHz	Channel 77:	2479 MHz
Channel 18:	2420 MHz	Channel 38:	2440 MHz	Channel 58:	2460 MHz	Channel 78:	2480 MHz
Channel 19:	2421 MHz	Channel 39:	2441 MHz	Channel 59:	2461 MHz		

Note:

1. The EUT is a WCDMA/LTE/5G Mobile Phone with a built-in 2.4 GHz 、 5 GHz WLAN 、 Bluetooth V5.1, V3.0, V2.1+EDR 、 NFC and WWAN transceiver, this report for Bluetooth V3.0, V2.1+EDR.
2. It's declared by manufacture about all models are electrically identical, different model names for marketing purpose. The identification of test sample is EA211001.
3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
4. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
5. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.

Test Mode	Mode 1: Transmit - 1Mbps
	Mode 2: Transmit - 3Mbps

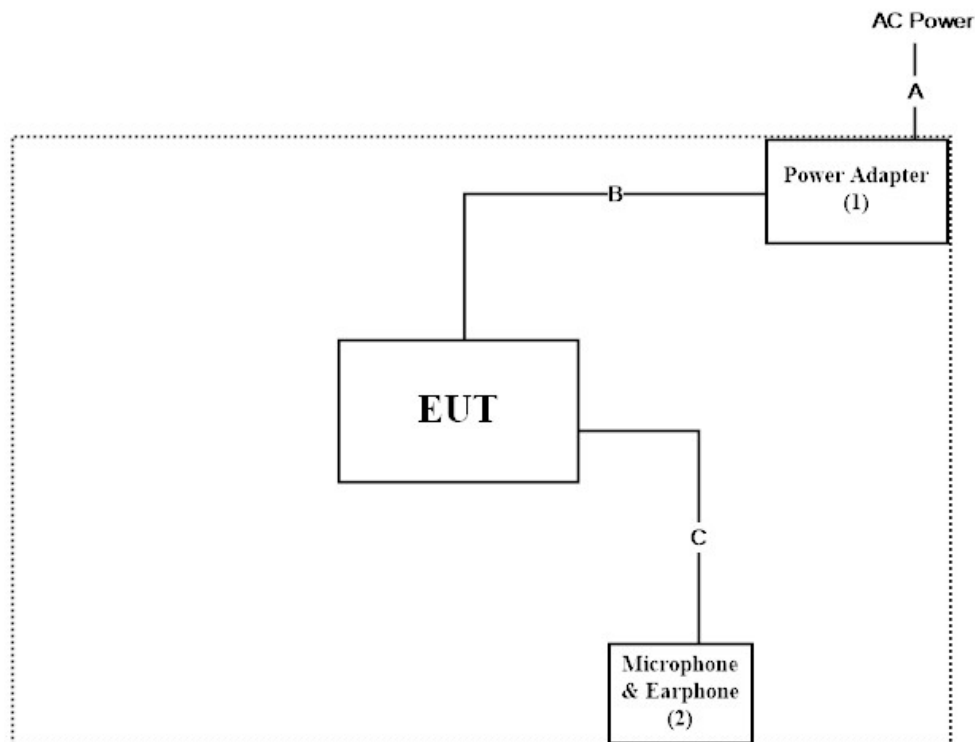
1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Power Adapter	CHEN YANG	CK18W02U	N/A	N/A
2	Microphone & Earphone	Ergotech	ET-E201	N/A	N/A

Signal Cable Type	Signal cable Description
A	Power Cable
B	USB Cable
C	Audio Cable

1.3. Configuration of Tested System



1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.3.
2. Execute software "Engineer Mode v2021-04-16-122001" on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press "OK" to start the continuous Transmit.
5. Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10~40 °C	23.5 °C
	Humidity (%RH)	10~90 %	60.1 %
Radiated Emission	Temperature (°C)	10~40 °C	31.6 °C
	Humidity (%RH)	10~90 %	66.2 %
Conductive	Temperature (°C)	10~40 °C	22 °C
	Humidity (%RH)	10~90 %	55 %

USA : FCC Registration Number: TW0033

Canada : IC Registration Number: 26930

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City
Phone number : 886-2-2602-7968
Fax number : 866-2-2602-3286
Email address : info.tw@dekra.com
Website : <http://www.dekra.com.tw>

1.6. List of Test Equipment

For Conduction measurements / ASR1-1

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	EMI Test Receiver	R&S	ESR7	101601	2021.01.04	2022.01.03
X	Two-Line V-Network	R&S	ENV216	101306	2021.04.08	2022.04.07
X	Two-Line V-Network	R&S	ENV216	101307	2021.05.04	2022.05.03
X	Coaxial Cable	DEKRA	RG400_BNC	RF001	2021.05.24	2022.05.23

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA Testing System V2.0.

For Conducted measurements /AC2

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Spectrum Analyzer	Keysight	N9030B	MY56320509	2020.08.10	2021.08.09
X	Power Meter	Anritsu	ML2496A	1548003	2020.12.21	2021.12.20
X	Power Sensor	Anritsu	MA2411B	1531024	2020.12.21	2021.12.20
X	Power Sensor	Anritsu	MA2411B	1531025	2020.12.21	2021.12.20

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V9.0.5.

For Radiated measurements /AC2

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Loop Antenna	AMETEK	HLA6121	56736	2021.04.14	2022.04.13
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-953	2021.01.29	2022.01.28
X	Horn Antenna	ETS-Lindgren	3117	00203799	2020.12.22	2021.12.21
X	Horn Antenna	Com-Power	AH-840	101101	2020.11.19	2021.11.18
X	Pre-Amplifier	EMCI	EMC001330	980302	2020.07.08	2021.07.07
X	Pre-Amplifier	EMCI	EMC051835SE	980312	2020.06.10	2021.06.09
X	Pre-Amplifier	EMCI	EMC05820SE	980361	2020.12.21	2021.12.20
X	Pre-Amplifier	EMCI	EMC184045SE	980369	2021.04.27	2022.04.26
X	Filter	MICRO TRONICS	BRM50702	G251	2020.09.17	2021.09.16
X	Filter	MICRO TRONICS	BRM50716	G188	2020.09.17	2021.09.16
X	EMI Test Receiver	R&S	ESR	102793	2020.12.17	2021.12.16
X	Spectrum Analyzer	R&S	FSV3044	101114	2021.02.04	2022.02.03
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF003	2021.03.03	2022.03.02
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2020.06.10	2021.06.09

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA Testing System V2.0.

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.

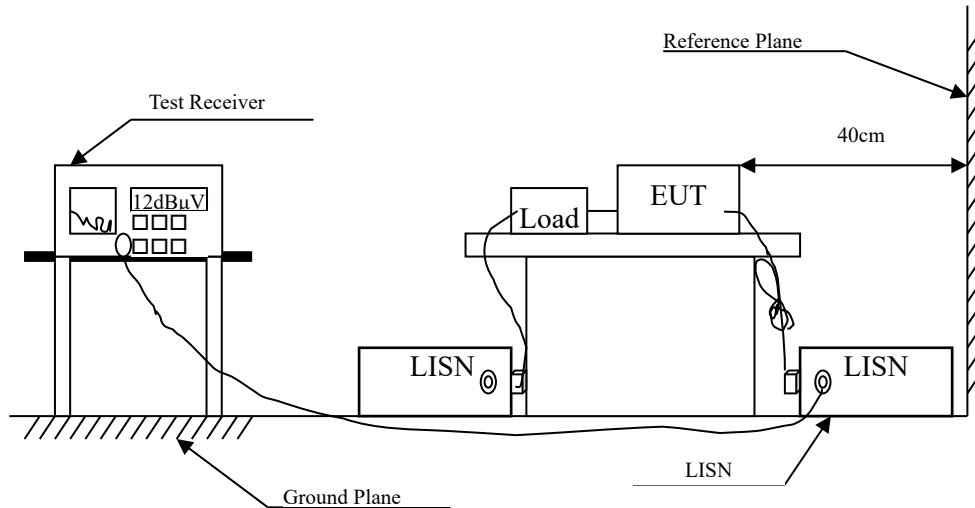
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

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 item	Uncertainty	
Conducted Emission	$\pm 3.42\text{dB}$	
Peak Power Output	Power Meter $\pm 0.89\text{dB}$	Spectrum Analyzer $\pm 2.06\text{dB}$
Radiated Emission	Under 1GHz $\pm 4.05\text{ dB}$	Above 1GHz $\pm 3.73\text{ dB}$
RF antenna conducted test	$\pm 2.06\text{dB}$	
Band Edge	Under 1GHz $\pm 4.05\text{ dB}$	Above 1GHz $\pm 3.73\text{ dB}$
Channel Separation	$\pm 1544.74\text{Hz}$	
Dwell Time	$\pm 2.31\text{msec}$	
Occupied Bandwidth	$\pm 1544.74\text{Hz}$	
Duty Cycle	$\pm 2.31\text{msec}$	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dB μ V) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

The EUT and Peripherals are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

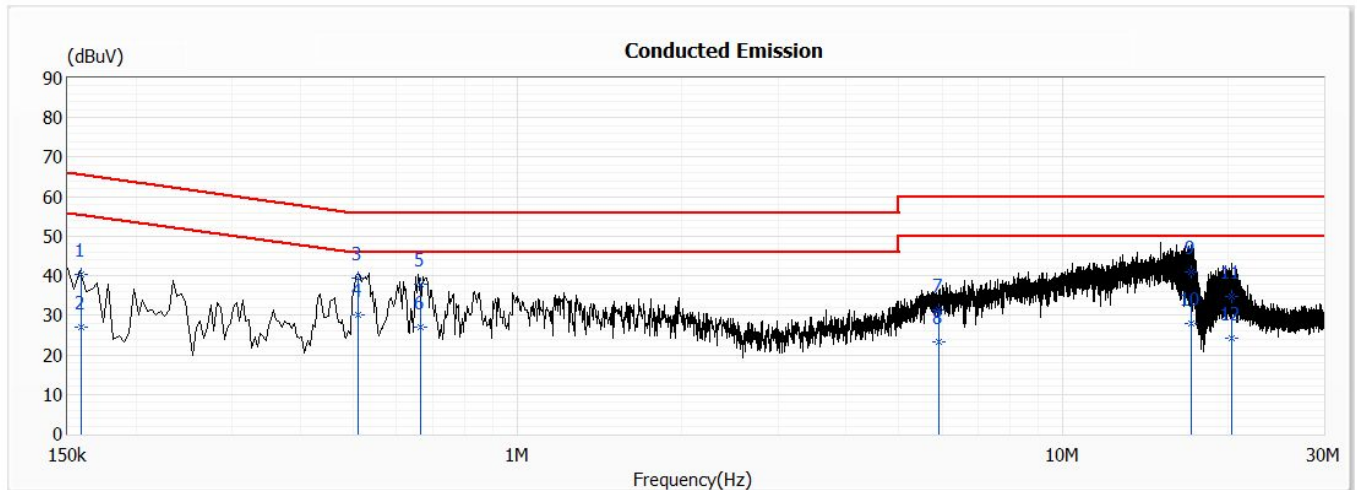
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT setup and the test procedure are according to ANSI C63.4, 2014 to comply with the requirements of FCC 47CFR Subpart C.

2.4. Test Result of Conducted Emission

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Conducted Emission Test
 Test date : 2021/06/08
 Test Mode : Mode 2: Transmit - 3Mbps (2441MHz)

Line1



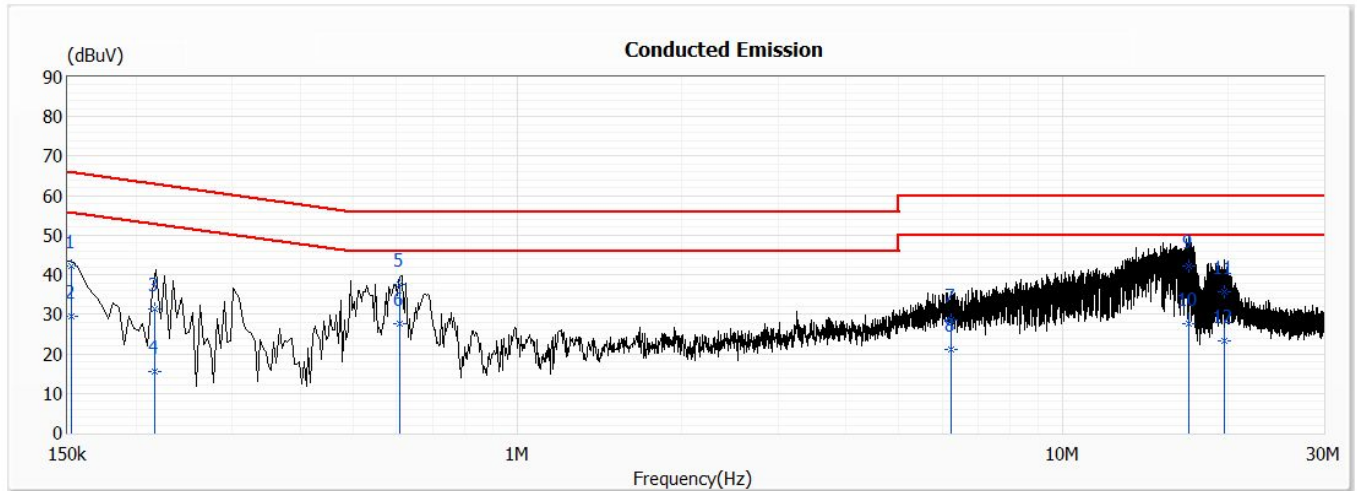
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.159	40.25	65.52	-25.27	30.59	9.66	QP
2	0.159	26.93	55.52	-28.59	17.27	9.66	AV
3	0.511	39.29	56.00	-16.71	29.63	9.66	QP
*4	0.511	29.98	46.00	-16.02	20.32	9.66	AV
5	0.664	37.98	56.00	-18.02	28.31	9.67	QP
6	0.664	27.13	46.00	-18.87	17.46	9.67	AV
7	5.919	31.37	60.00	-28.63	21.55	9.82	QP
8	5.919	23.40	50.00	-26.60	13.58	9.82	AV
9	17.208	40.88	60.00	-19.12	30.93	9.95	QP
10	17.208	28.07	50.00	-21.93	18.12	9.95	AV
11	20.308	34.69	60.00	-25.31	24.72	9.97	QP
12	20.308	24.21	50.00	-25.79	14.24	9.97	AV

Remark:

1. "*" means this data is the worst emission level; "!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=LISN Factor+Cable Loss).
3. Margin=Emission Level-Limit

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Conducted Emission Test
 Test date : 2021/06/08
 Test Mode : Mode 2: Transmit - 3Mbps (2441MHz)

N



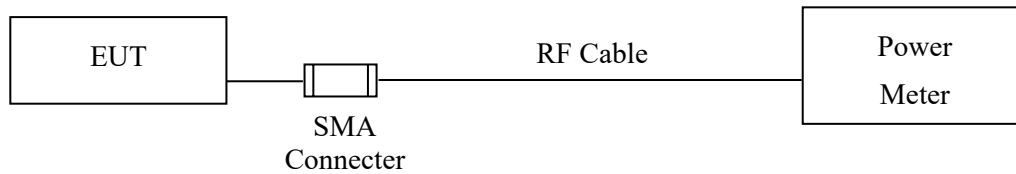
No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.153	42.09	65.85	-23.76	32.42	9.67	QP
2	0.153	29.57	55.85	-26.28	19.90	9.67	AV
3	0.216	31.44	62.96	-31.52	21.77	9.67	QP
4	0.216	15.39	52.96	-37.57	5.72	9.67	AV
5	0.610	37.62	56.00	-18.38	27.95	9.67	QP
6	0.610	27.76	46.00	-18.24	18.09	9.67	AV
7	6.222	28.61	60.00	-31.39	18.78	9.83	QP
8	6.222	21.24	50.00	-28.76	11.41	9.83	AV
*9	16.984	42.26	60.00	-17.74	32.25	10.01	QP
10	16.984	27.75	50.00	-22.25	17.74	10.01	AV
11	19.717	35.84	60.00	-24.16	25.79	10.05	QP
12	19.717	23.26	50.00	-26.74	13.21	10.05	AV

Remark:

1. "*" means this data is the worst emission level; "!" means this data is over limit.
2. Emission Level=Reading Level + Correct Factor(Correct Factor=LISN Factor+Cable Loss).
3. Margin=Emission Level-Limit

3. Peak Power Output

3.1. Test Setup



3.2. Limit

The maximum peak power shall be less 1Watt.

3.3. Test Procedure

Tested according to FHSS test procedure of KDB 558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

3.4. Test Result of Peak Power Output

Product : WCDMA/LTE/5G Mobile Phone
Test Item : Peak Power Output
Test Mode : Mode 1: Transmit - 1Mbps
Test Date : 2021/06/08

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	7.70	1 Watt= 30 dBm	Pass
Channel 39	2441.00	6.34	1 Watt= 30 dBm	Pass
Channel 78	2480.00	10.74	1 Watt= 30 dBm	Pass

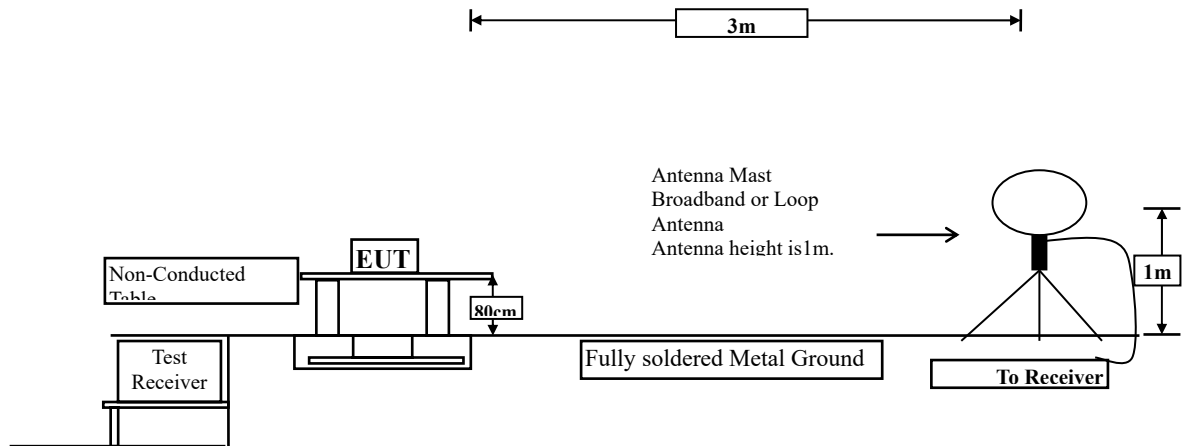
Product : WCDMA/LTE/5G Mobile Phone
Test Item : Peak Power Output
Test Mode : Mode 2: Transmit - 3Mbps
Test Date : 2021/06/08

Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	7.56	1 Watt= 30 dBm	Pass
Channel 39	2441.00	6.24	1 Watt= 30 dBm	Pass
Channel 78	2480.00	10.02	1 Watt= 30 dBm	Pass

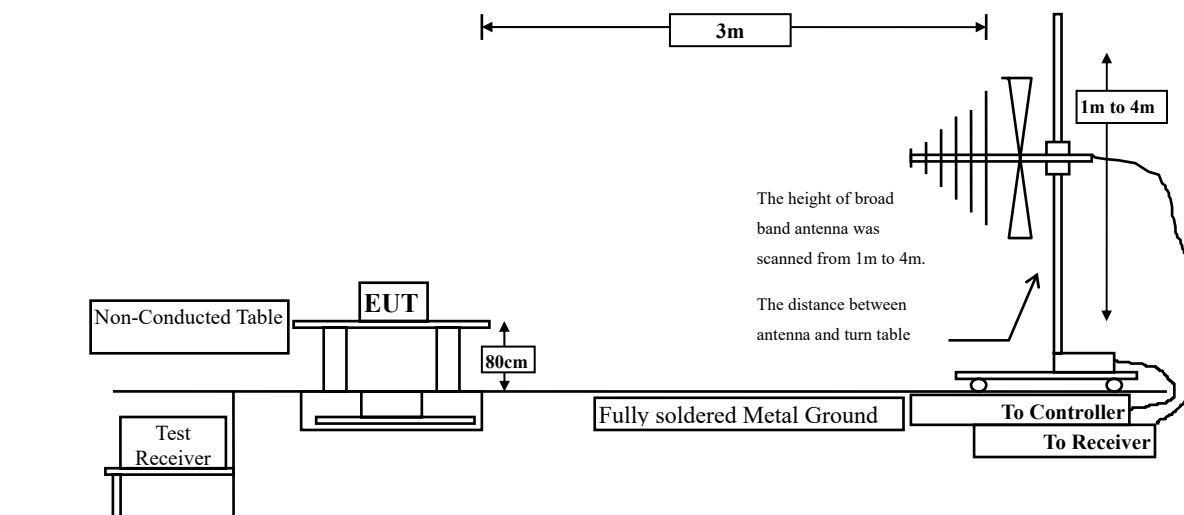
4. Radiated Emission

4.1. Test Setup

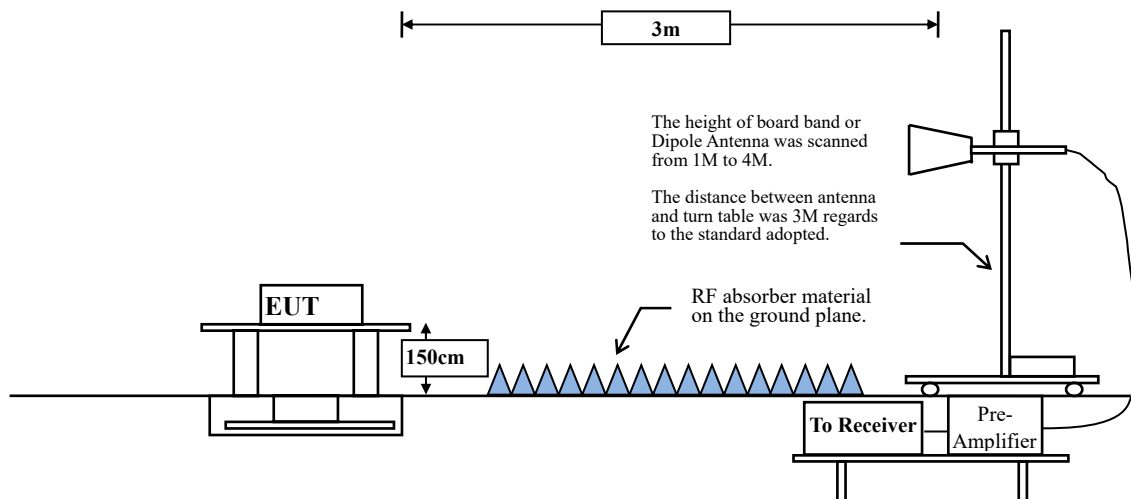
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

- Remarks:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 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 is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

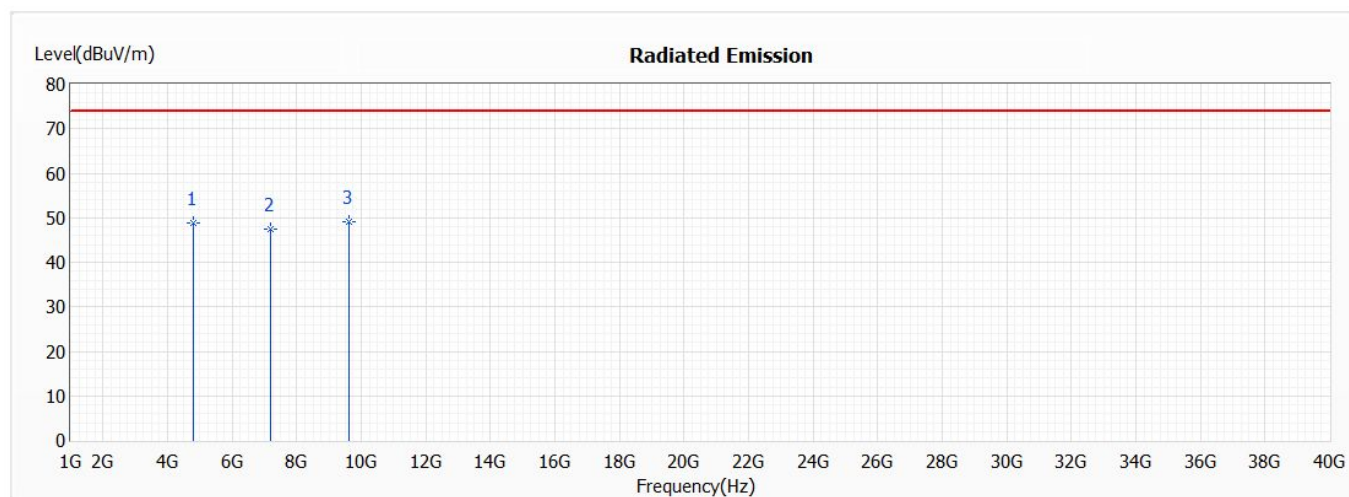
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

4.4. Test Result of Radiated Emission

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - 1Mbps(2402MHz)
 Test Date : 2021/05/25

Horizontal



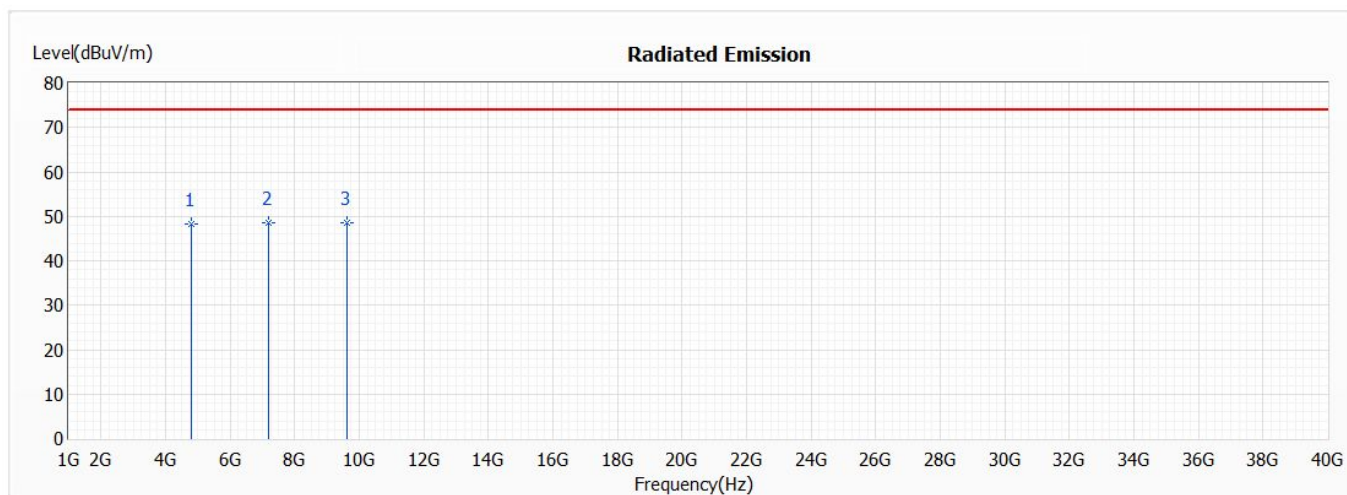
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	48.91	74.00	-25.09	50.48	-1.57	PK
2	7206.000	47.53	74.00	-26.47	44.61	2.92	PK
* 3	9608.000	49.18	74.00	-24.82	44.25	4.93	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - 1Mbps(2402MHz)
 Test Date : 2021/05/25

Vertical



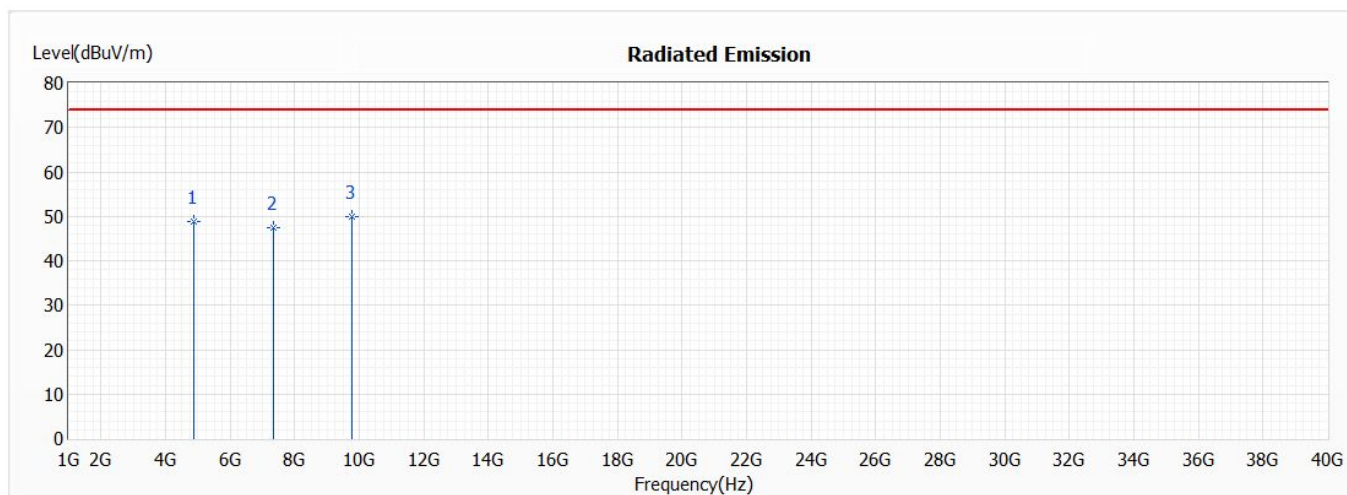
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	48.30	74.00	-25.70	49.87	-1.57	PK
2	7206.000	48.44	74.00	-25.56	45.52	2.92	PK
* 3	9608.000	48.56	74.00	-25.44	43.63	4.93	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - 1Mbps(2441MHz)
 Test Date : 2021/05/25

Horizontal



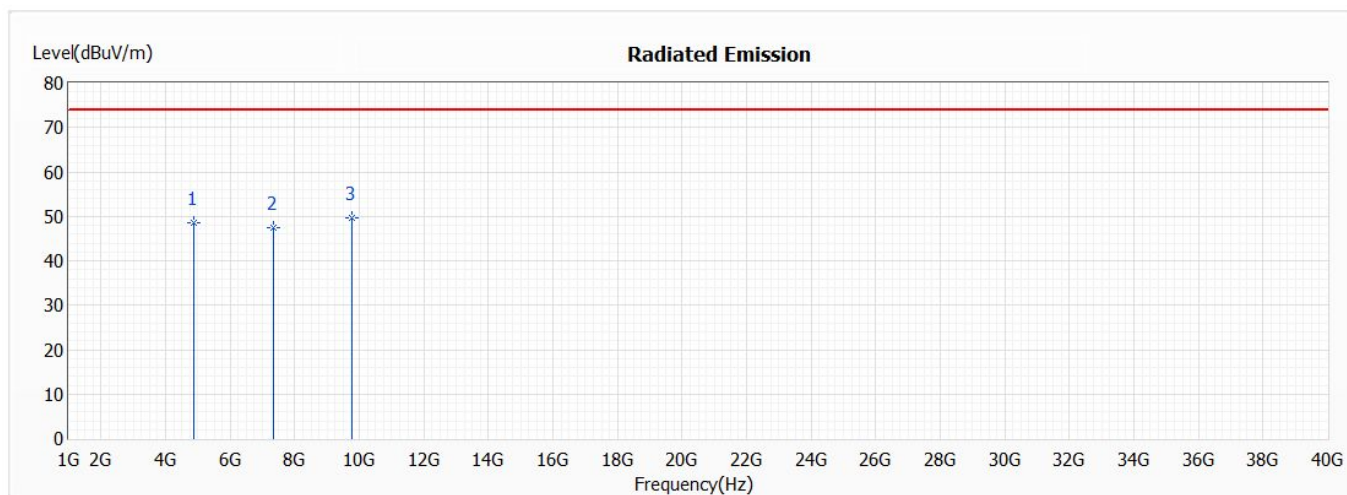
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4882.000	48.86	74.00	-25.14	50.36	-1.50	PK
2	7323.000	47.39	74.00	-26.61	44.46	2.93	PK
* 3	9764.000	49.85	74.00	-24.15	44.60	5.25	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - 1Mbps(2441MHz)
 Test Date : 2021/05/25

Vertical



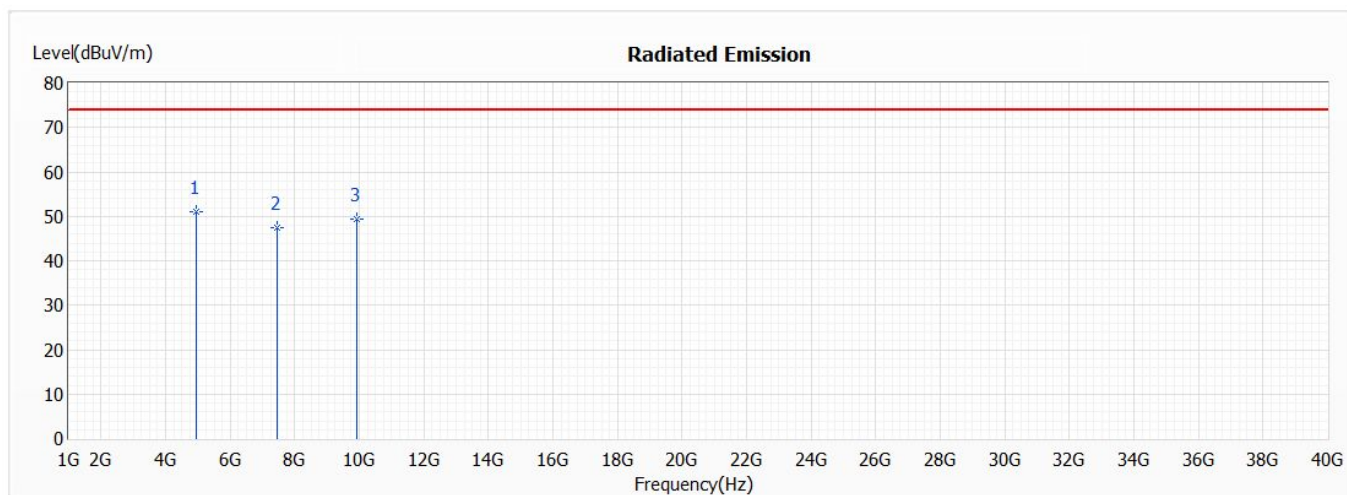
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4882.000	48.47	74.00	-25.53	49.97	-1.50	PK
2	7323.000	47.48	74.00	-26.52	44.55	2.93	PK
* 3	9764.000	49.68	74.00	-24.32	44.43	5.25	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - 1Mbps(2480MHz)
 Test Date : 2021/05/25

Horizontal



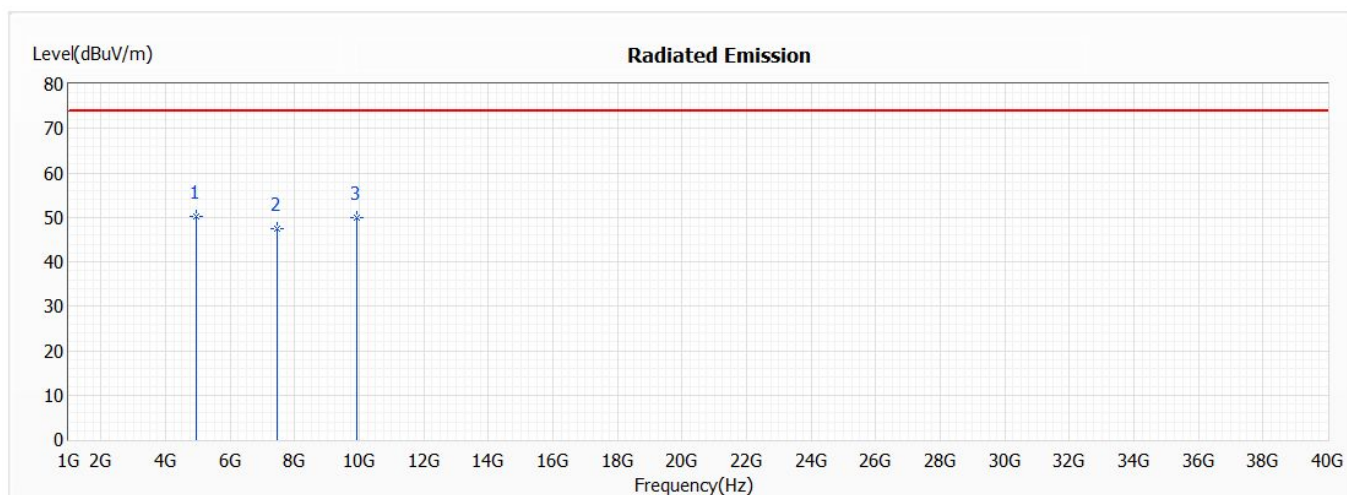
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	4960.000	50.95	74.00	-23.05	52.10	-1.15	PK
2	7440.000	47.36	74.00	-26.64	44.29	3.07	PK
3	9920.000	49.50	74.00	-24.50	44.05	5.45	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 1: Transmit - 1Mbps(2480MHz)
 Test Date : 2021/05/25

Vertical



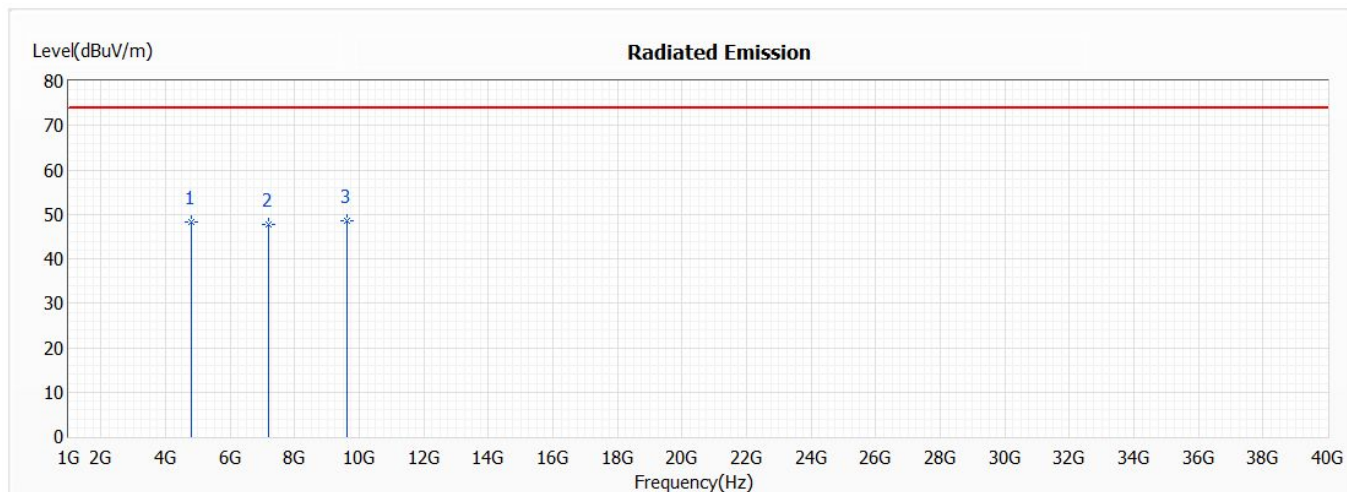
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	4960.000	50.26	74.00	-23.74	51.41	-1.15	PK
2	7440.000	47.57	74.00	-26.43	44.50	3.07	PK
3	9920.000	49.83	74.00	-24.17	44.38	5.45	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2402MHz)
 Test Date : 2021/05/25

Horizontal



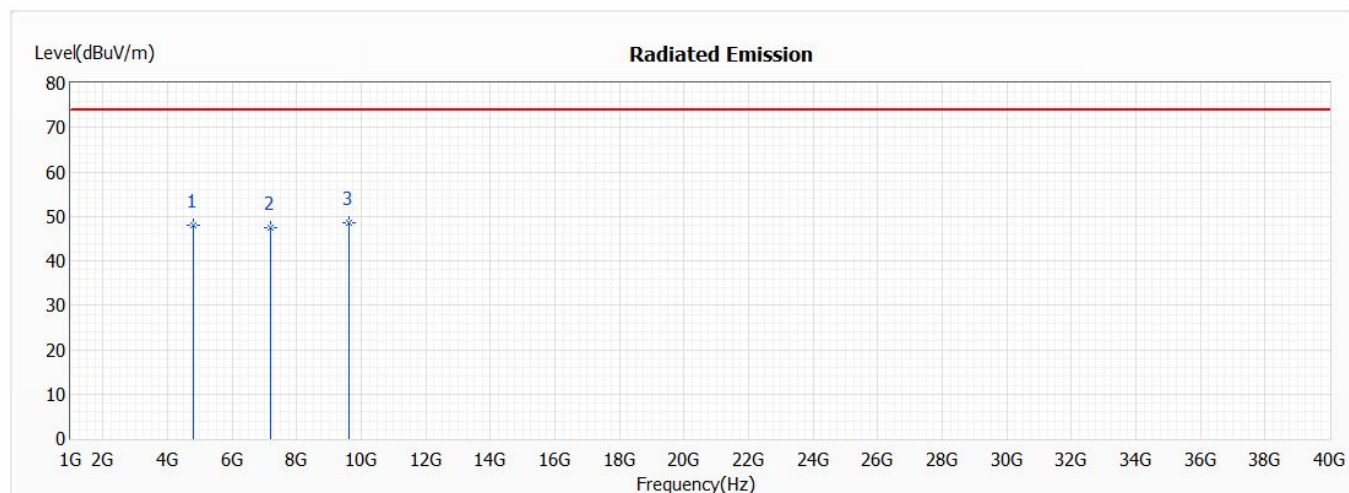
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	48.36	74.00	-25.64	49.93	-1.57	PK
2	7206.000	47.86	74.00	-26.14	44.94	2.92	PK
* 3	9608.000	48.52	74.00	-25.48	43.59	4.93	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2402MHz)
 Test Date : 2021/05/25

Vertical



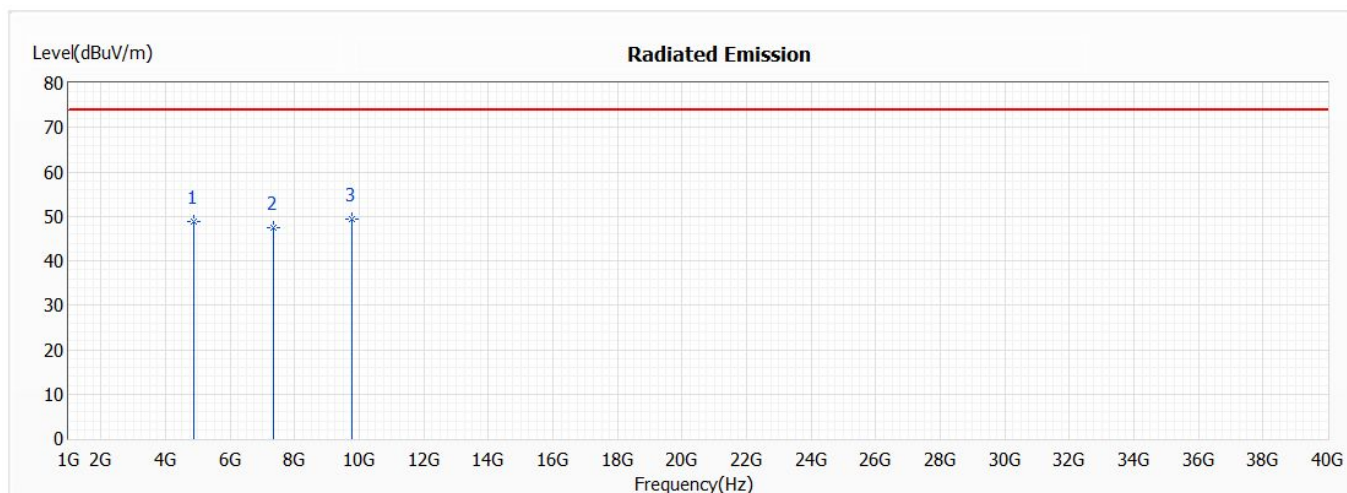
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4804.000	47.89	74.00	-26.11	49.46	-1.57	PK
2	7206.000	47.44	74.00	-26.56	44.52	2.92	PK
* 3	9608.000	48.45	74.00	-25.55	43.52	4.93	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2441MHz)
 Test Date : 2021/05/25

Horizontal



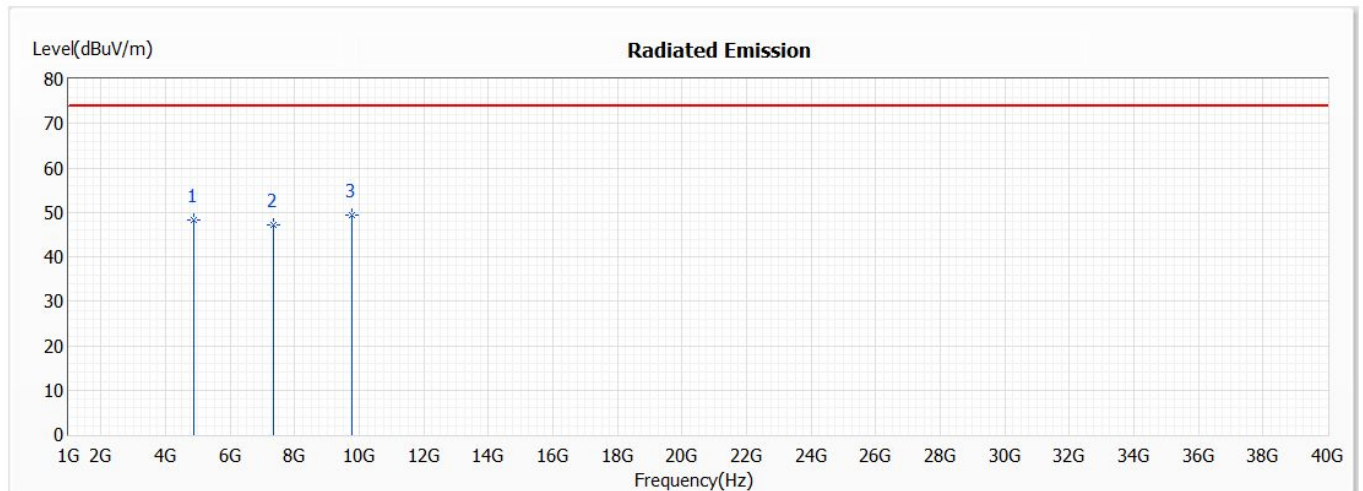
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4882.000	48.76	74.00	-25.24	50.26	-1.50	PK
2	7323.000	47.57	74.00	-26.43	44.64	2.93	PK
* 3	9764.000	49.41	74.00	-24.59	44.16	5.25	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2441MHz)
 Test Date : 2021/05/25

Vertical



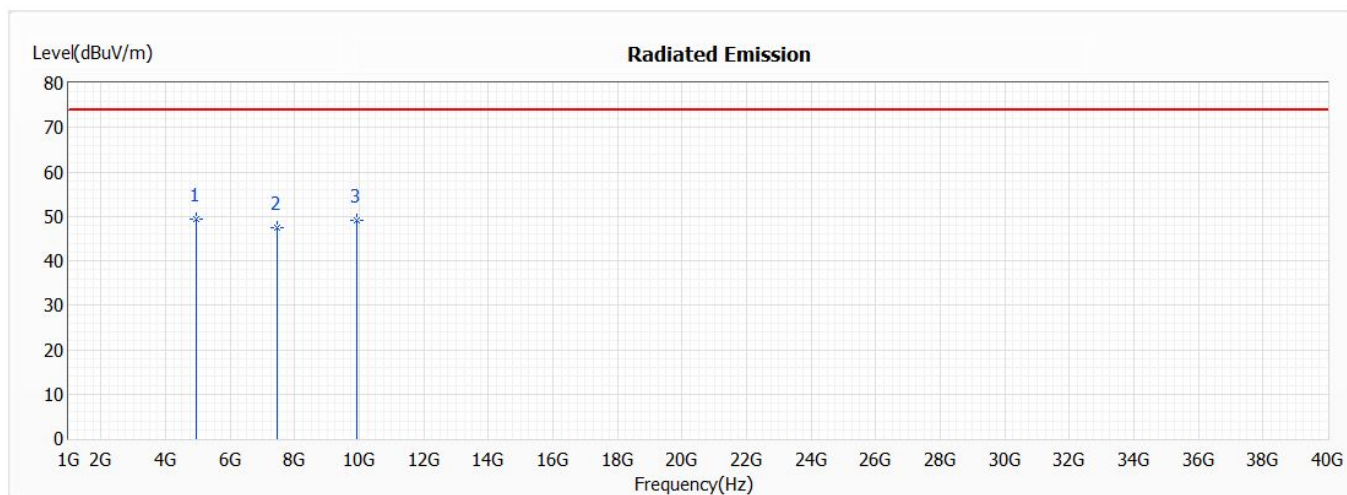
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4882.000	48.21	74.00	-25.79	49.71	-1.50	PK
2	7323.000	47.26	74.00	-26.74	44.33	2.93	PK
* 3	9764.000	49.40	74.00	-24.60	44.15	5.25	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2480MHz)
 Test Date : 2021/05/25

Horizontal



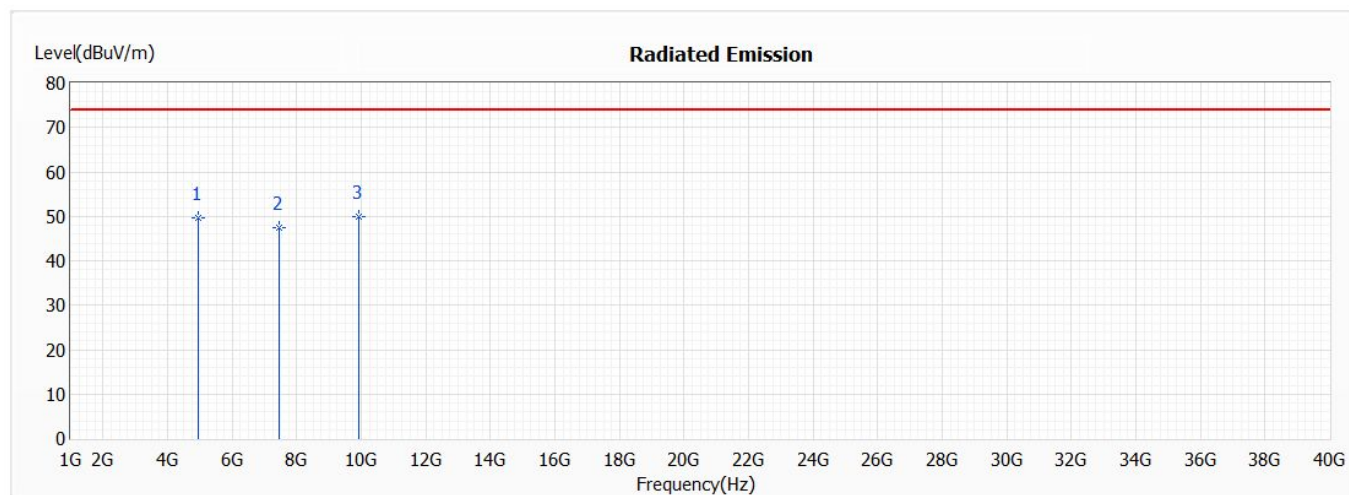
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	4960.000	49.45	74.00	-24.55	50.60	-1.15	PK
2	7440.000	47.44	74.00	-26.56	44.37	3.07	PK
3	9920.000	49.24	74.00	-24.76	43.79	5.45	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Harmonic Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2480MHz)
 Test Date : 2021/05/25

Vertical

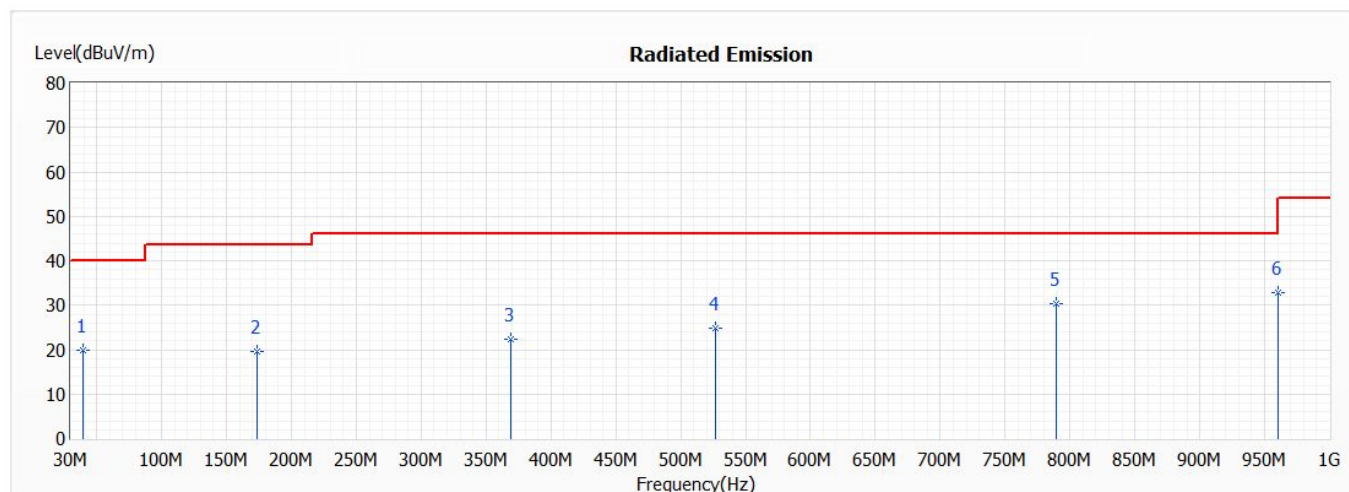


Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : General Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2441MHz)
 Test Date : 2021/06/04

Horizontal



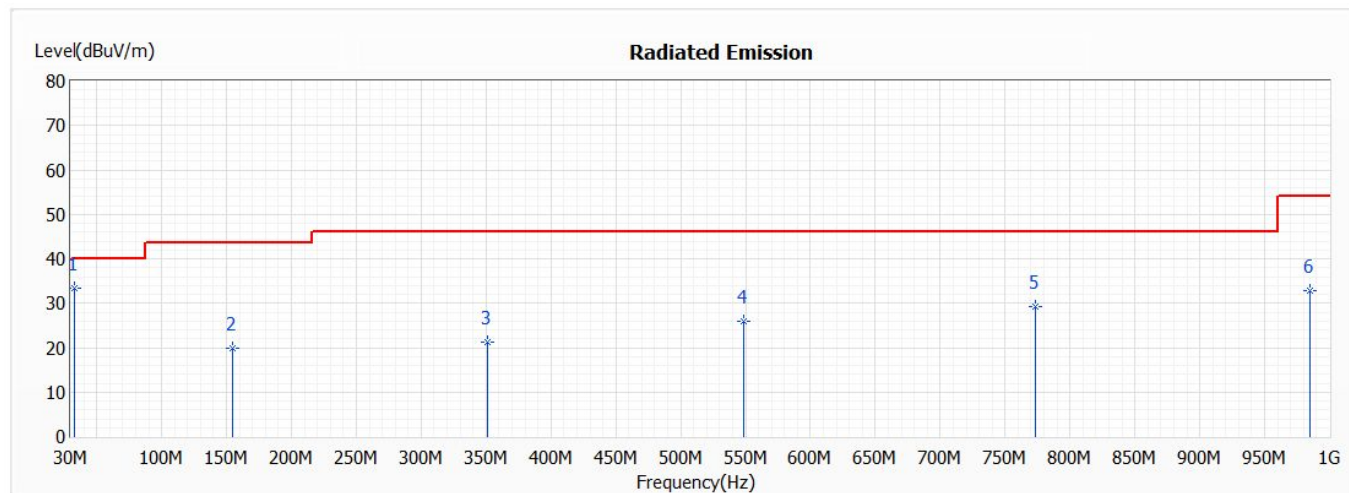
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	39.700	19.76	40.00	-20.24	30.73	-10.97	QP
2	173.560	19.52	43.50	-23.98	30.10	-10.58	QP
3	369.500	22.25	46.00	-23.75	30.17	-7.92	QP
4	526.640	24.96	46.00	-21.04	29.51	-4.55	QP
* 5	789.510	30.45	46.00	-15.55	30.59	-0.14	QP
6	960.230	32.82	54.00	-21.18	30.83	1.99	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : General Radiated Emission
 Test Mode : Mode 2: Transmit - 3Mbps (2441MHz)
 Test Date : 2021/06/04

Vertical



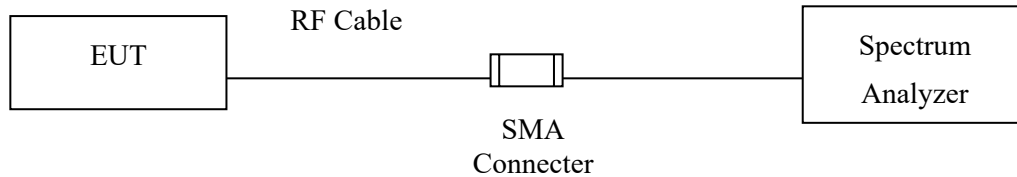
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	32.910	33.33	40.00	-6.67	45.05	-11.72	QP
2	155.130	19.76	43.50	-23.74	30.18	-10.42	QP
3	351.070	21.26	46.00	-24.74	29.71	-8.45	QP
4	548.950	25.85	46.00	-20.15	29.97	-4.12	QP
5	773.020	29.22	46.00	-16.78	29.54	-0.32	QP
6	984.480	32.71	54.00	-21.29	30.67	2.04	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

5. RF Antenna Conducted Test

5.1. Test Setup



5.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 b) for compliance to FCC 47CFR 15.247 requirements.

5.4. Test Result of RF Antenna Conducted Test

Product : WCDMA/LTE/5G Mobile Phone
Test Item : RF Antenna Conducted Test
Test Mode : Mode 1: Transmit - 1Mbps
Test Date : 2021/05/25

Figure Channel 00:

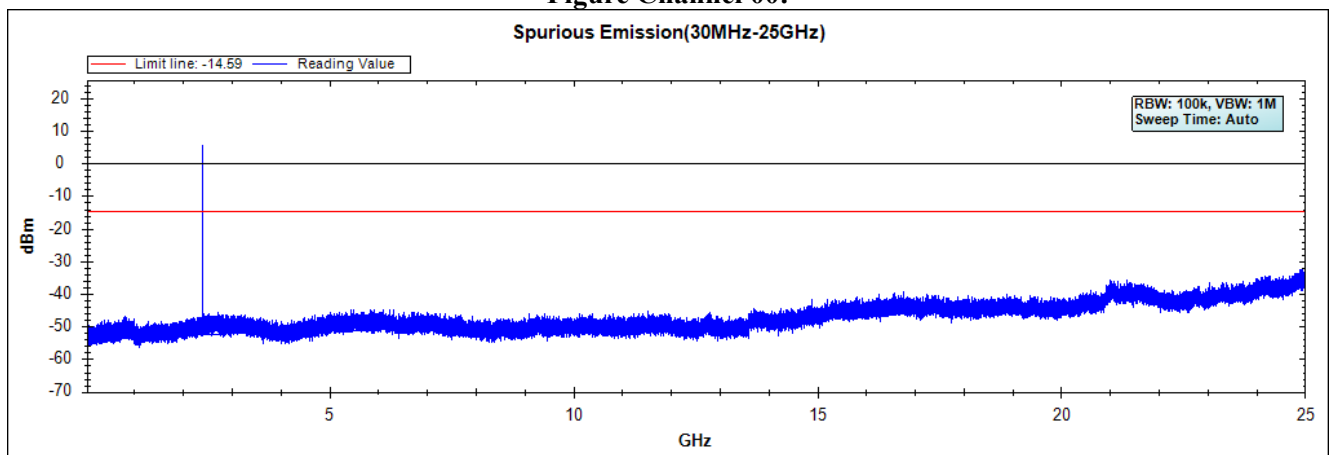


Figure Channel 39:

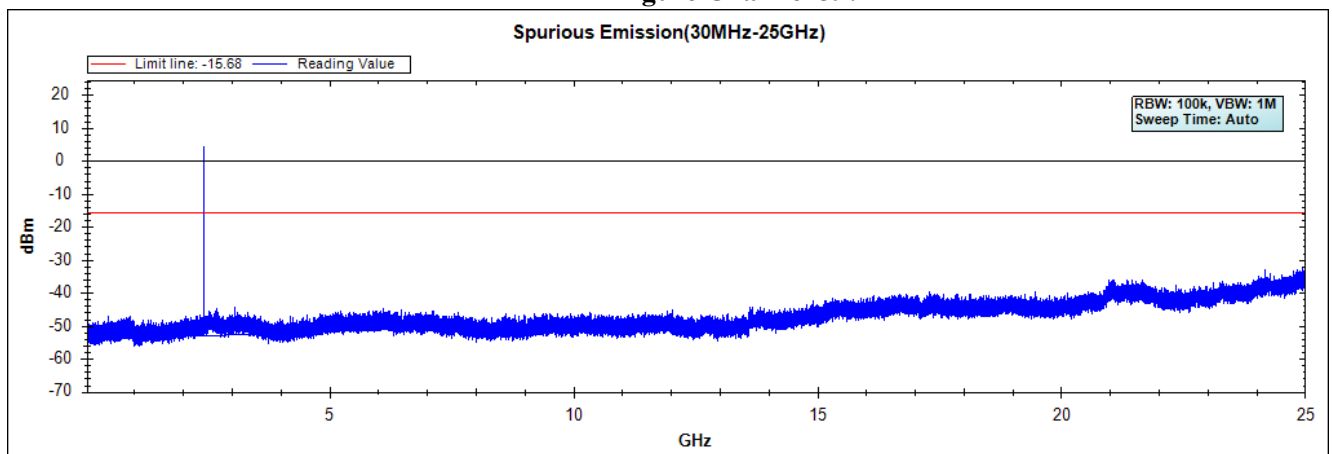
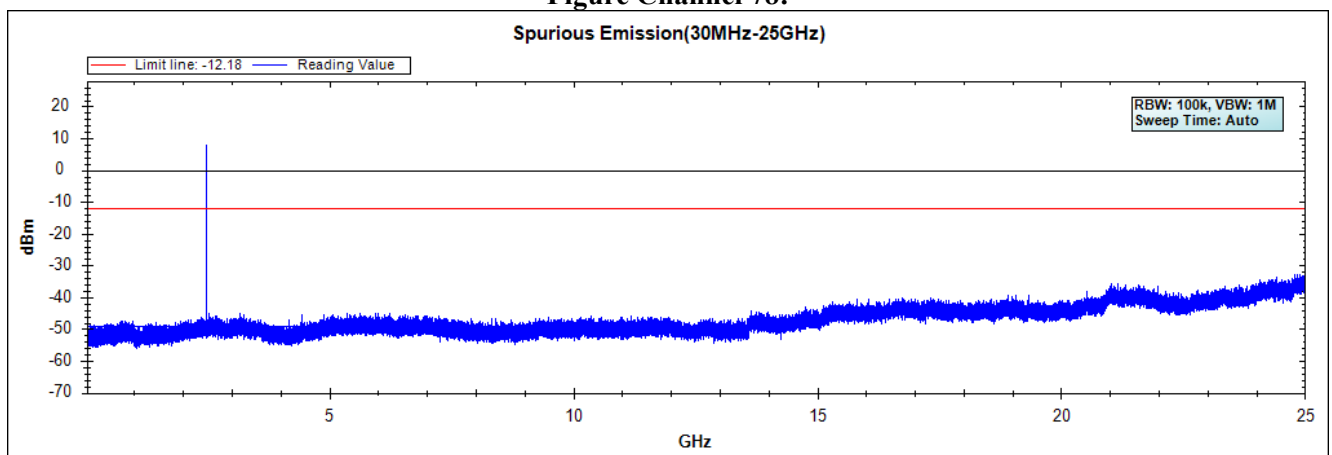
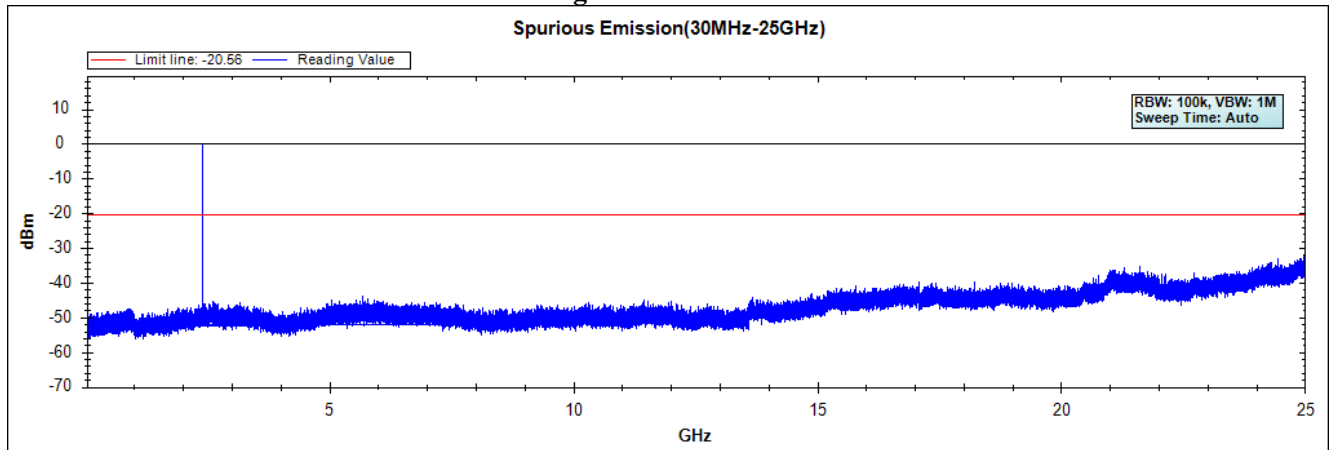
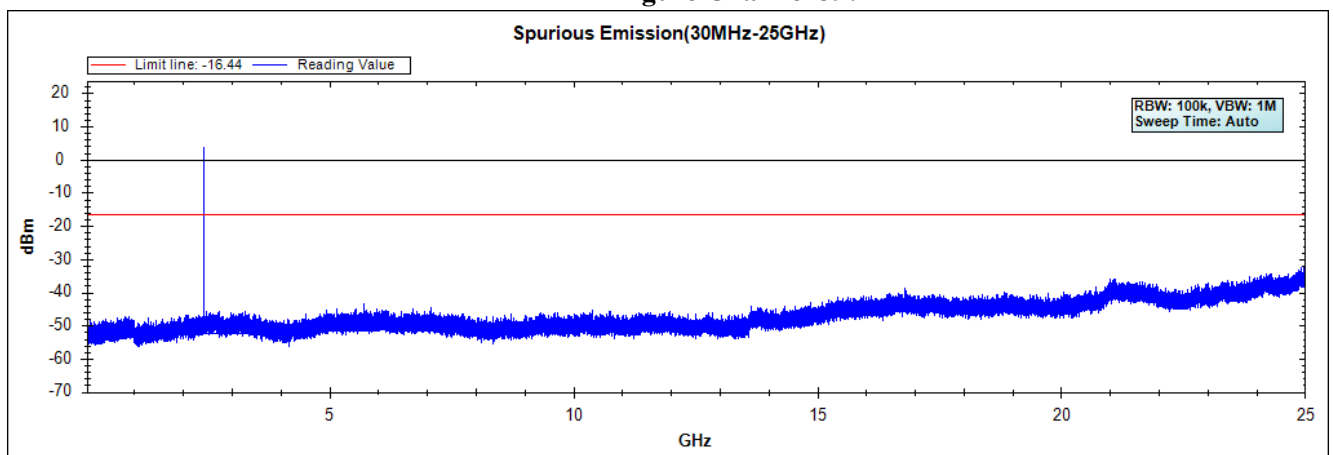
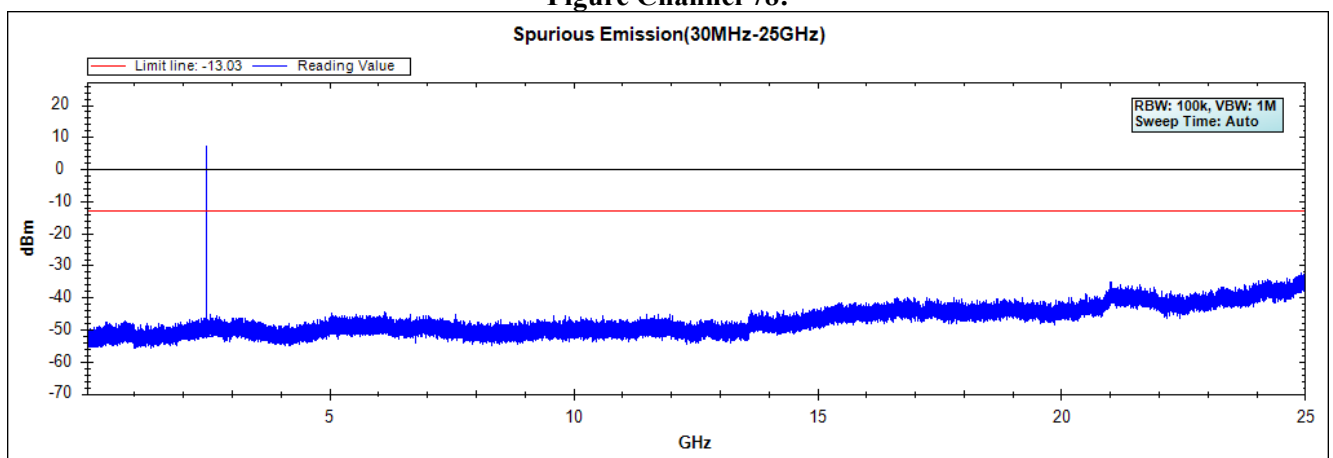


Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.

Product : WCDMA/LTE/5G Mobile Phone
Test Item : RF Antenna Conducted Test
Test Mode : Mode 2: Transmit - 3Mbps
Test Date : 2021/05/25

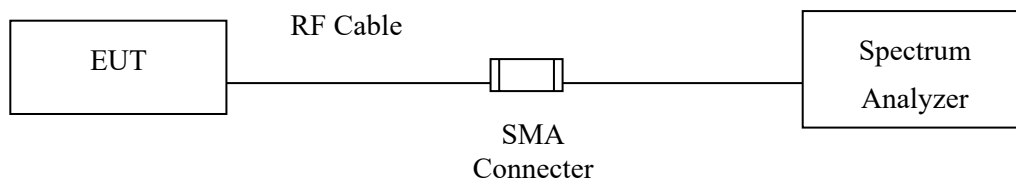
Figure Channel 00:**Figure Channel 39:****Figure Channel 78:**

Note: The above test pattern is synthesized by multiple of the frequency range.

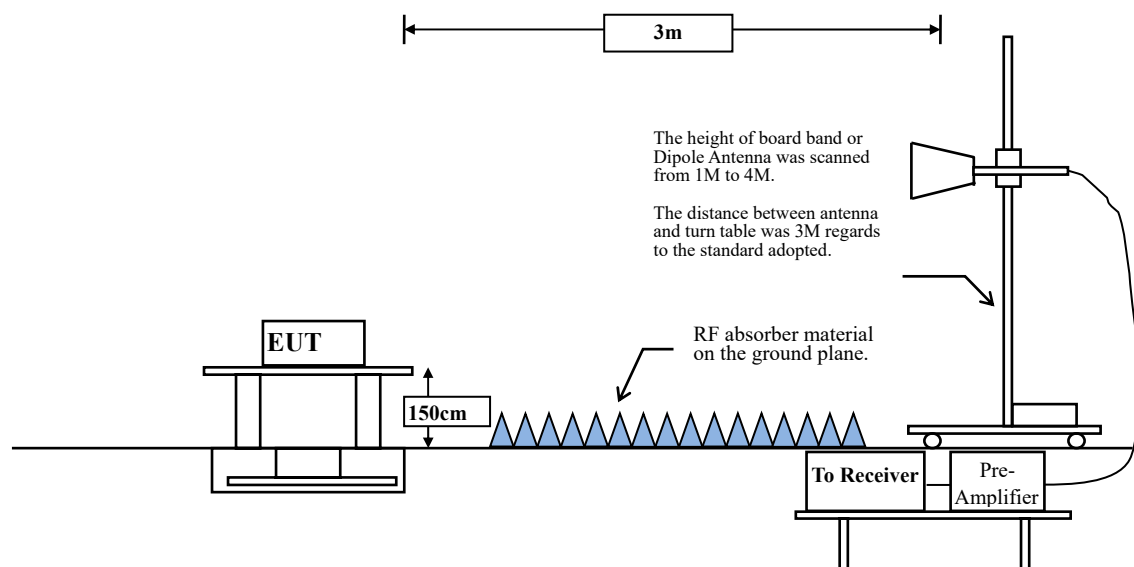
6. Band Edge

6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.2. Limit

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 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.

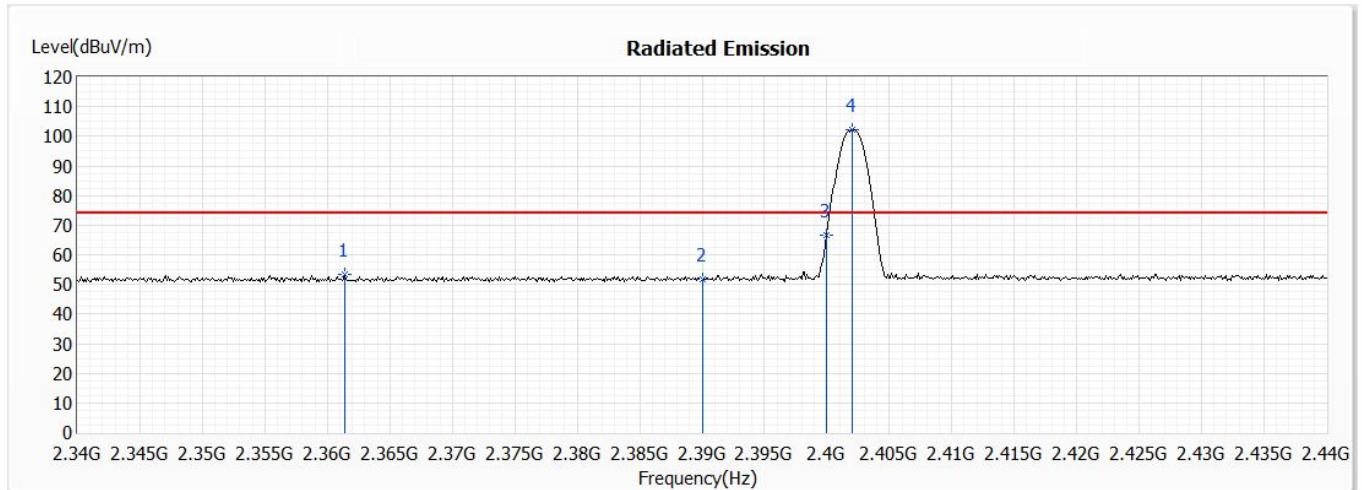
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

6.4. Test Result of Band Edge

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - 1Mbps (2402MHz)
 Test Date : 2021/05/21

Horizontal



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2361.400	53.29	74.00	-20.71	41.11	12.18	PK
2	2390.000	51.62	74.00	-22.38	39.24	12.38	PK
3	2400.000	66.46	--	--	54.00	12.46	PK
! 4	2402.000	102.14	--	--	89.68	12.46	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

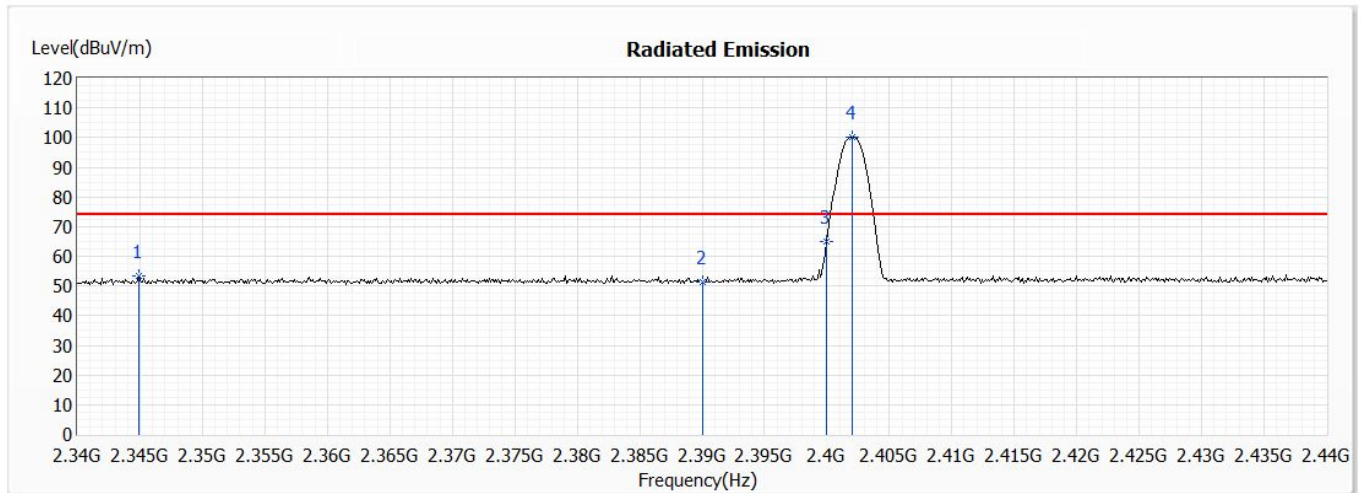
Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2361.4	53.29	-24.690	28.600	-25.400	54.000
00 (Average)	2390	51.62	-24.690	26.930	-27.070	54.000
00 (Average)	2400	66.46	-24.690	41.770	--	--
00 (Average)	2402	102.14	-24.690	77.450	--	--

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - 1Mbps (2402MHz)
 Test Date : 2021/05/21

Vertical



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2344.900	53.56	74.00	-20.44	41.49	12.07	PK
2	2390.000	51.22	74.00	-22.78	38.84	12.38	PK
3	2400.000	64.93	--	--	52.47	12.46	PK
! 4	2402.000	100.13	--	--	87.67	12.46	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

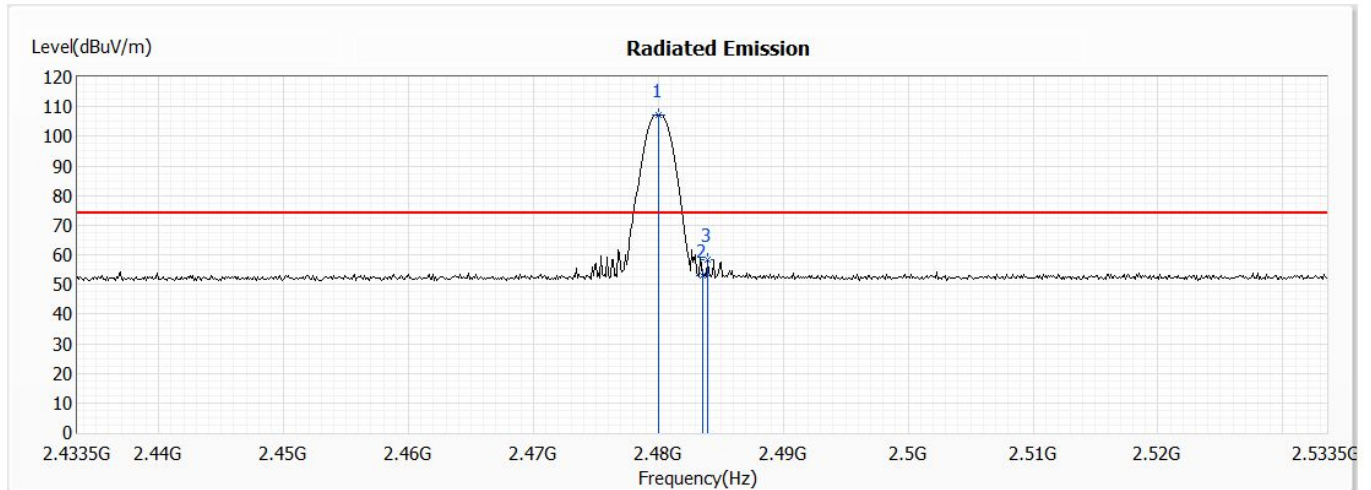
Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2344.9	53.56	-24.690	28.870	-25.130	54.000
00 (Average)	2390	51.22	-24.690	26.530	-27.470	54.000
00 (Average)	2400	64.93	-24.690	40.240	--	--
00 (Average)	2402	100.13	-24.690	75.440	--	--

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - 1Mbps (2480MHz)
 Test Date : 2021/05/21

Horizontal



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2480.000	107.37	--	--	94.65	12.72	PK
2	2483.500	52.80	74.00	-21.20	40.07	12.73	PK
3	2483.900	58.42	74.00	-15.58	45.69	12.73	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

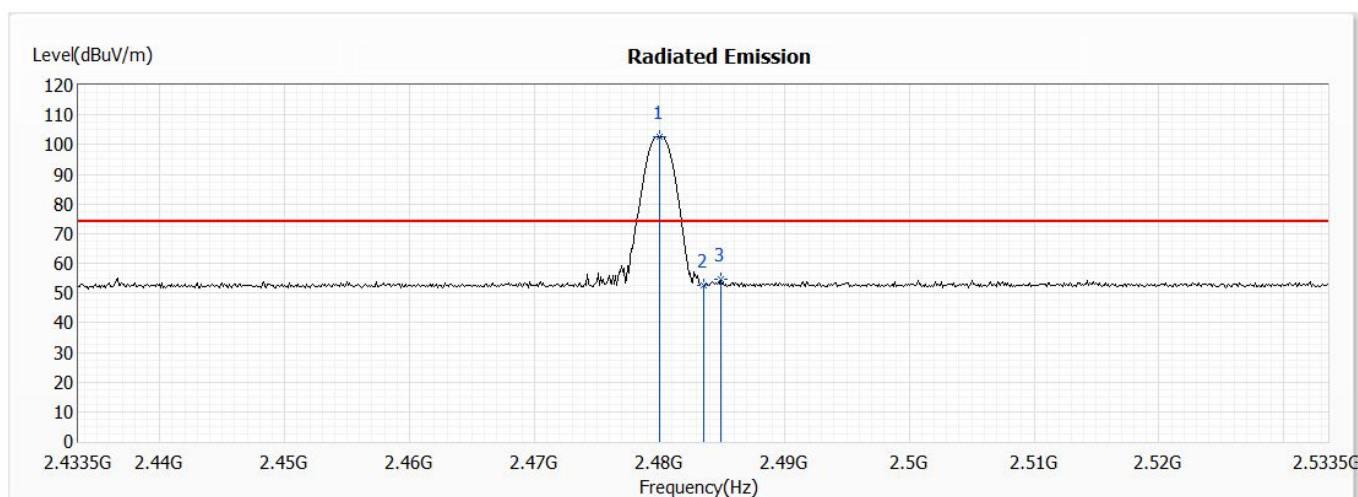
Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2480	107.37	-24.690	82.680	--	--
78 (Average)	2483.5	52.80	-24.690	28.110	-25.890	54.000
78 (Average)	2483.9	58.42	-24.690	33.730	-20.270	54.000

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - 1Mbps (2480MHz)
 Test Date : 2021/05/21

Vertical



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2480.000	102.80	--	--	90.08	12.72	PK
2	2483.500	52.52	74.00	-21.48	39.79	12.73	PK
3	2484.900	54.64	74.00	-19.36	41.91	12.73	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

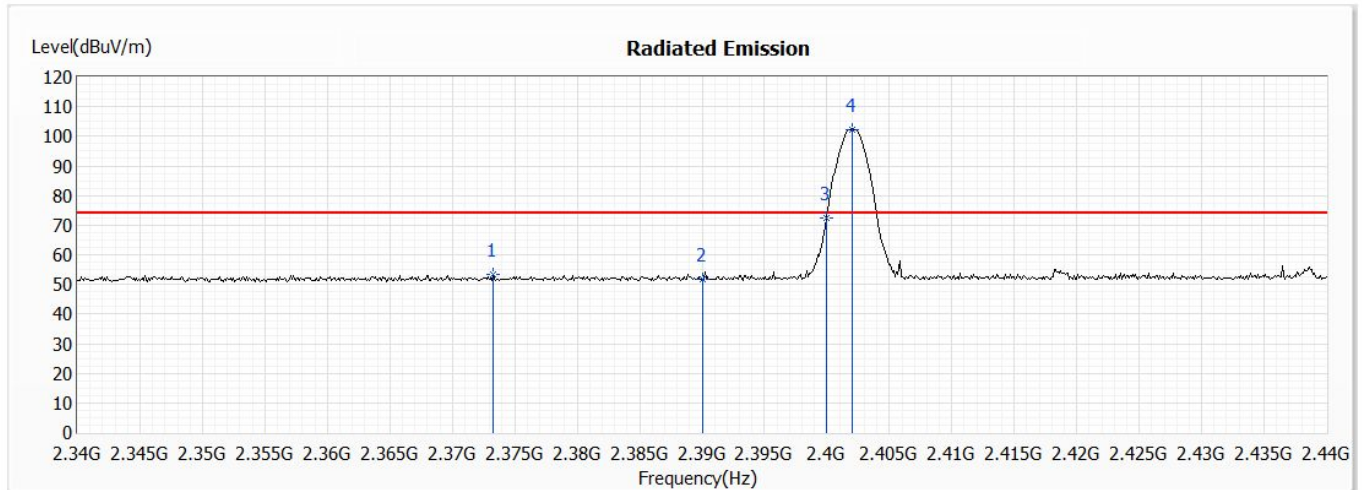
Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2480.0	102.80	-24.690	78.110	--	--
78 (Average)	2483.5	52.52	-24.690	27.830	-26.170	54.000
78 (Average)	2484.9	54.64	-24.690	29.950	-24.050	54.000

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 2: Transmit - 3Mbps (2402MHz)
 Test Date : 2021/05/21

Horizontal



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2373.300	53.35	74.00	-20.65	41.09	12.26	PK
2	2390.000	51.78	74.00	-22.22	39.40	12.38	PK
3	2400.000	72.49	--	--	60.03	12.46	PK
! 4	2402.000	102.41	--	--	89.95	12.46	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

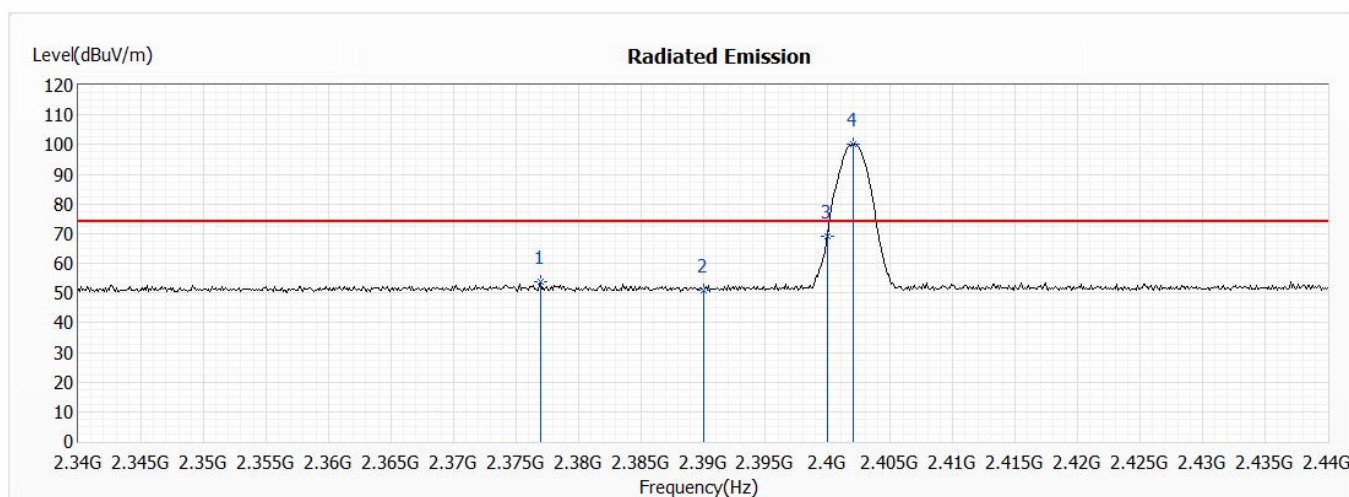
Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2373.3	53.35	-24.690	28.660	-25.340	54.000
00 (Average)	2390	51.78	-24.690	27.090	-26.910	54.000
00 (Average)	2400	72.49	-24.690	47.800	--	--
00 (Average)	2402	102.41	-24.690	77.720	--	--

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 2: Transmit - 3Mbps (2402MHz)
 Test Date : 2021/05/21

Vertical



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2377.000	53.65	74.00	-20.35	41.36	12.29	PK
2	2390.000	51.09	74.00	-22.91	38.71	12.38	PK
3	2400.000	69.27	--	--	56.81	12.46	PK
! 4	2402.000	100.10	--	--	87.64	12.46	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

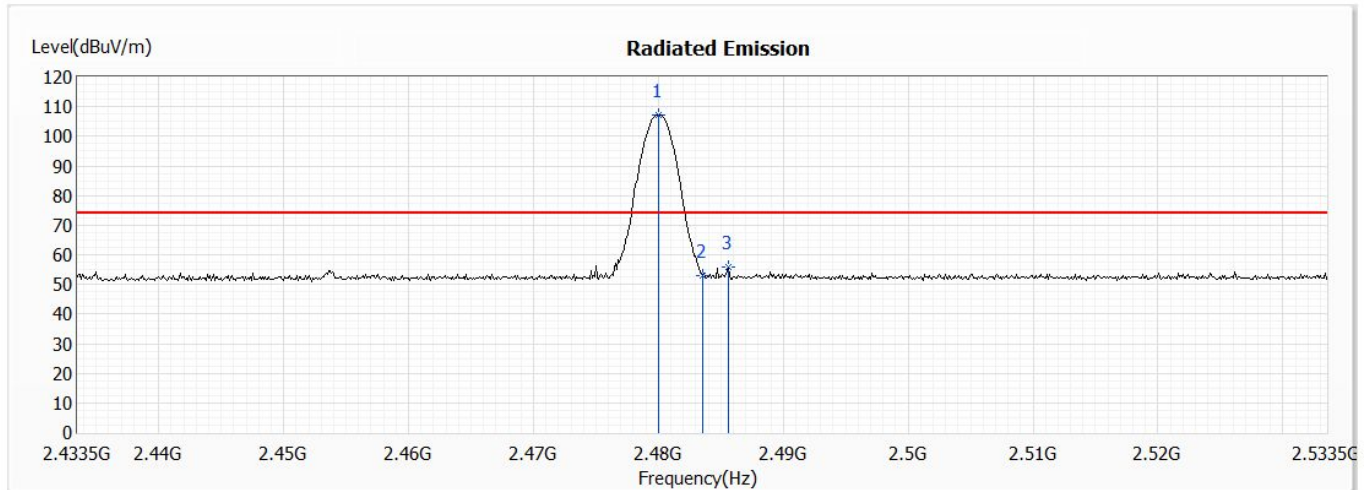
Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2377	53.65	-24.690	28.960	-25.040	54.000
00 (Average)	2390	51.09	-24.690	26.400	-27.600	54.000
00 (Average)	2400	69.27	-24.690	44.580	--	--
00 (Average)	2402	100.10	-24.690	75.410	--	--

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 2: Transmit - 3Mbps (2402MHz)
 Test Date : 2021/05/21

Horizontal



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2480.000	107.17	--	--	94.45	12.72	PK
2	2483.500	53.00	74.00	-21.00	40.27	12.73	PK
3	2485.600	55.71	74.00	-18.29	42.98	12.73	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

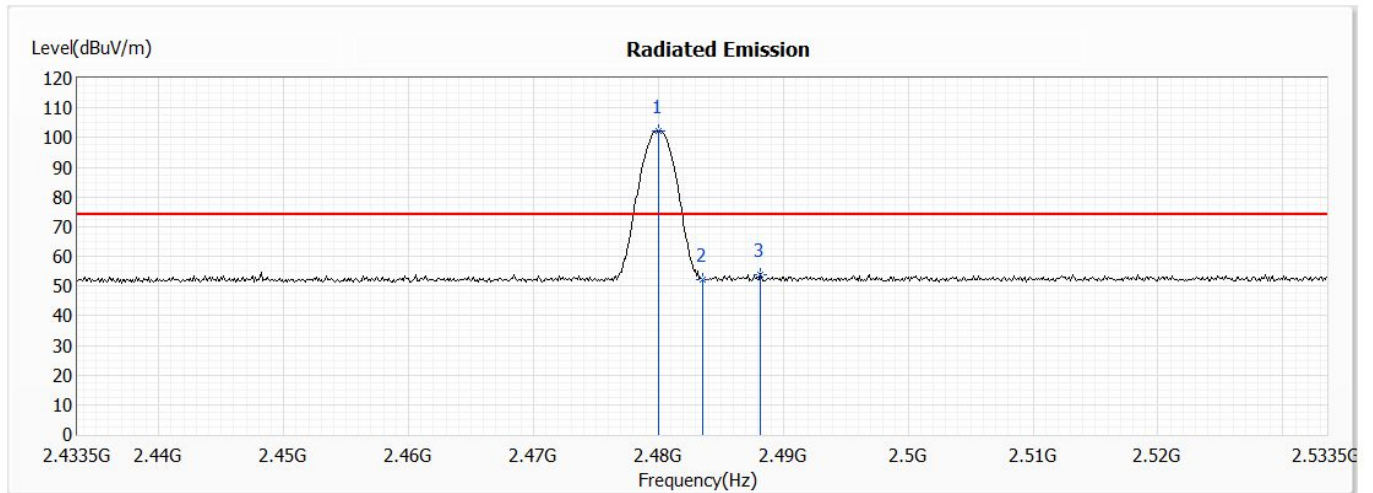
Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2480	107.17	-24.690	82.480	--	--
78 (Average)	2483.5	53.00	-24.690	28.310	-25.690	54.000
78 (Average)	2485.6	55.71	-24.690	31.020	-22.980	54.000

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 2: Transmit - 3Mbps (2402MHz)
 Test Date : 2021/05/21

Vertical



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2480.000	102.22	--	--	89.50	12.72	PK
2	2483.500	52.32	74.00	-21.68	39.59	12.73	PK
3	2488.200	54.00	74.00	-20.00	41.25	12.75	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Emission Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Measurement (dBμV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2480	102.22	-24.690	77.530	--	--
78 (Average)	2483.5	52.32	-24.690	27.630	-26.370	54.000
78 (Average)	2488.2	54.00	-24.690	29.310	-24.690	54.000

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 11.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - 1Mbps(Hopping off)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

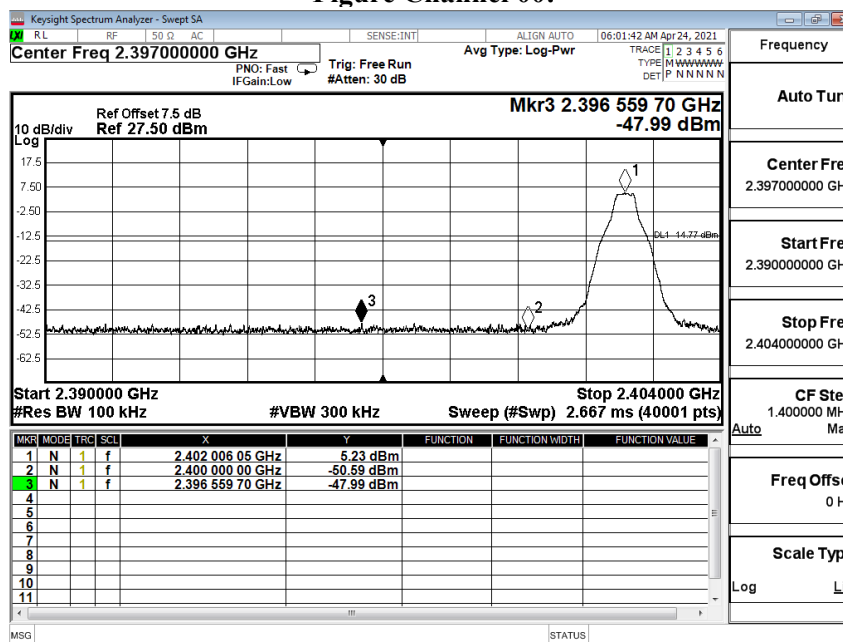
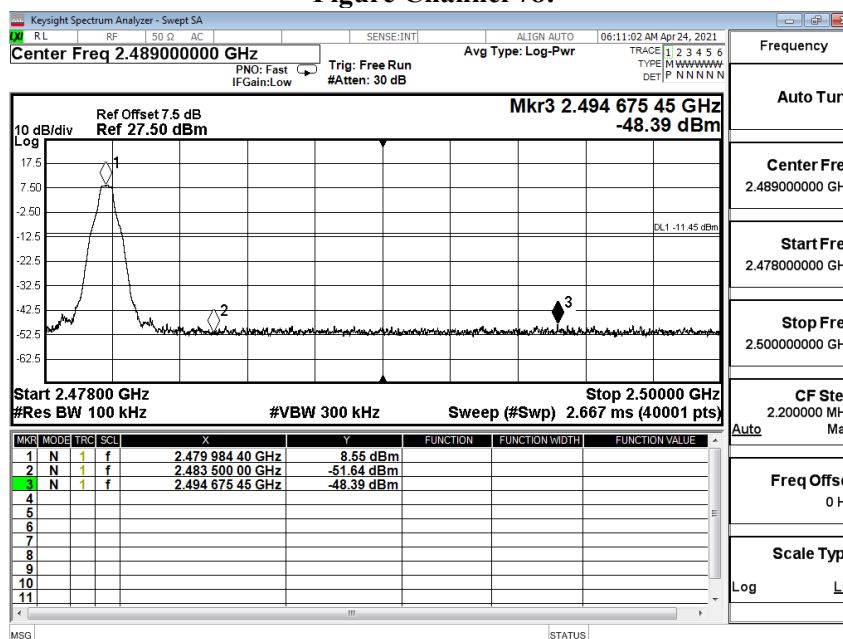


Figure Channel 78:



Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 1: Transmit - 1Mbps(Hopping on)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

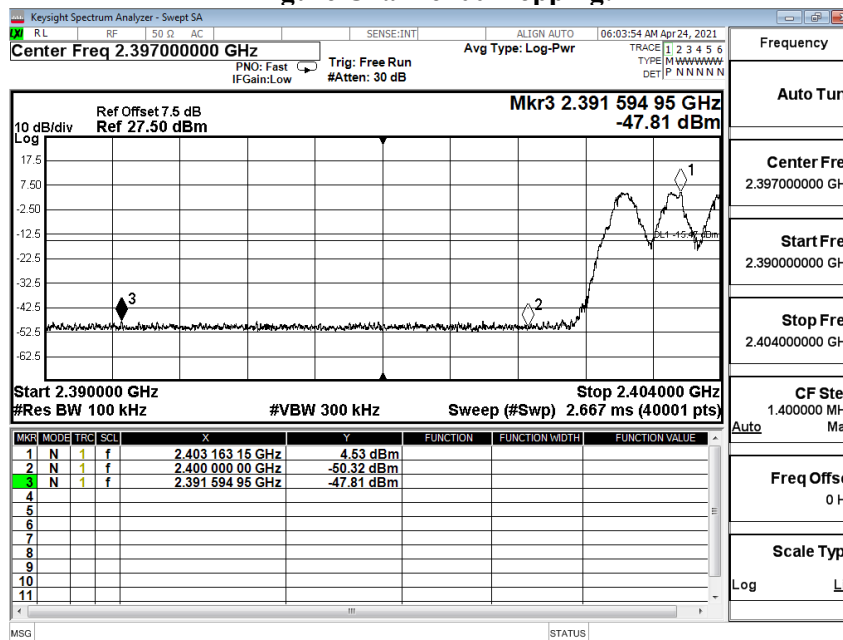
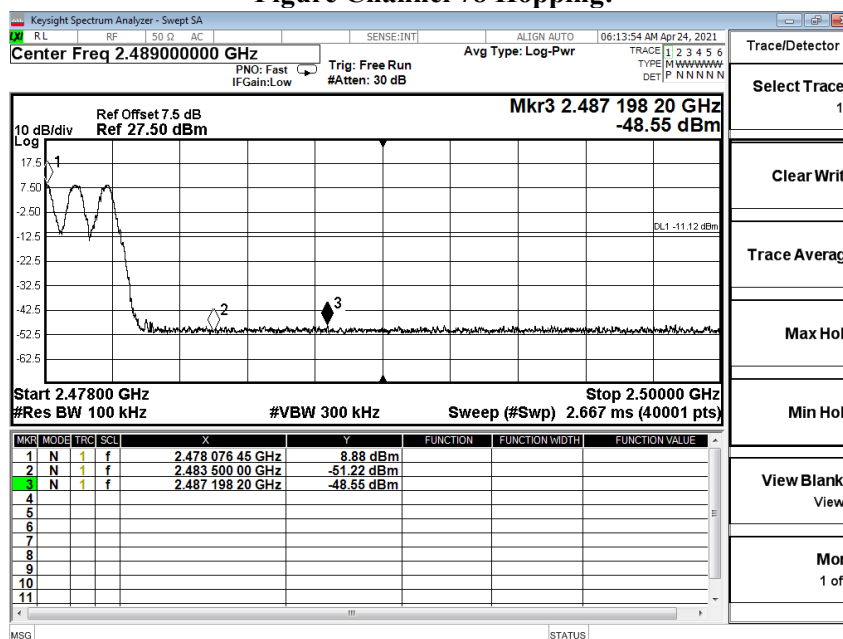


Figure Channel 78 Hopping:



Measurement Level Δ (dB)	Result
> 20	PASS

Keyight Spectrum Analyzer - Swept SA

R L RF 50 Ω AC SENSE:INT ALIGN AUTO 06:43:02 AM Apr 24, 2021

Center Freq 2.397000000 GHz

PNO: Fast IFGain:Low Trig: Free Run #Attten: 30 dB Avg Type: Log-Pwr

TRACE 1 2 3 4 5 6
TYPE M W A B C D E
DET P N N N N N

Frequency Auto Tun

Ref Offset 7.5 dB
Ref 27.50 dBm

Mkr3 2.399 568 65 GHz
-43.61 dBm

10 dB/div Log

Start 2.390000 GHz
#Res BW 100 kHz

#VBW 300 kHz Sweep (#Swps) 2.667 ms (40001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.402 167 40 GHz	-5.11 dBm			
2	N	1	f	2.400 000 00 GHz	-46.84 dBm			
3	N	1	f	2.399 568 65 GHz	-43.61 dBm			
4								
5								
6								
7								
8								
9								
10								
11								

CF Stop 2.404000 GHz
1.400000 MHz

Auto Mar

Freq Offse 0 Hz

Scale Typ

Log Lin

MSG STATUS

Keysight Spectrum Analyzer - Sweep SA

Channel Freq: 2.489000000 GHz

Start 2.47800 GHz, **Stop 2.50000 GHz**

#Res BW 100 kHz, **#VBW 300 kHz**

Sweep (#Swp) 2.667 ms (40001 pts)

Mkr3 2.497 720 25 GHz, **-48.26 dBm**

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION VALUE	FUNCTION VALUE
1	N	1	f	2.479 990 45 GHz	7.88 dBm			
2	N	1	f	2.483 500 00 GHz	-50.82 dBm			
3	N	1	f	2.497 720 25 GHz	-48.26 dBm			

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Band Edge
 Test Mode : Mode 2: Transmit - 3Mbps(Hopping on)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

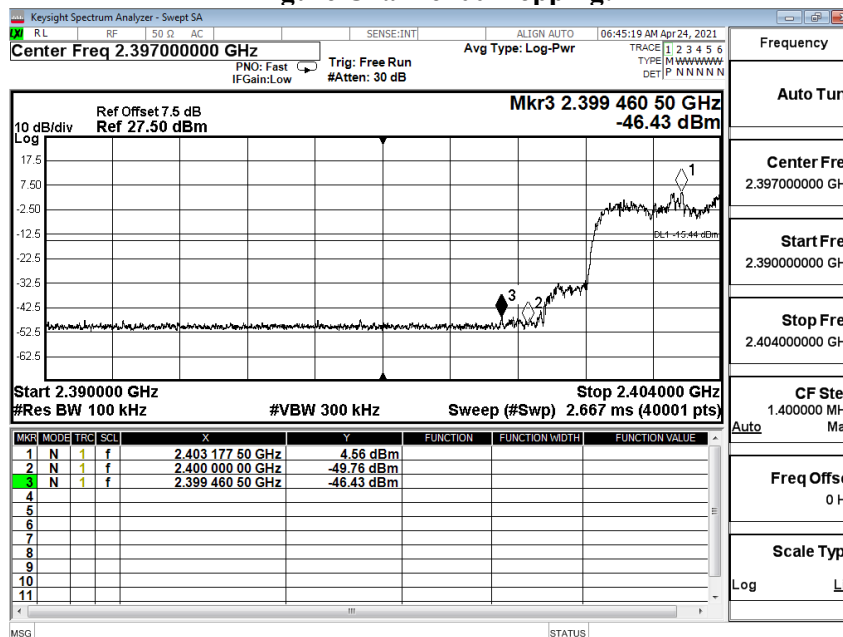
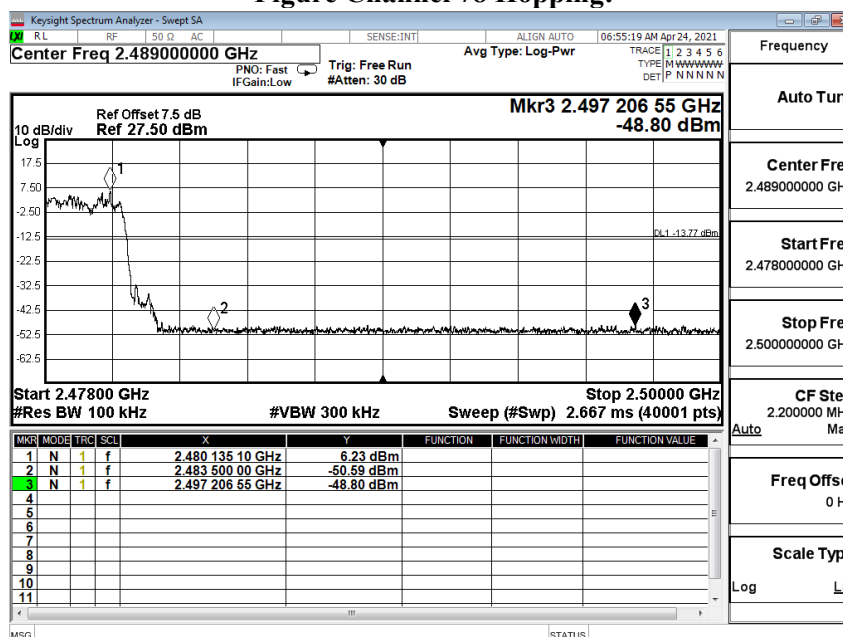
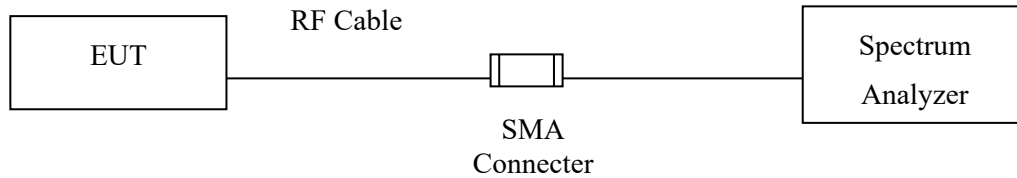


Figure Channel 78 Hopping:



7. Channel Number

7.1. Test Setup



7.2. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 75 hopping frequencies.

7.3. Test Procedure

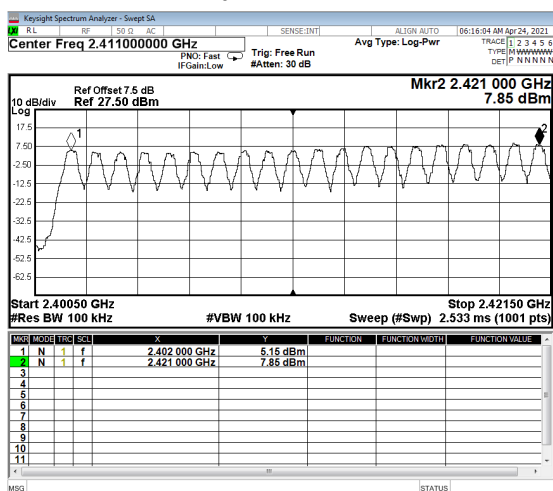
Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

7.4. Test Result of Channel Number

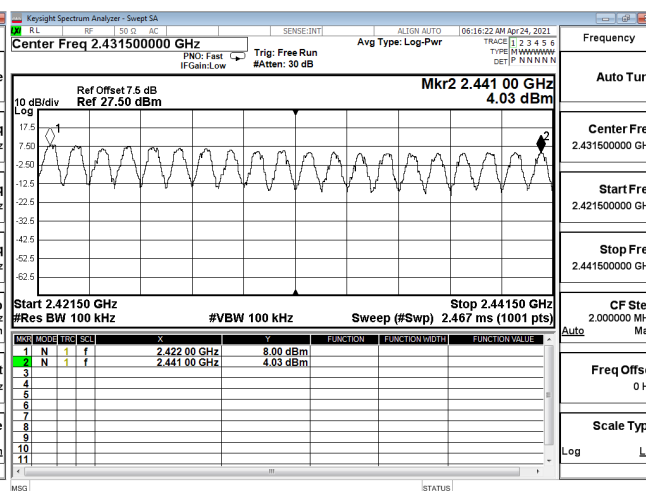
Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Channel Number
 Test Mode : Mode 1: Transmit - 1Mbps
 Test Date : 2021/04/24

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

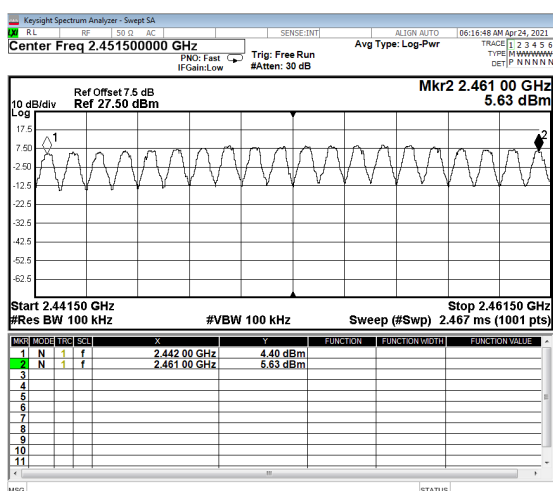
2402-2421MHz



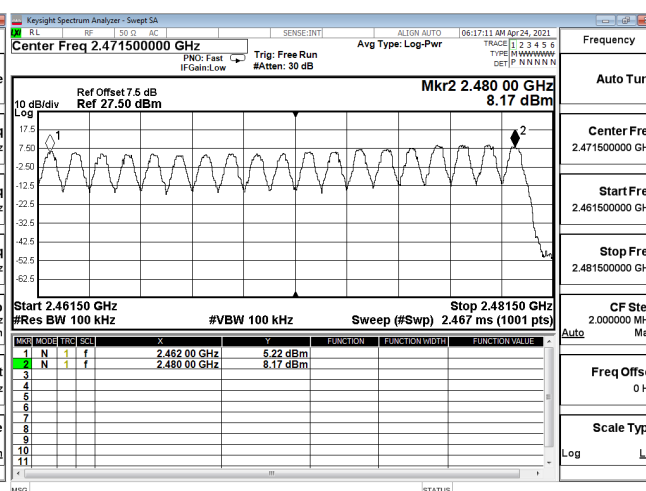
2422-2441MHz



2442-2461MHz



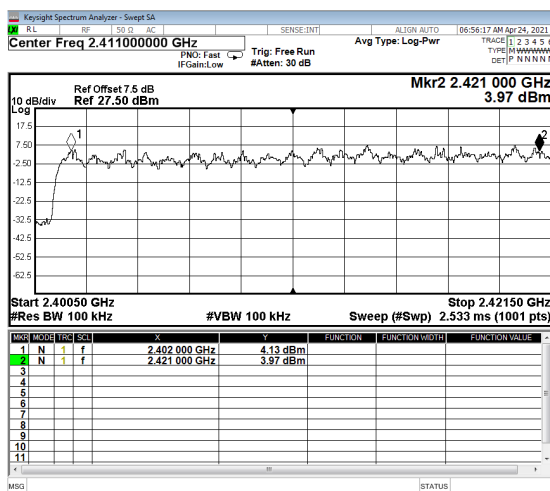
2462-2480MHz



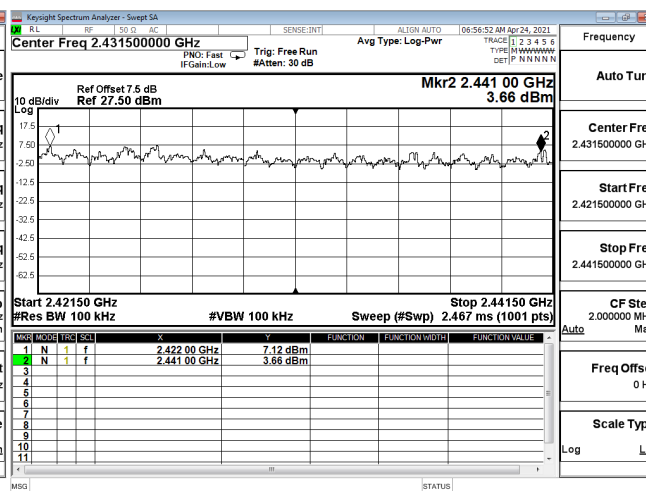
Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Channel Number
 Test Mode : Mode 2: Transmit - 3Mbps
 Test Date : 2021/04/24

Frequency Range (MHz)	Measurement (Hopping Channel)	Required Limit (Hopping Channel)	Result
2402 ~ 2480	79	>75	Pass

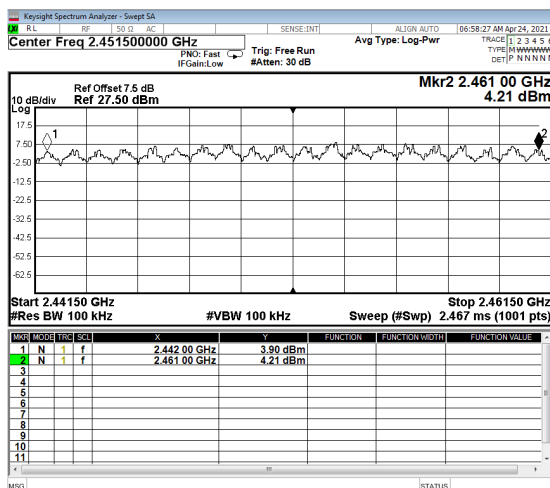
2402-2421MHz



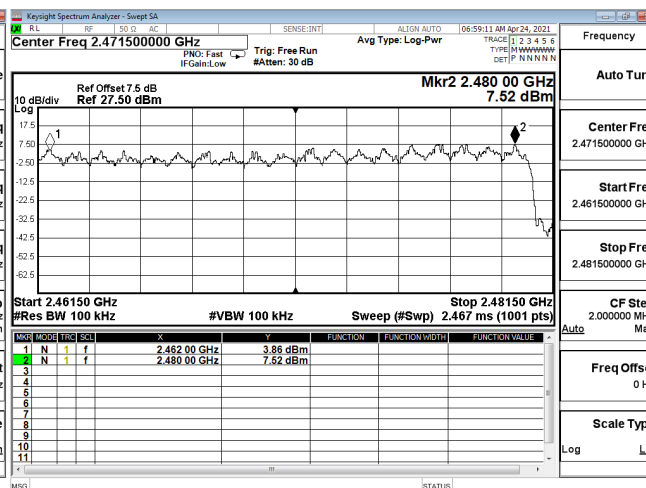
2422-2441MHz



2442-2461MHz

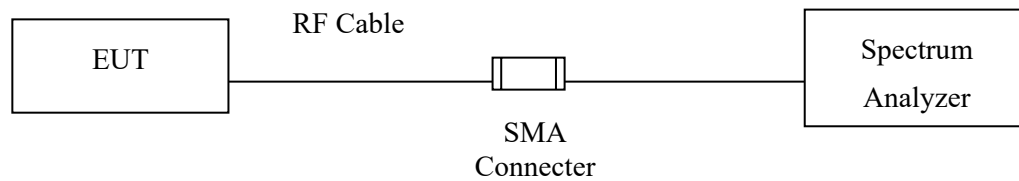


2462-2480MHz



8. Channel Separation

8.1. Test Setup



8.2. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements).

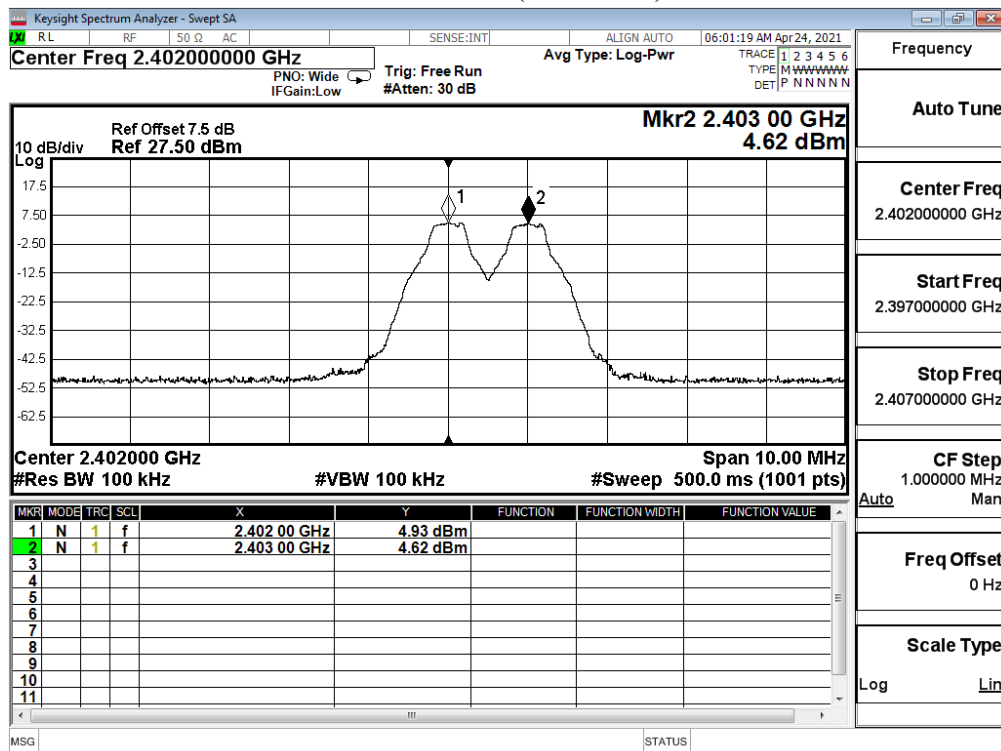
8.4. Test Result of Channel Separation

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Channel Separation
 Test Mode : Mode 1: Transmit - 1Mbps
 Test Date : 2021/04/24

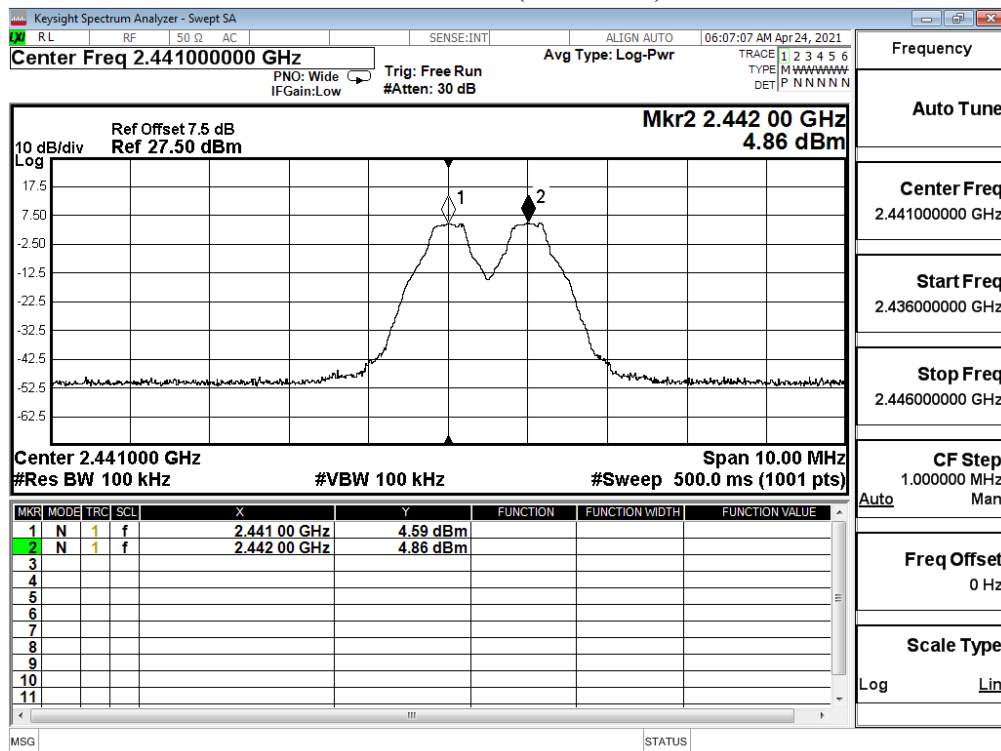
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	620.0	Pass
39	2441	1000	>25 kHz	606.0	Pass
78	2480	1000	>25 kHz	580.0	Pass

NOTE: The 20dB Bandwidth is refer to section 10.

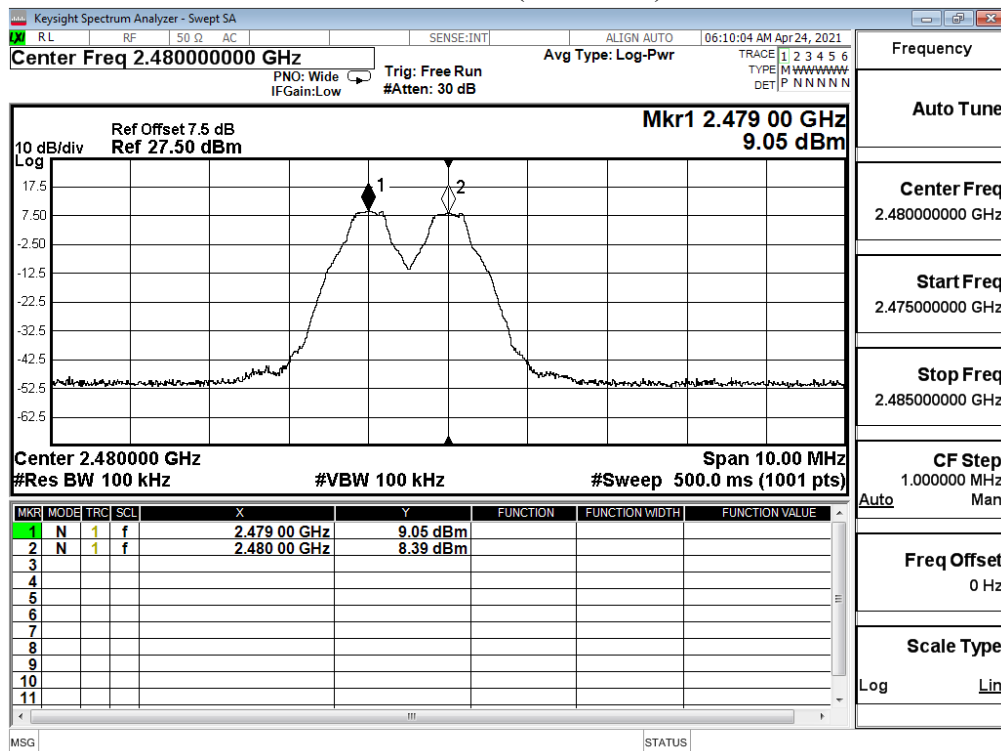
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)

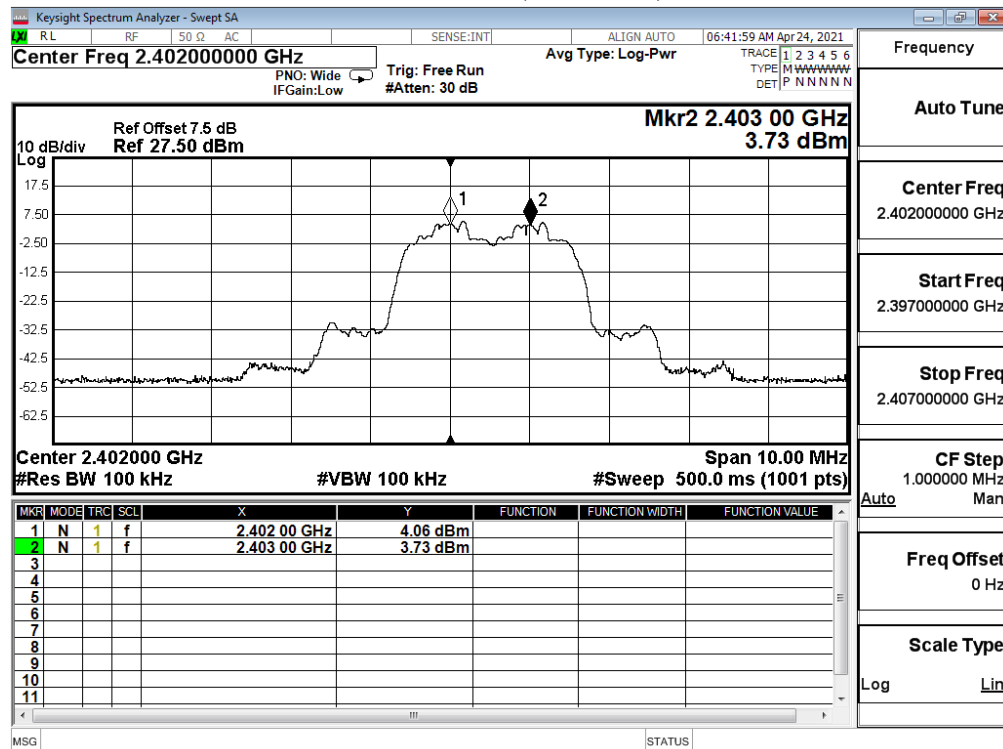


Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Channel Separation
 Test Mode : Mode 2: Transmit - 3Mbps
 Test Date : 2021/04/24

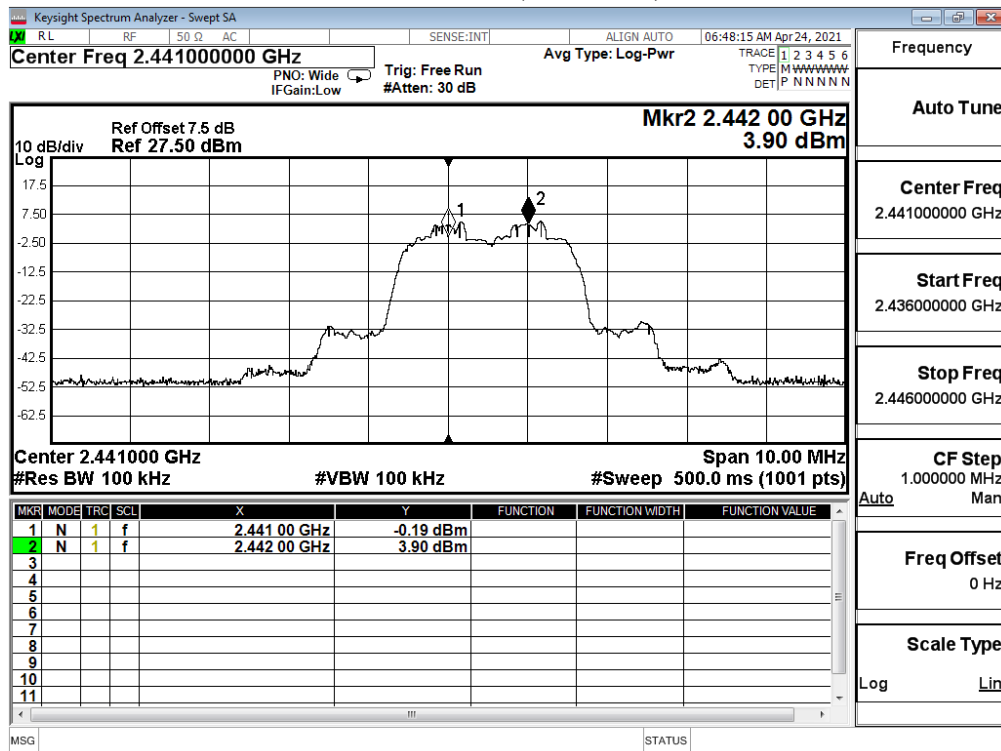
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Limit (kHz)	Limit of (2/3)*20dB Bandwidth (kHz)	Result
00	2402	1000	>25 kHz	862.0	Pass
39	2441	1000	>25 kHz	864.0	Pass
78	2480	1000	>25 kHz	854.0	Pass

NOTE: The 20dB Bandwidth is refer to section 10.

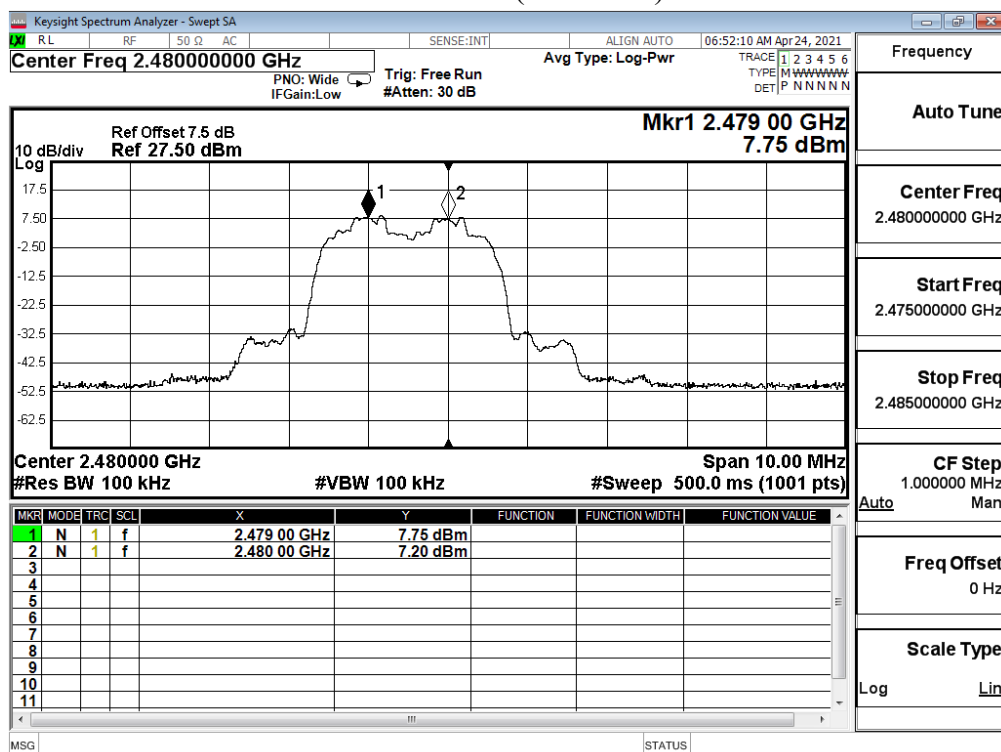
Channel 00 (2402MHz)



Channel 39 (2441MHz)

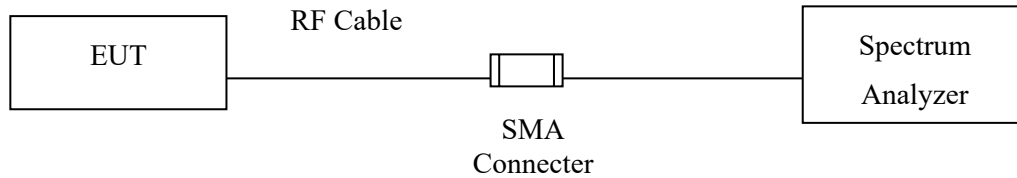


Channel 78 (2480MHz)



9. Dwell Time

9.1. Test Setup



9.2. Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements).

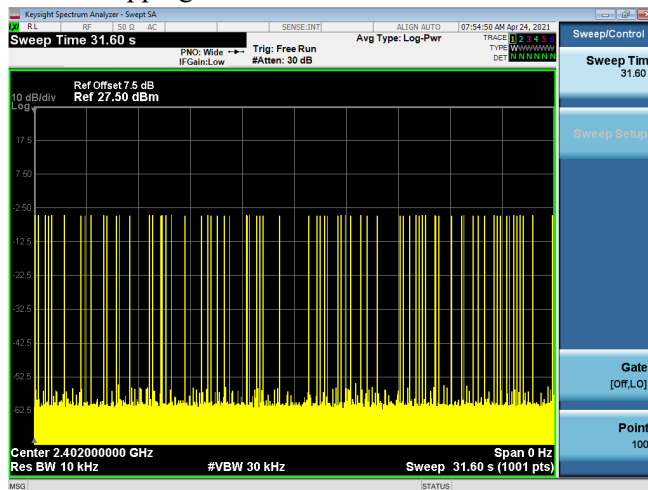
9.4. Test Result of Dwell Time

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Dwell Time
 Test Mode : Mode 1: Transmit - 1Mbps (Channel 00,39,78)
 Test Date : 2021/04/24

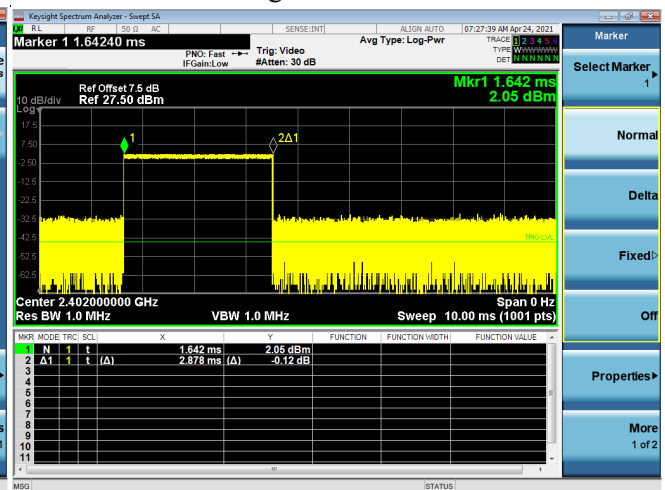
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.878	71	31600	204.338	400	Pass
2441	2.878	102	31600	293.556	400	Pass
2480	2.878	93	31600	267.654	400	Pass

Dwell time = Time slot length(ms)*Hopping of Number

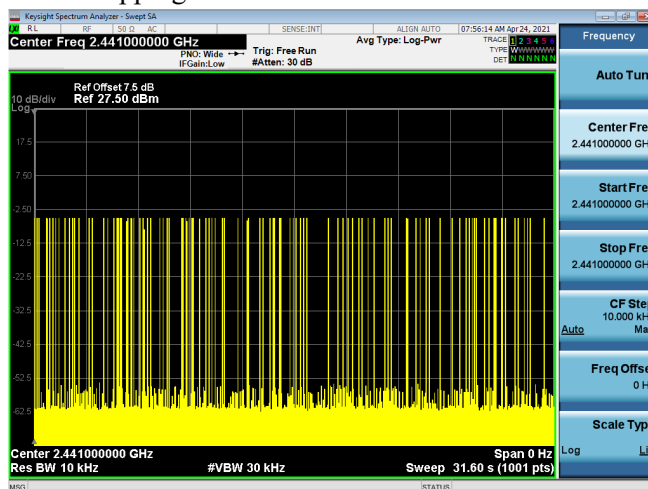
CH 00 Hopping of Number



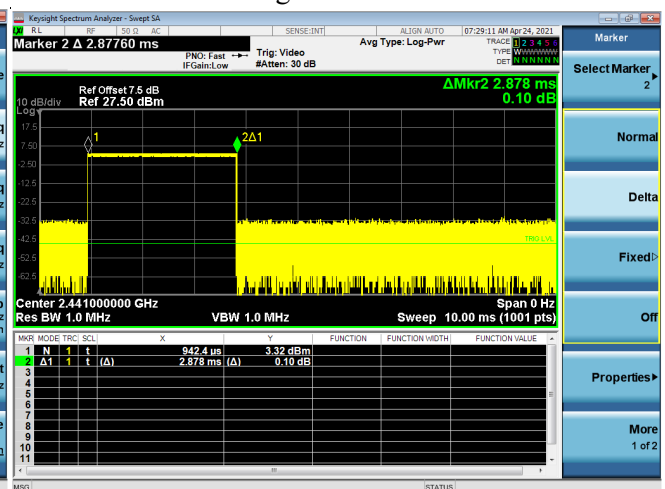
CH 00 Time slot length



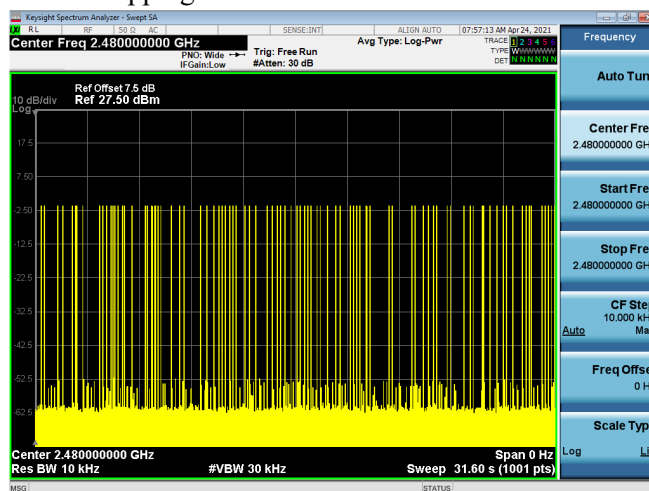
CH39 Hopping of Number



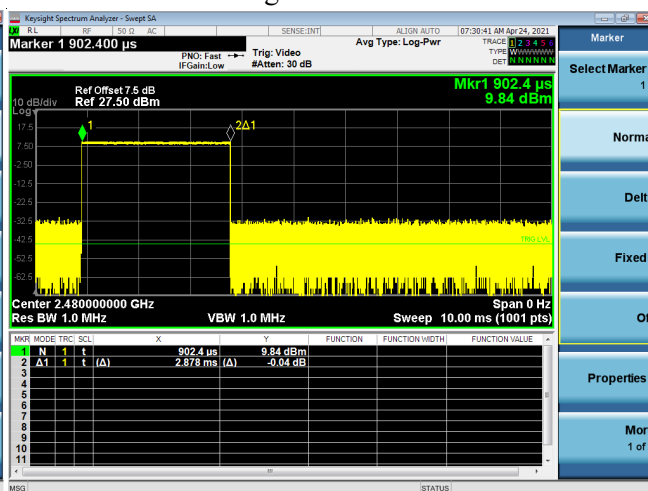
CH 39 Time slot length



CH 78 Hopping of Number



CH 78 Time slot length



Note:

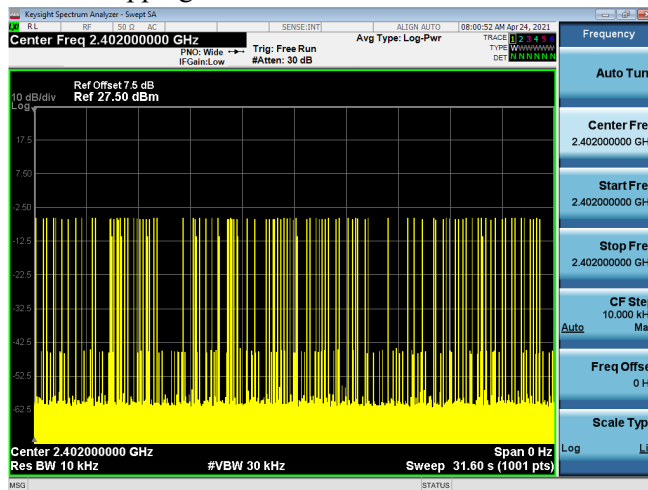
The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Dwell Time
 Test Mode : Mode 2: Transmit - 3Mbps (Channel 00,39,78)
 Test Date : 2021/04/24

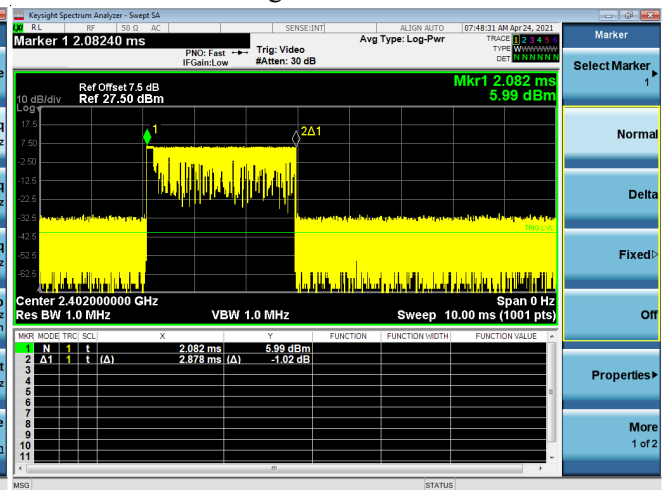
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.878	97	31600	279.166	400	Pass
2441	2.878	104	31600	299.312	400	Pass
2480	2.878	81	31600	233.118	400	Pass

Dwell time = Time slot length(ms)*Hopping of Number

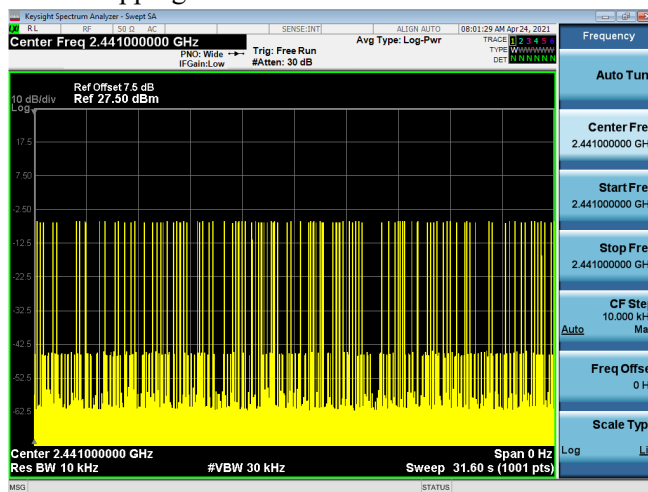
CH 00 Hopping of Number



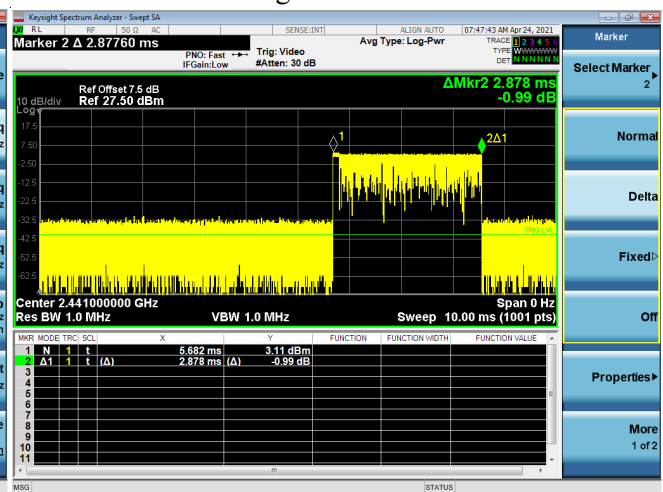
CH 00 Time slot length



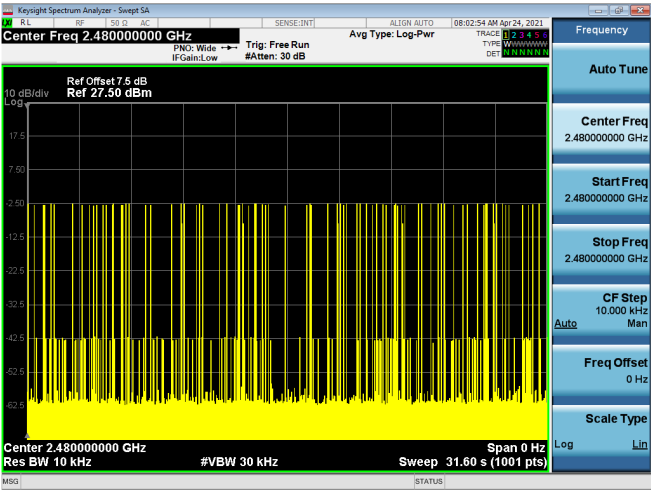
CH39 Hopping of Number



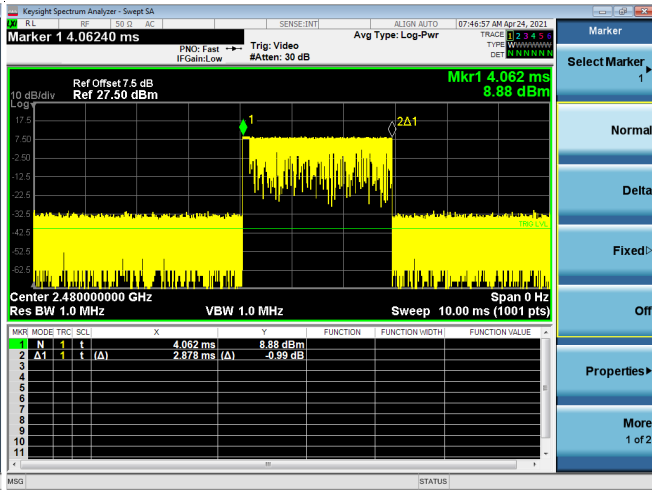
CH 39 Time slot length



CH 78 Hopping of Number



CH 78 Time slot length

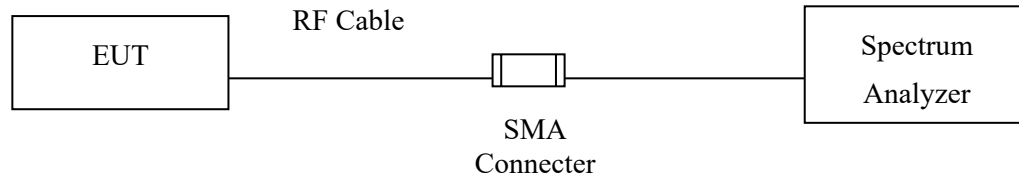


Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

10. Occupied Bandwidth

10.1. Test Setup



10.2. Limits

N/A

10.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

Product	:	WCDMA/LTE/5G Mobile Phone
Test Item	:	Occupied Bandwidth Data
Test Mode	:	Mode 1: Transmit - 1Mbps
Test Date	:	2021/04/24

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	930	--	NA
39	2441	909	--	NA
78	2480	870	--	NA

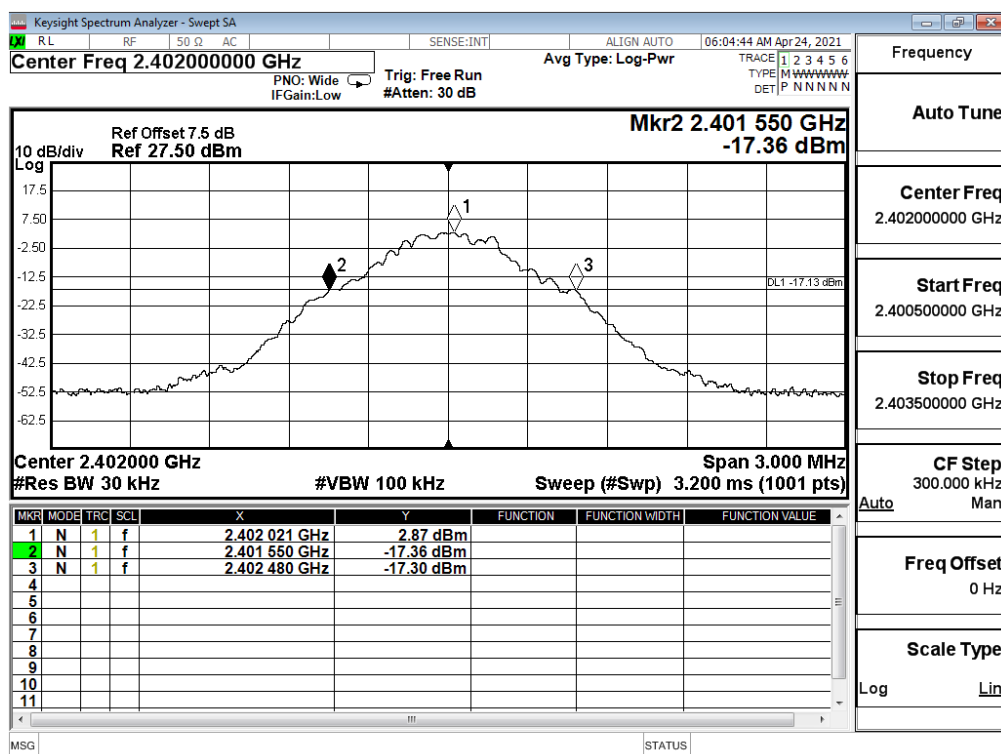


Figure Channel 39:

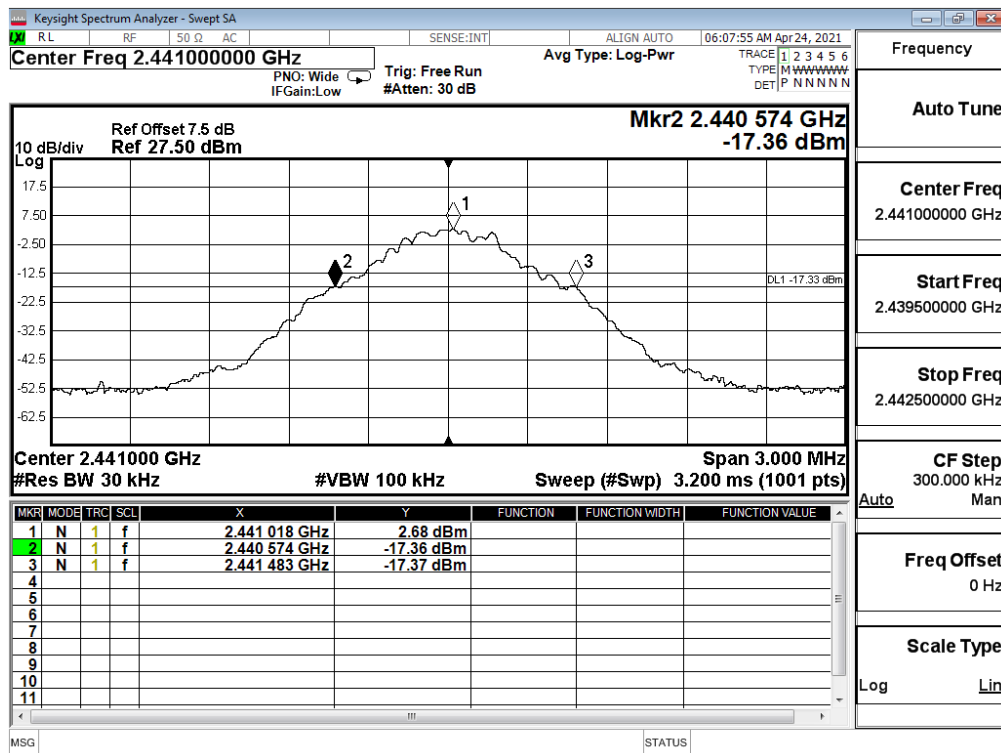
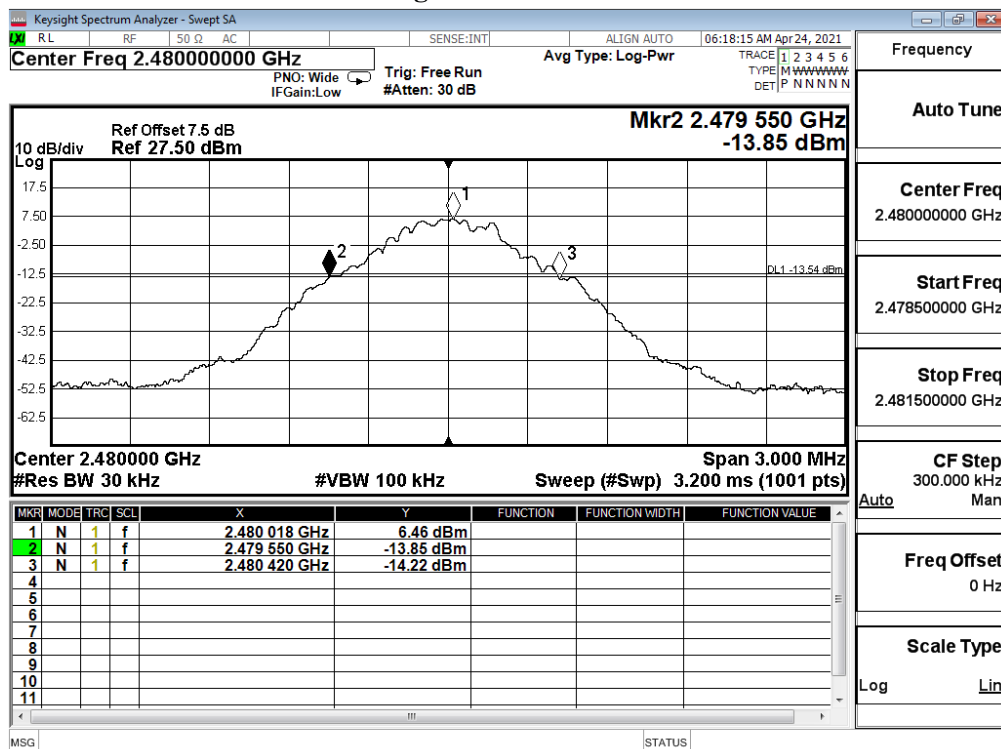


Figure Channel 78:



Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Occupied Bandwidth Data
 Test Mode : Mode 2: Transmit - 3Mbps (2402MHz)
 Test Date : 2021/04/24

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1293	--	NA
39	2441	1296	--	NA
78	2480	1281	--	NA

Figure Channel 00:

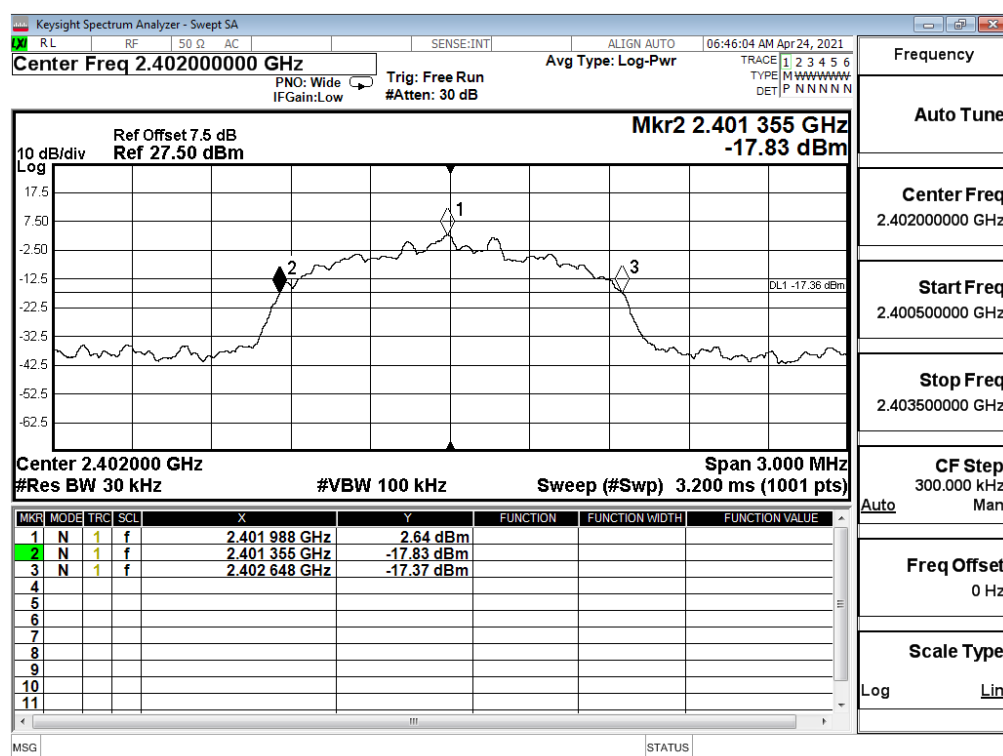


Figure Channel 39:

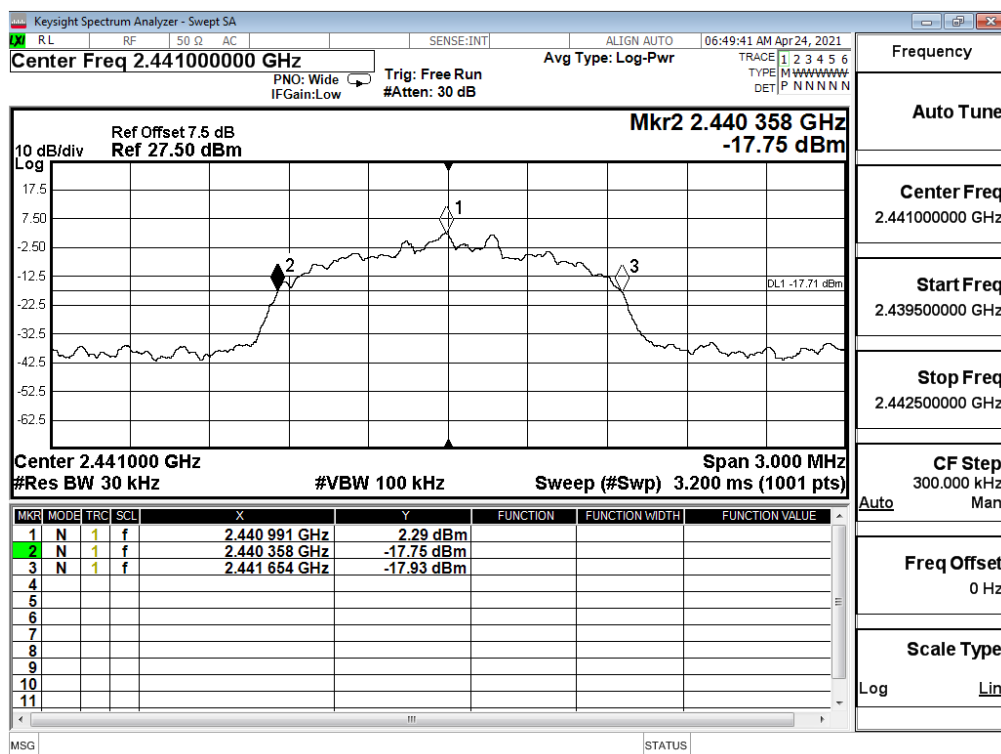
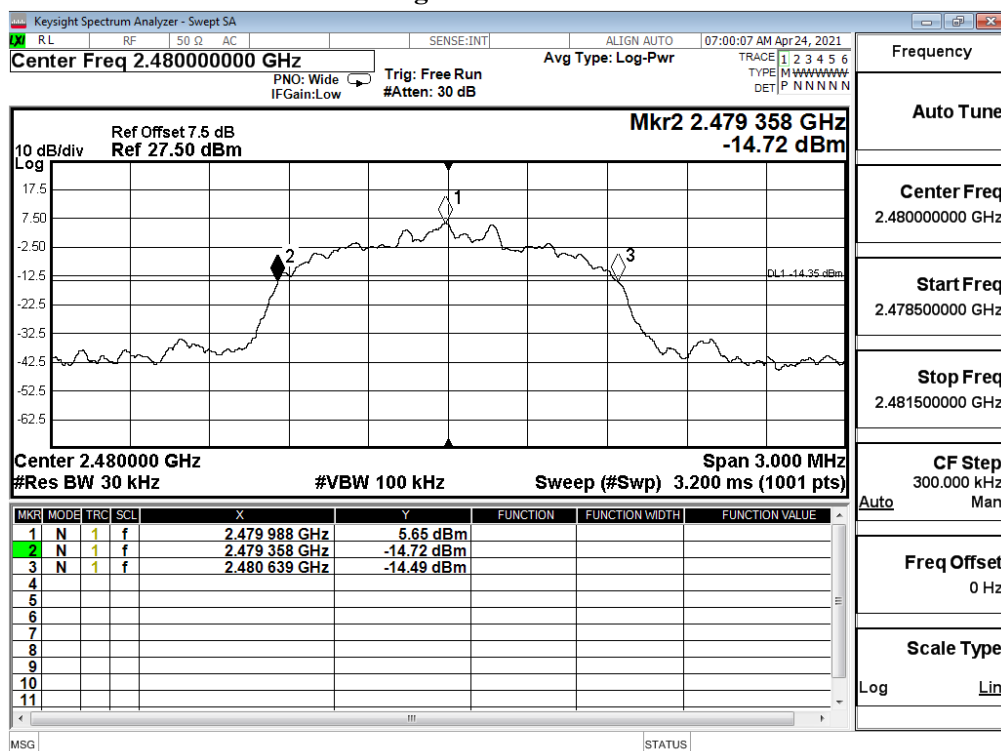
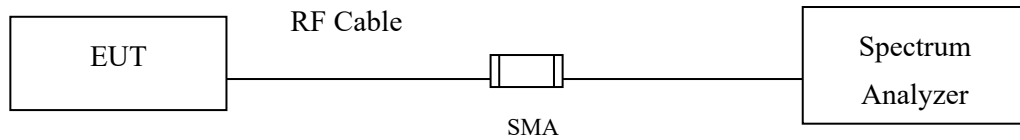


Figure Channel 78:



11. Duty Cycle

11.1. Test Setup

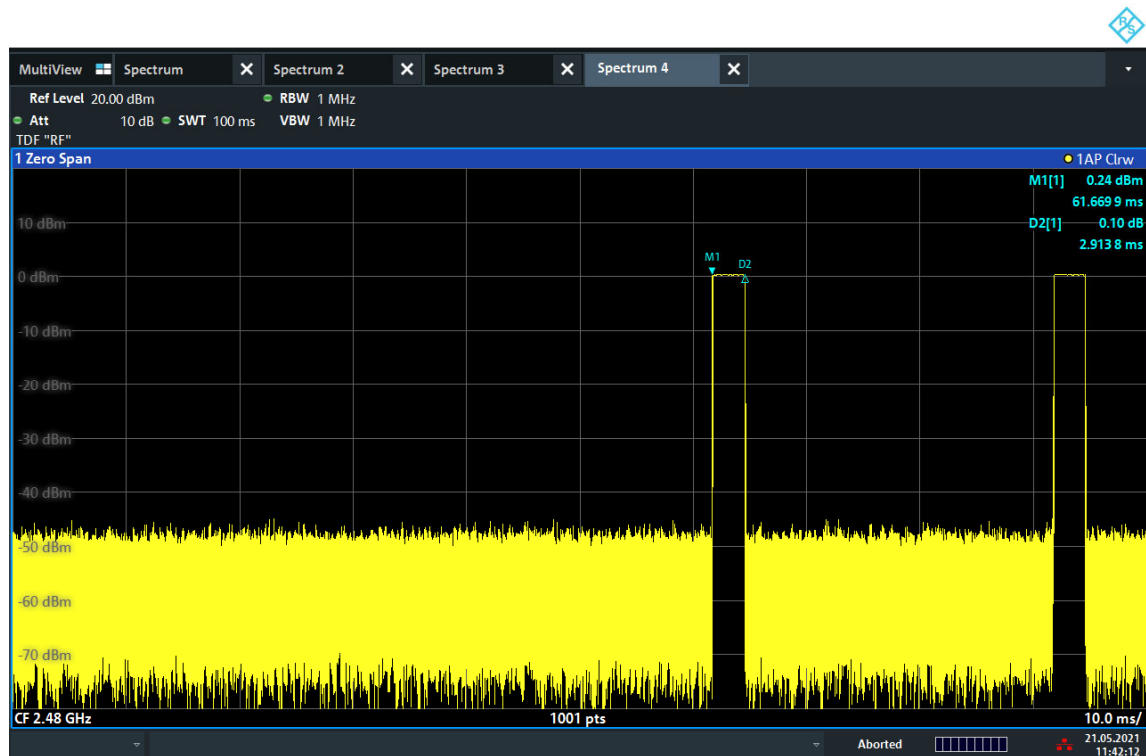


11.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to ANSI C63.10 2013 for compliance to FCC 47CFR 15.247 requirements.

11.3. Test Result of Duty Cycle

Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Duty Cycle
 Test Mode : Mode 1: Transmit - 1Mbps



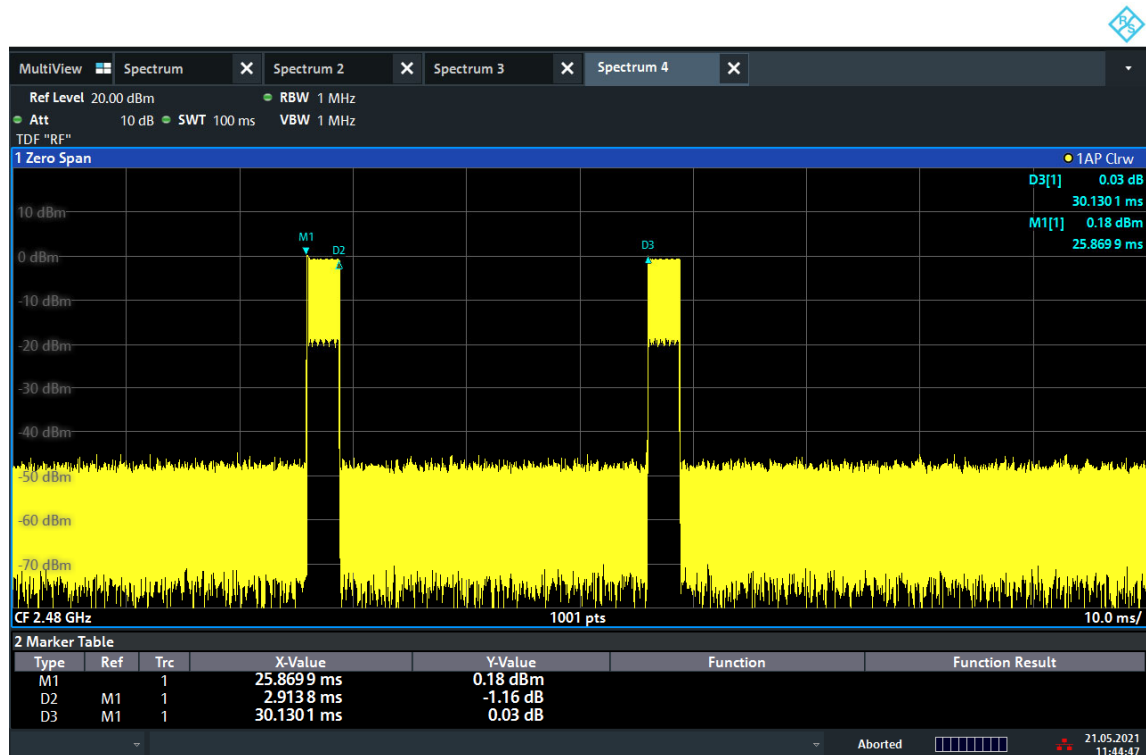
Time on of 100ms=2.914ms*2=5.828ms

Duty Cycle=5.828ms / 100ms= 0.0583

Duty Cycle correction factor= 20 LOG 0.0583= -24.690 dB

Duty Cycle correction factor	-24.690	dB
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Product : WCDMA/LTE/5G Mobile Phone
 Test Item : Duty Cycle
 Test Mode : Mode 2: Transmit - 3Mbps



Time on of 100ms=2.914ms*2=5.828ms

Duty Cycle=5.828ms / 100ms= 0.0583

Duty Cycle correction factor= 20 LOG 0.0583= -24.690 dB

Duty Cycle correction factor	-24.690	dB
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12. EMI Reduction Method During Compliance Testing

No modification was made during testing.