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# **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT CLASS II PC REPORT**





**FCC Applicant:** Acer Incorporated

8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City

22181, Taiwan (R.O.C)

**Product Name:** 7c Modular Platform

**Brand Name:** acer

Model No.: **QSIP7180** 

**Model Difference:** N/A

**Report Number:** ER/2021/70039

**FCC ID** HLZQSIP7180

**Issue Date:** Sep. 07, 2021

**Date of Test:** Jul. 22, 2021 ~ Aug. 20, 2021

Date of EUT Received: Jul. 09, 2021

Approved By

## We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT comply with FCC rule part §15.247.

The results of this report relate only to the sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History					
Report Number Revision Description Issue Date Revised By					
ER/2021/70039	Rev.00	Original.	Sep. 07, 2021	Yi-Shan Tsai	

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## **GENERAL INFORMATION**

#### 1.1 **Product description**

Product Name:	7c Modular Platform
Brand Name:	acer
Model No.:	QSIP7180
Model No. of Host:	N20Q7
Model Difference:	N/A
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	N8DAISY005117007F37600 (Conducted) N8A4DWW0031241CABC7600 (Radiated)
Power Supply:	11.4Vdc from Rechargeable Li-polymer Battery Pack 19Vdc from AC/DC Adapter

#### 1.2 **RF Specification**

Radio Technology:	BT BR+EDR
Channel number:	79 channels
Modulation type:	GFSK + π/4DQPSK + 8DPSK
Transmit Power:	11.34 dBm
Frequency Range:	2.402GHz – 2.480GHz
Dwell Time:	≦ 0.4s

#### 1.3 **Antenna Designation**

Antenna Type	Supplier	Main / Aux	Antenna Part No.	Freq. (MHz)	Peak An- tenna Gain (dBi)	Worst An- tenna Gain
PIFA	WNC	Main	DQ6A15GC700	2402~2480	2.08	V

### Note:

- Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the highest gain as the worst case scenarios.
- Antenna information is provided by the applicant.

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#### 1.4 **Test Methodology of Applied Standards**

FCC Part 15, Subpart C §15.247 KDB 558074 D01 v05r02 DSS Meas. Guidance ANSI C63.10:2013

#### 1.5 **Test Facility**

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
		SAC 1		
		SAC 3	-	
		Conduction 1	-	
		Conducted 1	_	
		Conducted 2	-	
	No.134, Wu Kung Road, New Taipei Indus-	Conducted 3	T. 4 4 4 4 4 4	
	trial Park, Wuku District, New Taipei City, Tai-	Conducted 4	TW0027	TW3702
	wan.	Conducted 5		
		Conducted 6	-	
		Conducted 7	- - -	
		Conducted 8		
		Conducted 9 Conducted 10		
SGS Taiwan Ltd.		Conduction A		
Central RF Lab.		SAC C	-	
(TAF code 3702)		SAC D	-	
(1741 COUC 3702)		SAC E		
		Conducted A		
		Conducted B		
		Conducted C		
	No.2, Keji 1st Rd., Guishan District, Taoyuan	Conducted D		
	City, Taiwan 333	Conducted E	TW0028	
	,	Conducted F	-	
		Conducted G	1	
		Conducted H	1	
		Conducted I	1	
		Conducted J	1	
		Conducted	1	
		TS8997		

Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

#### 1.6 **Special Accessories**

There is no special accessory used while test was conducted.

#### 1.7 **Equipment Modifications**

There was no modification incorporated into the EUT.

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## SYSTEM TEST CONFIGURATION

#### 2.1 **EUT Configuration**

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

#### 2.2 **EUT Exercise**

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

#### 2.3 **Test Procedure**

#### **Conducted Test (RF)** 2.3.1

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

### 2.3.2 Radiated Emissions

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max, emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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#### 2.4 **Measurement Results Explanation Example**

### 2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

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

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

### 2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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### **Configuration of Tested System** 2.5 Fig. 2-1 Radiated Emission







Fig. 2-2 Conducted (Antenna Port)

**Table 2-1 Equipment Used in Tested System** 

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	Bluetooth Test Software	N/A	N/A	N/A	N/A	N/A

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## **SUMMARY OF TEST RESULTS**

FCC Rules	Description Of Test	Result
§15.247(b)(1)	Peak Output Power	Compliant
§15.247(d) §15.205	Radiated Band Edge	Compliant
§15.247(d) §15.209	Radiated Spurious Emission	Compliant

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## **DESCRIPTION OF TEST MODES**

#### 4.1 Operated in 2400 ~ 2483.5MHz Band

79 channels are provided for Bluetooth

ITEM FREQUENCY ITEM FREQUENCY ITEM FREQUENCY ITEM FREQUENCY					FREQUENCY		
			· · · · · · · · · · · · · · · · · · ·				·
1	2402 MHz	21	2422 MHz	41	2442 MHz	71	2462 MHz
2	2403 MHz	22	2423 MHz	42	2443 MHz	72	2463 MHz
3	2404 MHz	23	2424 MHz	43	2444 MHz	73	2464 MHz
4	2405 MHz	24	2425 MHz	44	2445 MHz	74	2465 MHz
5	2406 MHz	25	2426 MHz	45	2446 MHz	75	2466 MHz
6	2407 MHz	26	2427 MHz	46	2447 MHz	76	2467 MHz
7	2408 MHz	27	2428 MHz	47	2448 MHz	77	2468 MHz
8	2409 MHz	28	2429 MHz	48	2449 MHz	78	2469 MHz
9	2410 MHz	29	2430 MHz	49	2450 MHz	79	2470 MHz
10	2411 MHz	30	2431 MHz	50	2451 MHz	70	2471 MHz
11	2412 MHz	31	2432 MHz	51	2452 MHz	71	2472 MHz
12	2413 MHz	32	2433 MHz	52	2453 MHz	72	2473 MHz
13	2414 MHz	33	2434 MHz	53	2454 MHz	73	2474 MHz
14	2415 MHz	34	2435 MHz	54	2455 MHz	74	2475 MHz
15	2416 MHz	35	2436 MHz	55	2456 MHz	75	2476 MHz
16	2417 MHz	36	2437 MHz	56	2457 MHz	76	2477 MHz
17	2418 MHz	37	2438 MHz	57	2458 MHz	77	2478 MHz
18	2419 MHz	38	2439 MHz	58	2459 MHz	78	2479 MHz
19	2420 MHz	39	2440 MHz	59	2460 MHz	79	2480 MHz
20	2421 MHz	40	2441 MHz	60	2461 MHz		

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#### 4.2 The Worst Test Modes and Channel Details

- The EUT has been tested under operating condition.
- Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
- Investigation has been done on all the possible configurations for searching the worst case. 3

MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	MODULATION	PACKET TYPE			
	RADIATED EMISSION TEST (ABOVE 1 GHz)						
Bluetooth	2402 to 2480	2402, 2441, 2480	GFSK, 8-DQPK	DH5/3DH5			

Note: The field strength of radiation emission was measured as NB Plane for channel Low, Mid and High.

	ANTENNA PORT CONDUCTED TEST						
MODE	AVAILABLE FREQUENCY (MHz)	TESTED FREQUENCY (MHz)	MODULATION	PACKET TYPE			
	Peak Output Power,						
Bluetooth	2402 to 2480	2402, 2441, 2480	GFSK, π/4-DQPSK, 8-DQPK	DH5/2DH5/3DH5			

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## **MEASUREMENT UNCERTAINTY**

Test Items		Incertai	nty
Peak Output Power	+/-	1	dB
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty					
	+/-	2.64	dB	9kHz~30MHz	
Polarization: Vertical	+/-	4.93	dB	30MHz - 1000MHz	
Polarization, vertical	+/-	4.81	dB	1GHz - 18GHz	
	+/-	4.52	dB	18GHz - 40GHz	
	+/-	2.64	dB	9kHz~30MHz	
Polorization, Harizantal	+/-	4.45	dB	30MHz - 1000MHz	
Polarization: Horizontal	+/-	4.81	dB	1GHz - 18GHz	
	+/-	4.52	dB	18GHz - 40GHz	

## Note:

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

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## PEAK OUTPUT POWER MEASUREMENT

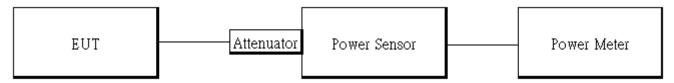
#### 6.1 **Standard Applicable**

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, The Limit: 1Watt. For all other frequency hopping systems in the 2400 2483.5MHz band: The Limit: 0.125 Watts. The power limit for 1Mbps is 1watt, and 2Mbps, 3Mbps and AFH mode are 0.125 watts.

#### **Measurement Equipment Used** 6.2

Conducted Emission Test Site: Conducted 4							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUM- BER LAST CA		CAL DUE.		
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	10/20/2020	10/19/2021		
Power Meter	Anritsu	ML2496A	1804001	03/02/2021	03/01/2022		
Power Sensor	Anritsu	MA2411B	1726104	03/02/2021	03/01/2022		
Power Sensor	Anritsu	MA2411B	1726107	03/02/2021	03/01/2022		
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021		

#### 6.3 **Test Set-up:**



#### 6.4 **Measurement Procedure:**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows ANSI C63.10 Measurement Guidelines.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Max Hold, Detector = Peak, RBW >=20dB bandwidth)
- 4. Record the max. reading.
- 5. Repeat above procedures until all default test channel is completed.

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#### 6.5 **Peak & Average Power Measurement Result**

### 1M BR mode (Peak):

IIII BIX III GGG	(			
СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	10.00	10.000	1000
Mid	2441	10.96	12.474	1000
High	2480	10.15	10.351	1000

### 1M BR mode (Average):

СН	Freq. (MHz)	Max. Avg.Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	9.26	8.424	1000
Mid	2441	10.67	11.655	1000
High	2480	9.32	8.541	1000

### 2M EDR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	10.07	10.162	125
Mid	2441	11.02	12.647	125
High	2480	10.17	10.399	125

### 2M FDR mode (Average):

ZIVI LDIN IIIOU	e (Average).			
СН	Freq. (MHz)	Max. Avg.Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	7.77	5.989	125
Mid	2441	8.72	7.454	125
High	2480	7.83	6.073	125

### 3M EDR mode (Peak):

СН	Freq. (MHz)	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	10.42	11.015	125
Mid	2441	11.34	13.614	125
High	2480	10.52	11.272	125

NOTE: cable loss as 0dB that offsets in the spectrum

## 3M EDR mode (Average):

СН	Freq. (MHz)	Max. Avg.Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	7.79	6.005	125
Mid	2441	8.74	7.473	125
High	2480	7.85	6.088	125

\*Note: Max. Output include tune up tolerance Power measured by using average detector.

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## RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

#### 7.1 **Standard Applicable**

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 a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 limit as below. And according to §15.33(a) (1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
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

## Note:

1. The lower limit shall apply at the transition frequencies.

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#### 7.2 **Measurement Equipment Used**

7.2 Weasurement	Radi	ated Emission Tes	t Site: SAC 3		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUM- BER	LAST CAL.	CAL DUE.
Horn Antenna	SCHWARZ- BECK	BBHA9170	184	12/11/2020	12/10/2021
Horn Antenna	SCHWARZ- BECK	BBHA9120D	1441	10/16/2020	10/15/2021
Bi-log Antenna	SCHWARZ- BECK	VULB9168	300	11/18/2020	11/17/2021
Loop Antenna	ETS.LIND- GREN	6502	148045	10/19/2020	10/18/2021
PXA Spectrum Ana- lyzer	Agilent	N9030A	MY53120760	04/27/2021	04/26/2022
EMI Test Receiver	R&S	ESCI	101338	03/22/2021	03/21/2022
Pre-Amplifier	HP	8449B	3008A00578	12/16/2020	12/15/2021
Pre-Amplifier	EMC Instru- ments	EMC184045B	980135	12/16/2020	12/15/2021
Pre-Amplifier	HP	8447D	2944A07676	12/16/2020	12/15/2021
Attenuator	Mini-Circuit	BW-S10W2+	4	12/16/2020	12/15/2021
Filter 2400-2483.5 MHz	EWT	EWT-14-0166	M1	12/16/2020	12/15/2021
High Pass Filter	WI	WHKX4.0/18G- 10SS	22	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2636/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104	340057/4	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104PEA	800052/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2621/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2617/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2630/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY22962/2	12/16/2020	12/15/2021
Site Cal	SGS	SAC 3	N/A	01/01/2021	12/31/2021
Test Software	audix	e3	Ver. 6.11812c	N.C.R	N.C.R

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

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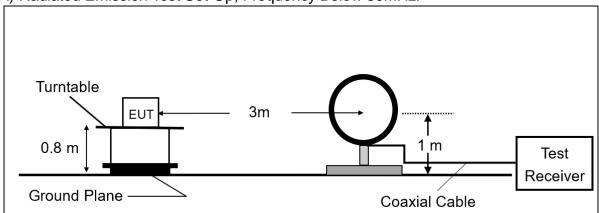
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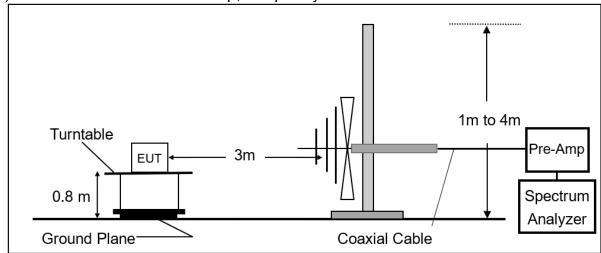
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## 7.3 Test SET-UP

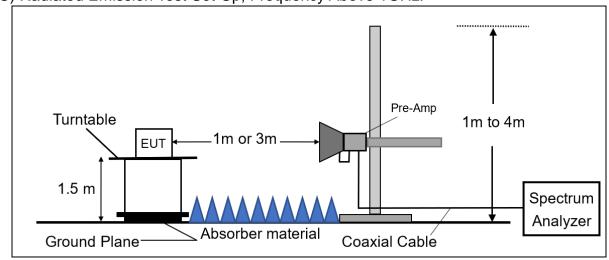
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



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



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



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#### 7.4 **Measurement Procedure**

#### 7.4.1 **Radiated Emission**

- The testing follows the Measurement Procedure of ANSI C63.10:2013.
- The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 3. The turn table shall rotate 360 degrees to determine the position of maximum emission
- 4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 5. Set the spectrum analyzer as RBW=100 kHz and VBW=300 kHz for Peak Detector (PK) at frequency between 30MHz and 1 GHz.
- 6. Use receiver mode as RBW=120 kHz for Quasi-peak (QP) at frequency between 30MHz and 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 8. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 11. Repeat above procedures until all default test channel measured were complete.

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#### 7.5 **Field Strength Calculation**

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

**Where** FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

The limit of the emission level is expressed in dBuV/m, which converts 20\*log(uV/m)

Actual  $FS(dB\mu V/m) = SPA$ . Reading level(dB $\mu V$ ) + Factor(dB)  $Factor(dB) = Antenna\ Factor(dB\mu V/m) + Cable\ Loss(dB) - Pre\_Amplifier\ Gain(dB)$ 

#### 7.6 Test Results of Radiated Spurious Emissions from 9 kHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

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#### **Measurement Result:** 7.7

## Radiated Bandedge Result (Hopping Mode)

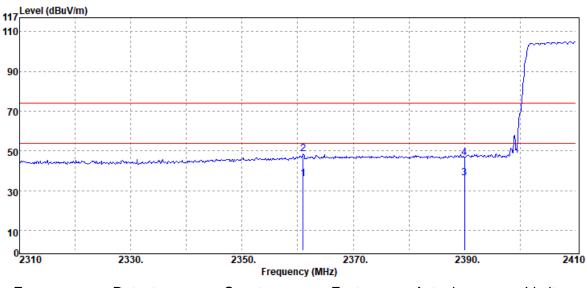
Report Number :ER-2021-70039 Test Site :SAC 3

:2021-08-05 **Operation Mode** :BT BR Hopping **Test Date** 

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :VERTICAL :Bandedge CH Low Antenna Pol.

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2361.00	Average	35.29	0.84	36.13	54.00	-17.87
2361.00	Peak	47.62	0.84	48.46	74.00	-25.54
2390.00	Average	35.83	0.76	36.59	54.00	-17.41
2390.00	Peak	45.92	0.76	46.68	74.00	-27.32

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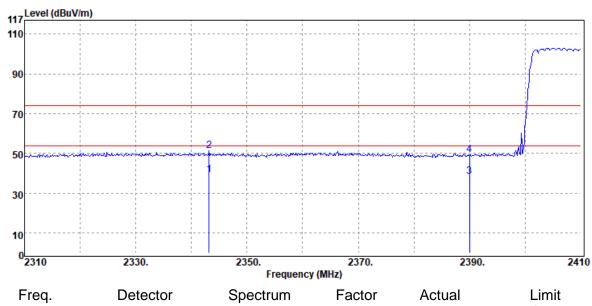
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT BR Hopping

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH Low Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
		·		•	•	
2343.20	Average	38.28	0.86	39.14	54.00	-14.86
2343.20	Peak	50.38	0.86	51.24	74.00	-22.76
2390.00	Average	37.83	0.76	38.59	54.00	-15.41
2390.00	Peak	48.71	0.76	49.47	74.00	-24.53

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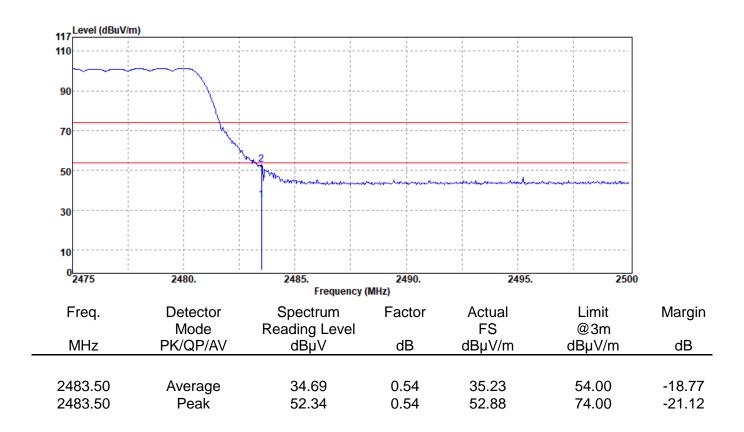
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT BR Hopping

**Test Frequency** :2480 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH High Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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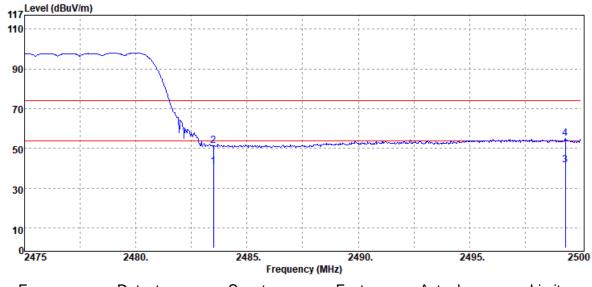
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT BR Hopping

Test Frequency :2480 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH High Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
		·		-	<u>.</u>	
2483.50	Average	40.52	0.54	41.06	54.00	-12.94
2483.50	Peak	50.95	0.54	51.49	74.00	-22.51
2499.30	Average	41.16	0.50	41.66	54.00	-12.34
2499.30	Peak	54.50	0.50	55.00	74.00	-19.00

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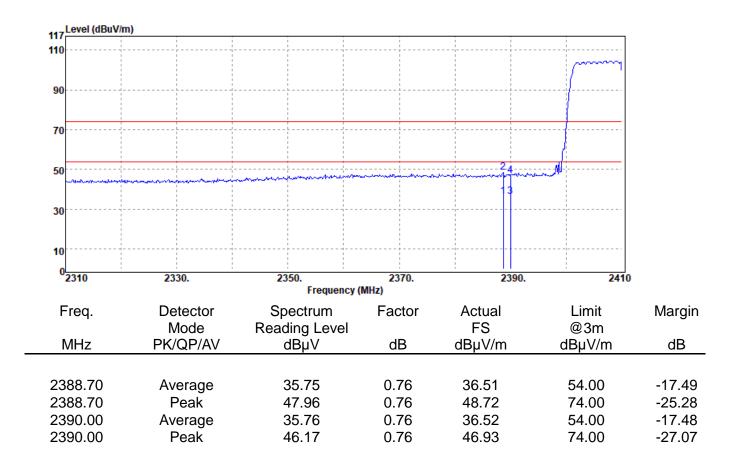
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR Hopping

**Test Frequency** :2402 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH Low Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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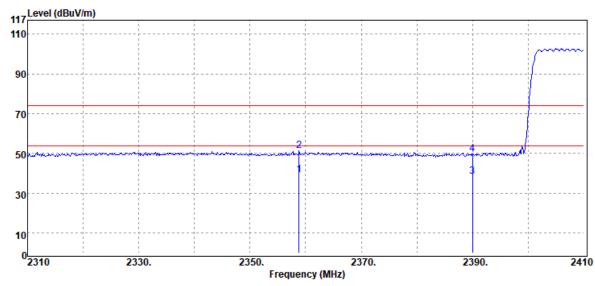
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR Hopping

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH Low Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
		•		•	•	
2358.80	Average	38.30	0.86	39.16	54.00	-14.84
2358.80	Peak	50.40	0.86	51.26	74.00	-22.74
2390.00	Average	37.86	0.76	38.62	54.00	-15.38
2390.00	Peak	49.01	0.76	49.77	74.00	-24.23

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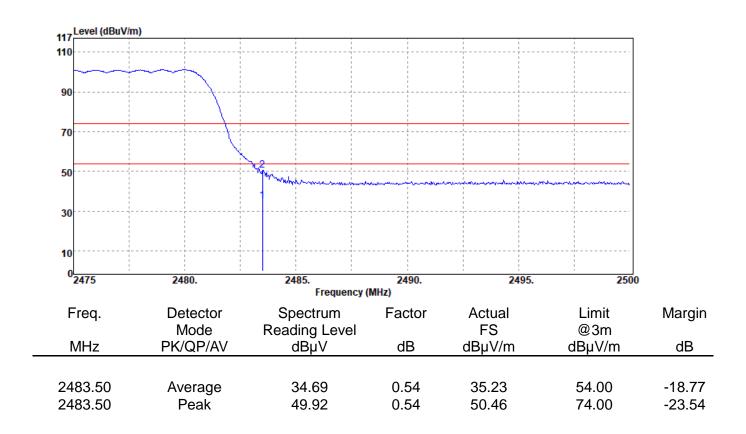
Report Number :ER-2021-70039 Test Site :SAC 3

Operation Mode :BT EDR Hopping Test Date :2021-08-05

Test Frequency :2480 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH High Antenna Pol. :VERTICAL

EUT Pol :NB Plane Engineer :Ricky Chen



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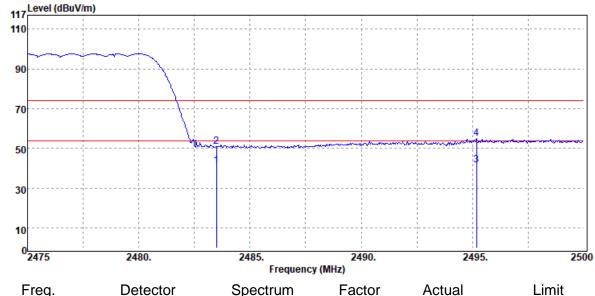
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR Hopping

Test Frequency :2480 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH High Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
		•		•	•	
2483.50	Average	40.61	0.54	41.15	54.00	-12.85
2483.50	Peak	50.61	0.54	51.15	74.00	-22.85
2495.18	Average	41.21	0.51	41.72	54.00	-12.28
2495.18	Peak	54.35	0.51	54.86	74.00	-19.14

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## Radiated Bandedge Result (Non-Hopping Mode)

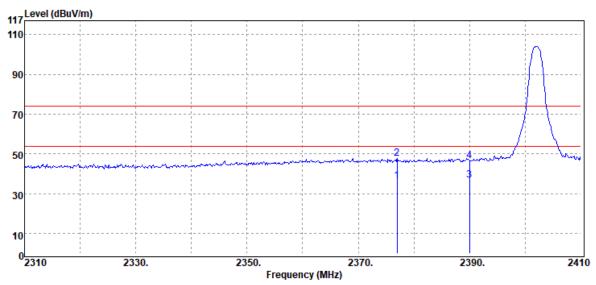
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT BR Test Date :2021-08-05

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode Antenna Pol. :VERTICAL :Bandedge CH Low

**EUT Pol** :NB Plane :Ricky Chen Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
2377.00	Average	35.70	0.80	36.50	54.00	-17.50
2377.00	Peak	47.07	0.80	47.87	74.00	-26.13
2390.00	Average	35.95	0.76	36.71	54.00	-17.29
2390.00	Peak	45.63	0.76	46.39	74.00	-27.61

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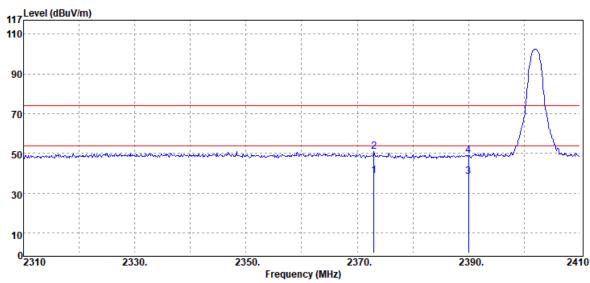
Report Number :ER-2021-70039 Test Site :SAC 3

Operation Mode :BT BR Test Date :2021-08-05

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH Low Antenna Pol. :HORIZONTAL

EUT Pol :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
2373.00	Average	38.19	0.81	39.00	54.00	-15.00
2373.00	Peak	50.12	0.81	50.93	74.00	-23.07
2390.00	Average	37.89	0.76	38.65	54.00	-15.35
2390.00	Peak	48.07	0.76	48.83	74.00	-25.17

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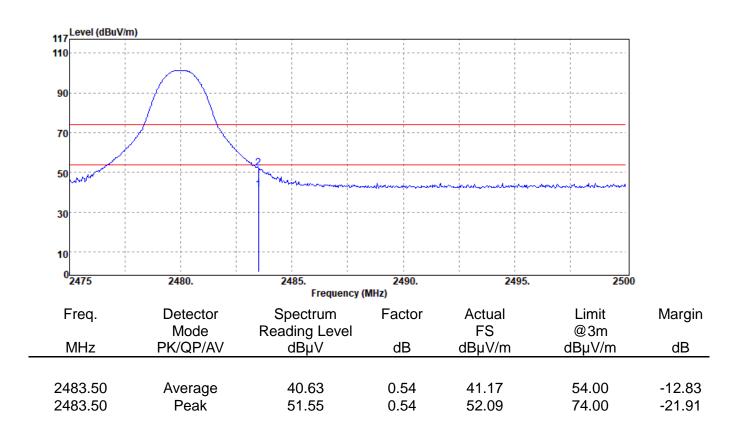
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT BR Test Date :2021-08-05

**Test Frequency** :2480 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH High Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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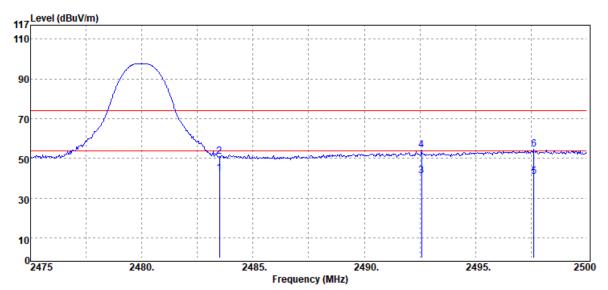
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT BR Test Date :2021-08-05

Test Frequency :27.1/48 :2480 MHz Temp./Humi.

Test Mode :Bandedge CH High Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV/m	dBµV/m	dB
2483.50	Average	41.86	0.54	42.40	54.00	-11.60
2483.50	Peak	50.43	0.54	50.97	74.00	-23.03
2492.58	Average	40.80	0.51	41.31	54.00	-12.69
2492.58	Peak	53.55	0.51	54.06	74.00	-19.94
2497.63	Average	40.54	0.50	41.04	54.00	-12.96
2497.63	Peak	54.01	0.50	54.51	74.00	-19.49

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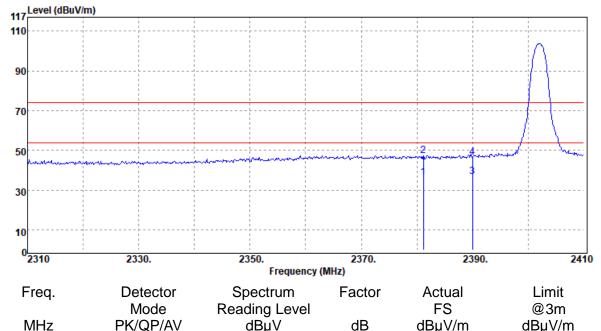
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT EDR Test Date :2021-08-05

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH Low Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
2381.20	Average	35.49	0.78	36.27	54.00	-17.73
2381.20	Peak	46.77	0.78	47.55	74.00	-26.45
2390.00	Average	35.89	0.76	36.65	54.00	-17.35
2390.00	Peak	45.83	0.76	46.59	74.00	-27.41

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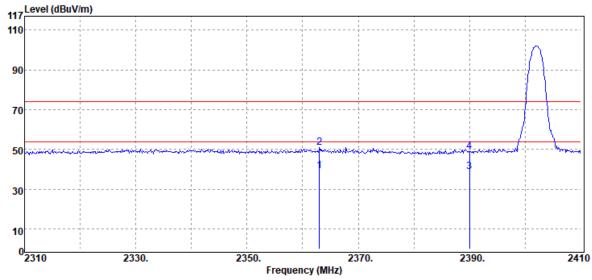
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**Operation Mode** :BT EDR Test Date :2021-08-05

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH Low Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
	<u> </u>			· · · · · · · · · · · · · · · · · · ·	<b>I</b>	
2363.00	Average	38.50	0.83	39.33	54.00	-14.67
2363.00	Peak	50.11	0.83	50.94	74.00	-23.06
2390.00	Average	37.93	0.76	38.69	54.00	-15.31
2390.00	Peak	48.18	0.76	48.94	74.00	-25.06

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Report No.: ER/2021/70039

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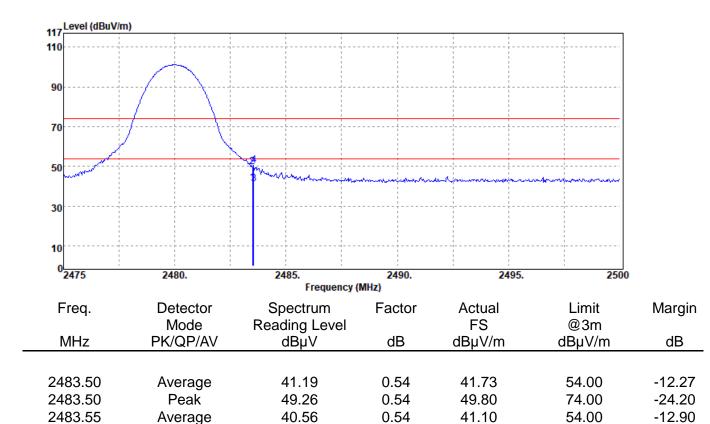
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR

**Test Frequency** :2480 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH High Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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49.95

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0.54

50.49

Peak

74.00

-23.51



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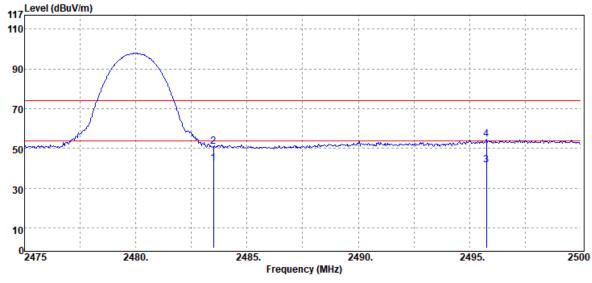
Report Number :ER-2021-70039 Test Site :SAC 3

Operation Mode :BT EDR Test Date :2021-08-05

Test Frequency :2480 MHz Temp./Humi. :27.1/48

Test Mode :Bandedge CH High Antenna Pol. :HORIZONTAL

EUT Pol :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
2483.50	Average	42.07	0.54	42.61	54.00	-11.39
2483.50	Peak	50.58	0.54	51.12	74.00	-22.88
2495.75	Average	41.19	0.51	41.70	54.00	-12.30
2495.75	Peak	54.06	0.51	54.57	74.00	-19.43

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#### 7.7.3 Radiated Spurious Emission above 1 GHz:

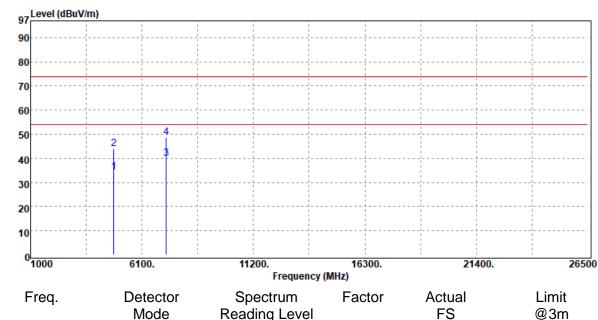
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT BR Test Date :2021-08-05

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode Antenna Pol. :VERTICAL :Tx CH Low

**EUT Pol** :NB Plane :Ricky Chen Engineer



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4804.00	Average	26.81	7.48	34.29	54.00	-19.71
4804.00	Peak	36.36	7.48	43.84	74.00	-30.16
7206.00	Average	25.87	14.20	40.07	54.00	-13.93
7206.00	Peak	34.46	14.20	48.66	74.00	-25.34

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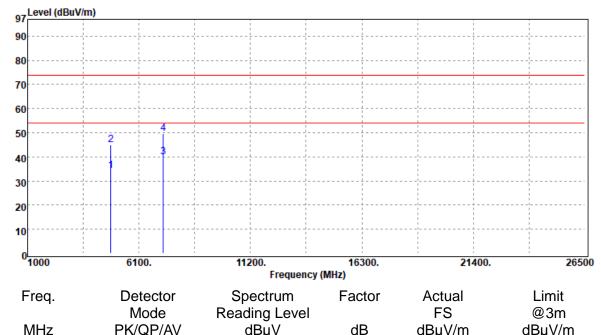
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT BR Test Date :2021-08-05

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH Low Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
IVIITZ	PN/QP/AV	αьμν	uБ	ασμν/π	ασμν/π	ub
4804.00	Average	26.75	7.48	34.23	54.00	-19.77
4804.00	Peak	37.37	7.48	44.85	74.00	-29.15
7206.00	Average	25.71	14.20	39.91	54.00	-14.09
7206.00	Peak	35.57	14.20	49.77	74.00	-24.23

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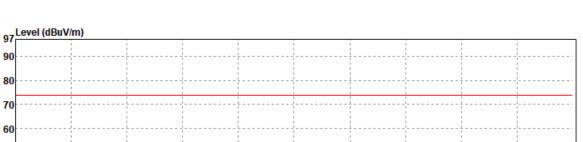
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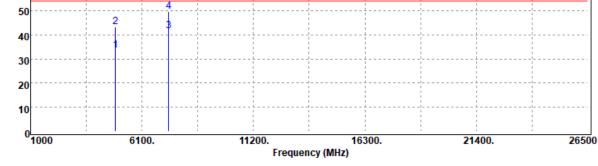
Report Number :ER-2021-70039 Test Site :SAC 3

Operation Mode :BT BR Test Date :2021-08-05

Test Frequency :2441 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH Mid Antenna Pol. :VERTICAL EUT Pol :NB Plane Engineer :Ricky Chen





Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4882.00	Average	26.51	7.03	33.54	54.00	-20.46
4882.00	Peak	36.40	7.03	43.43	74.00	-30.57
7323.00	Average	27.00	14.58	41.58	54.00	-12.42
7323.00	Peak	34.93	14.58	49.51	74.00	-24.49

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Test Mode

Report No.: ER/2021/70039

:HORIZONTAL

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Antenna Pol.

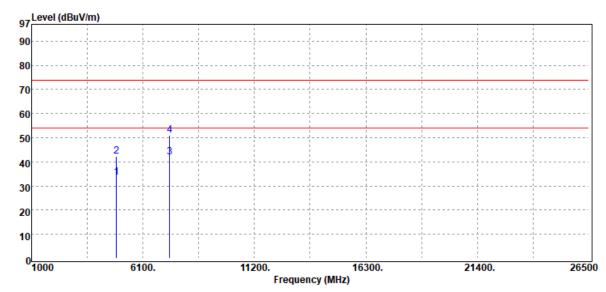
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT BR Test Date :2021-08-05

Test Frequency :2441 MHz Temp./Humi. :27.1/48

:Tx CH Mid

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4882.00	Average	26.43	7.03	33.46	54.00	-20.54
4882.00	Peak	35.20	7.03	42.23	74.00	-31.77
7323.00	Average	27.35	14.58	41.93	54.00	-12.07
7323.00	Peak	36.52	14.58	51.10	74.00	-22.90

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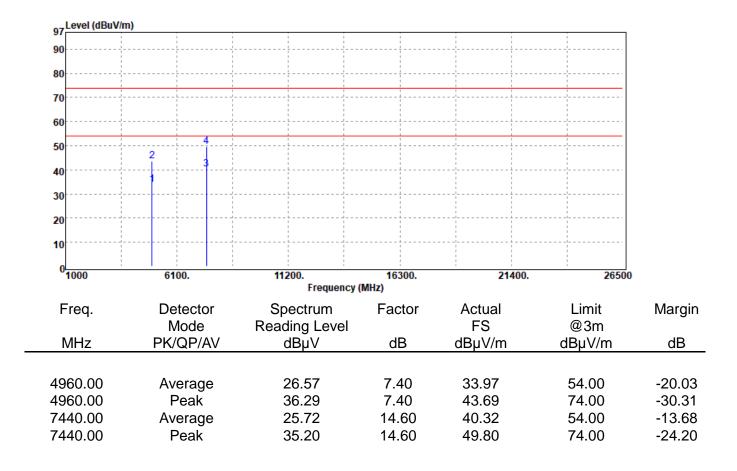
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT BR

**Test Frequency** :2480 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH High Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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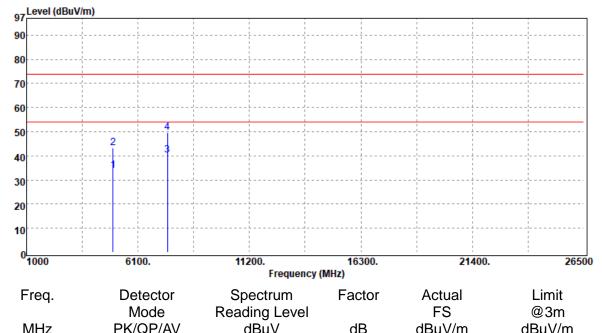
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT BR Test Date :2021-08-05

Test Frequency :2480 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH High Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
4960.00	Average	26.53	7.40	33.93	54.00	-20.07
4960.00	Peak	35.93	7.40	43.33	74.00	-30.67
7440.00	Average	25.56	14.60	40.16	54.00	-13.84
7440.00	Peak	34.97	14.60	49.57	74.00	-24.43

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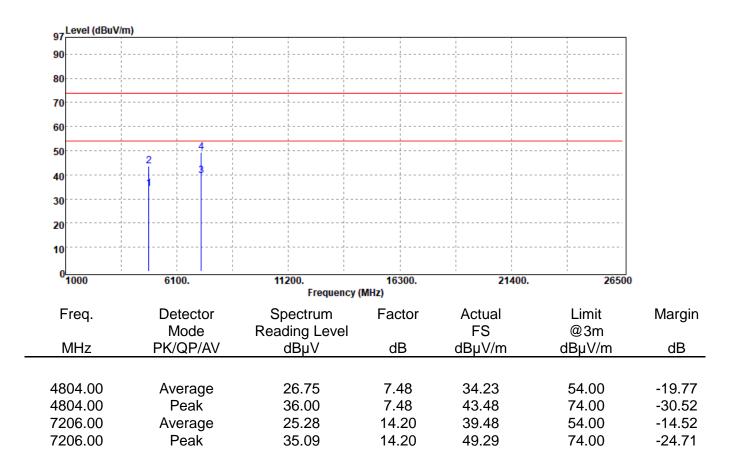
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR

**Test Frequency** :2402 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH Low Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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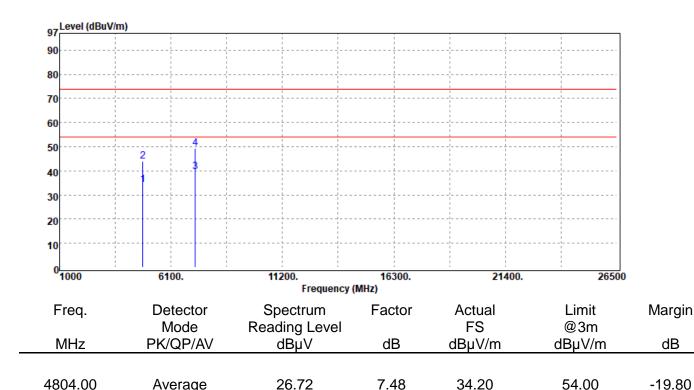
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR

Test Frequency :2402 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH Low Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



36.53

25.30

35.27

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7.48

14.20

14.20

44.01

39.50

49.47

Average

Peak

Average

Peak

4804.00

7206.00

7206.00

54.00

74.00

54.00

74.00

-29.99

-14.50

-24.53



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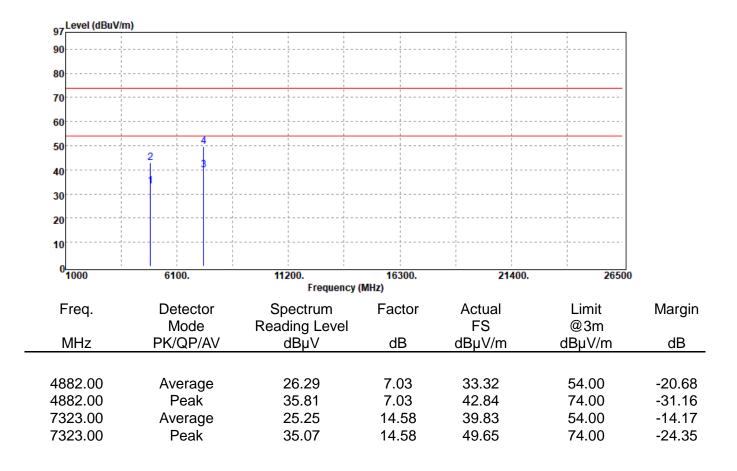
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR

**Test Frequency** :2441 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH Mid Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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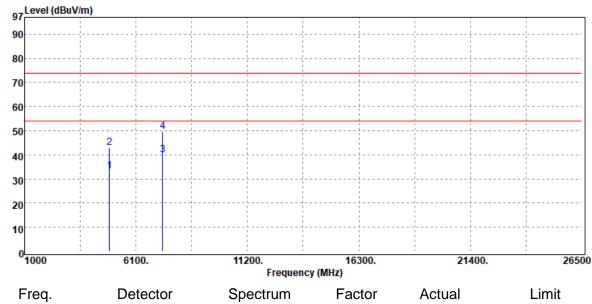
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** :BT EDR Test Date :2021-08-05

Test Frequency :2441 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH Mid Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
4882.00	Average	26.32	7.03	33.35	54.00	-20.65
4882.00	Peak	35.83	7.03	42.86	74.00	-31.14
7323.00	Average	25.30	14.58	39.88	54.00	-14.12
7323.00	Peak	35.00	14.58	49.58	74.00	-24.42

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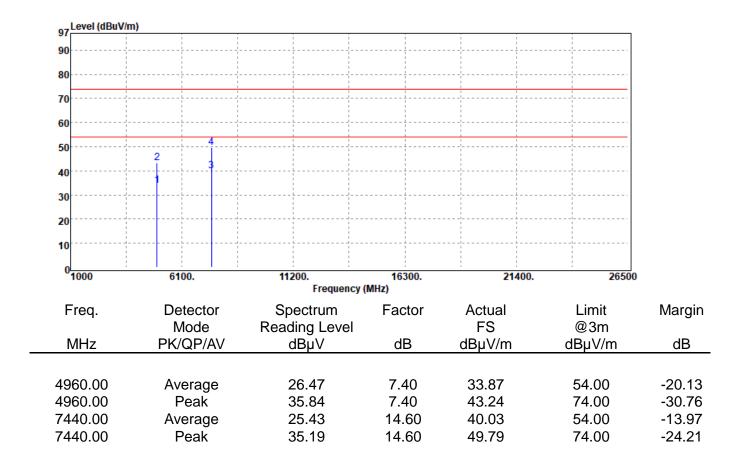
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR

**Test Frequency** :2480 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH High Antenna Pol. :VERTICAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



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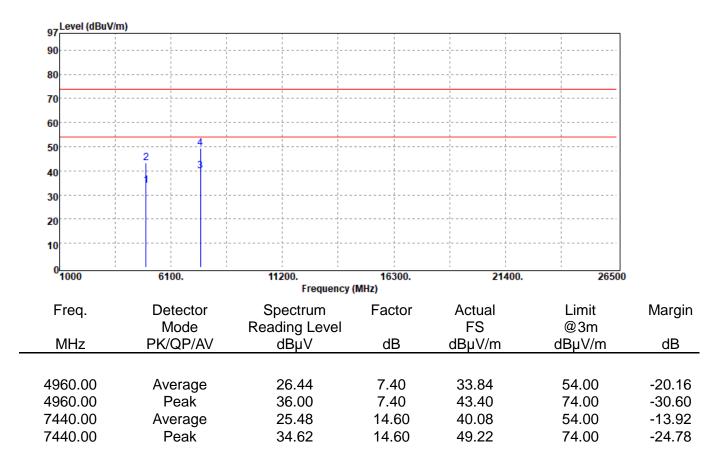
Report Number Test Site :SAC 3 :ER-2021-70039

**Operation Mode** Test Date :2021-08-05 :BT EDR

**Test Frequency** :2480 MHz Temp./Humi. :27.1/48

Test Mode :Tx CH High Antenna Pol. :HORIZONTAL

**EUT Pol** :NB Plane Engineer :Ricky Chen



~ End of Report ~

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