

TEST REPORT

Report No.:	BCTC2102235973E					
Applicant:	Shenzhen Yuangu Technology Co., Ltd.					
Product Name:	TRUE WIRELESS SPORT EARBUDS					
Model/Type Ref.:	ET5					
Tested Date:	2021-02-26 to 2021-03-12					
Issued Date:	2021-03-12					
Shei	nzhen BCTC BCTCRTesting Co., Ltd.					
No. : BCTC/RF-EMC-005	Page: 1 of 69					



FCC ID: 2ATWG-ET5L

Product Name:	TRUE WIRELESS SPORT EARBUDS
Trademark:	N/A
Model/Type Ref.:	ET5
Prepared For:	Shenzhen Yuangu Technology Co., Ltd.
Address:	No.101, 1st Factory Building, Hebei Industrial Park, Ma'antang Community, Hebeizhongxing Road, Bantian Sub-district, Longgang District, Shenzhen, China
Manufacturer:	Shenzhen Yuangu Technology Co., Ltd.
Address:	No.101, 1st Factory Building, Hebei Industrial Park, Ma'antang Community, Hebeizhongxing Road, Bantian Sub-district, Longgang District, Shenzhen, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2021-02-26
Sample tested Date:	2021-02-26 to 2021-03-12
Issue Date:	2021-03-12
Report No.:	BCTC2102235973E
Test Standards	FCC Part15.247 ANSI C63.10-2013
Test Results	PASS
Remark:	This is Bluetooth Classic radio test report.

Tested by:

Willem Woing

Willem Wang/Project Handler

Approved by:

Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.



TABLE OF CONTENT

Test F	Report Declaration	Page	
1.	VERSION		5
2.	TEST SUMMARY		6
3.	MEASUREMENT UNCERTAINTY		
4.	PRODUCT INFORMATION AND TEST SETUP		
4.1	Product Information		8
4.2	Test Setup Configuration		8
4.3	Support Equipment		9
4.4	Channel List		9
4.5	Test Mode	1	0
5.	TEST FACILITY AND TEST INSTRUMENT USED	1	1
5.1	Test Facility	1	1
5.2	Test Instrument Used	1	1
6.	CONDUCTED EMISSIONS		
6.1	Block Diagram Of Test Setup	1	3
6.2	Limit	1	3
6.3	Test procedure	1	3
6.4	EUT operating Conditions	1	3
6.5	Test Result	1	4
7.	RADIATED EMISSIONS	1	6
7.1	Block Diagram Of Test Setup		
7.2	Limit		
7.3	Test procedure	1	8
7.4	EUT operating Conditions	1	9
7.5	Test Result	2	0
8.	RADIATED BAND EMISSION MEASUREMENT AND RESTRICTED		/
BAN	IDS OF OPERATION	2	4
8.1	Block Diagram Of Test Setup		4
8.2	Limit)	Æ
8.3	Test procedure	2	5
8.4	EUT operating Conditions	2	5
8.5	Test Result	2	6
9.	CONDUCTED EMISSION	2	7
9.1	Block Diagram Of Test Setup	2	7
9.2	Limit	2	7
9.3	Test procedure	2	7
9.4	Test Result	2	8
10.	20 DB BANDWIDTH	3	7
10.1	Block Diagram Of Test Setup		
10.2	Limit	3	7



10.3	Test procedure	.37
10.4	Test Result	. 38
11.	MAXIMUM PEAK OUTPUT POWER	. 43
11.1	Block Diagram Of Test Setup	
11.2	Limit	.43
11.3	Test procedure	.43
11.4	Test Result	
12.	HOPPING CHANNEL SEPARATION	. 49
12.1	Block Diagram Of Test Setup	
12.2	Limit	. 49
12.3	Test procedure	. 49
12.4	Test Result	. 50
13.	NUMBER OF HOPPING FREQUENCY	. 55
13.1	Block Diagram Of Test Setup	. 55
13.2	Limit	. 55
13.3	Test procedure	. 55
13.4	Test Result	. 56
14.	DWELL TIME	. 58
14.1	Block Diagram Of Test Setup	. 58
14.2	Limit	. 58
14.3	Test procedure	. 58
14.4	Test Result	. 59
15.	ANTENNA REQUIREMENT	. 64
15.1	Limit	
15.2	Test Result	.64
16.	EUT PHOTOGRAPHS	. 65
17.	EUT TEST SETUP PHOTOGRAPHS	.67
		11

(Note: N/A means not applicable)

Edition : A.3



1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2102235973E	BCTC2102235973E 2021-03-12 Ori		Valid



2. TEST SUMMARY

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
1	Conducted emission AC power port	§15.207	PASS
2	Conducted peak output power for FHSS	§15.247(b)(1)	PASS
3	20dB Occupied bandwidth	§15.247(a)(1)	PASS
4	Number of hoppingfrequencies	§15.247(a)(1)(iii)	PASS
5	Dwell Time	§15.247(a)(1)(iii)	PASS
6	Spurious RF conducted emissions	§15.247(d)	PASS
7	Band edge	§15.247(d)	PASS
8	Spurious radiated emissions for transmitter	§15.247(d) & §15.209 & §15.205	PASS
9	Antenna Requirement	15.203	PASS





3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.576dB
6	Conducted output power uncertainty below 1G	U=1.28dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59 ℃



4. PRODUCT INFORMATION AND TEST SETUP

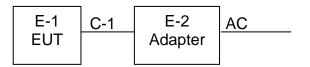
4.1 Product Information

Model/Type Ref.:	ET5
Model differences:	N/A
Bluetooth Version:	BT5.0
Hardware Version:	V1.4
Software Version:	V1.7.1
Operation Frequency:	Bluetooth: 2402-2480MHz
Type of Modulation:	Bluetooth: GFSK, Pi/4 DQPSK, 8DPSK
Number Of Channel	79CH
Antenna installation:	Bluetooth: Internal antenna
Antenna Gain:	Bluetooth: 1.84dBi
Ratings:	DC 3.7V from Battery DC 5V from Charging Box

4.2 Test Setup Configuration

See test photographs attached in *EUT TEST SETUP PHOTOGRAPHS* for the actual connections between Product and support equipment.

Conducted Emission:



Radiated Spurious Emission





4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	TURE WIRELESS SPORT	N/A	ET5	N/A	EUT
E-2	Adapter	N/A	BCTC001	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.4M	DC cable unshielded

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

СН	Frequency (MHz)	СН	Frequency (MHz)	СН	Frequency (MHz)	СН	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	<u>2472</u>	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	79	



4.5 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Mode	Test mode	Low channel	Middle channel	High channel		
1	Transmitting(GFSK)	2402MHz	2441MHz	2480MHz		
2	Transmitting(Pi/4DQPSK)	2402MHz	2441MHz	2480MHz		
3	Transmitting(8DPSK)	2402MHz	2441MHz	2480MHz		
4	Charging (conducted emission)					
5	Transmitting (Radiated emission)					

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) Fully-charged battery is used during the test



5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

5.2 Test Instrument Used

	Conducted emissions Test						
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.		
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021		
LISN	R&S	ENV216	101375	Jun. 04, 2020	Jun. 03, 2021		
ISN	HPX	ISN T800	S1509001	Jun. 04, 2020	Jun. 03, 2021		
Software	Frad	EZ-EMC	EMC-CON 3A1	/	١.		

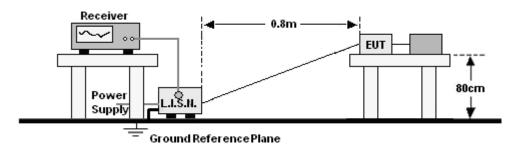


	Radiated emissions Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.	
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023	
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021	
Receiver	R&S	ESRP	101154	Jun. 08, 2020	Jun. 07, 2021	
Amplifier	Schwarzbeck	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021	
Amplifier	Schwarzbeck	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021	
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163- 942	Jun. 08, 2020	Jun. 07, 2021	
Horn Antenna	SCHWARZBE CK	BBHA9120 D	1201	Jun. 10, 2020	Jun. 09, 2021	
Horn Antenna (18GHz-40 GHz)	SCHWARZBE CK	BBHA9170	822	Jun. 10, 2020	Jun. 09, 2021	
Amplifier (18GHz-40 GHz)	MITEQ	TTA1840-3 5-HG	2034381	Jun. 08, 2020	Jun. 07, 2021	
Loop Antenna (9KHz-30M Hz)	SCHWARZBE CK	FMZB1519 B	014	Jun. 08, 2020	Jun. 07, 2021	
RF cables1 (9kHz-30MH z)	Huber+Suhnar	9kHz-30M Hz	B1702988- 0008	Jun. 08, 2020	Jun. 07, 2021	
RF cables2 (30MHz-1G Hz)	Huber+Suhnar	30MHz-1G Hz	1486150	Jun. 08, 2020	Jun. 07, 2021	
RF cables3 (1GHz-40G Hz)	Huber+Suhnar	1GHz-40G Hz	1607106	Jun. 08, 2020	Jun. 07, 2021	
Power Metter	Keysight	E4419B		Jun. 08, 2020	Jun. 07, 2021	
Power Sensor (AV)	Keysight	E9 300A	V	Jun. 08, 2020	Jun. 07, 2021	
Signal Analyzer 20kHz-26.5 GHz	KEYSIGHT	N9020A	MY491000 60	Jun. 04, 2020	Jun. 03, 2021	
Spectrum Analyzer 9kHz-40G Hz	Agilent	FSP40	100363	Jun. 13, 2020	Jun. 12, 2021	
Software	Frad	EZ-EMC	FA-03A2 RE			



6. CONDUCTED EMISSIONS

6.1 Block Diagram Of Test Setup



6.2 Limit

FREQUENCY (MHz)	Limit (dBuV)		
	Quas-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	
0.50 -5.0	56.00	46.00	
5.0 -30.0	60.00	50.00	

Notes:

1. *Decreasing linearly with logarithm of frequency.

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

6.3 Test procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

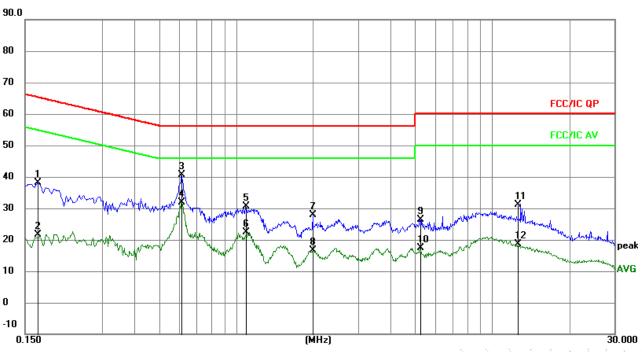
6.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



6.5 Test Result

Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode :	Mode 4



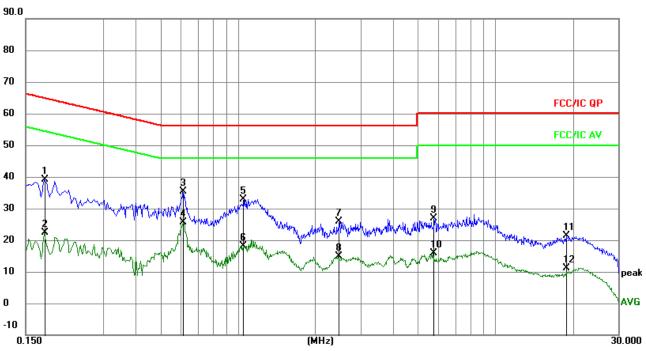
Remark:

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz		dB	dBuV	dBuV	dB	Detector
1	0.1680	28.60	9.50	38.10	65.06	-26.96	QP
2	0.1680	12.24	9.50	21.74	55. 0 6	-33.32	AVG
3	0.6134	30.58	9.95	40.53	56.00	-15.47	QP
4 *	0.6134	22.02	9.95	31.97	46.00	-14.03	AVG
5	1.0905	20.98	9.57	30.55	56.00	-25.45	QP
6	1.0905	12.73	9.57	22.30	46.00	-23.70	AVG
7	1.9995	18.18	9.59	27.77	56.00	-28.23	QP
8	1.9995	7.07	9.59	16.66	46.00	-29.34	AVG
9	5.2260	16.57	9.79	26.36	60.00	-33.64	QP
10	5.2260	7.65	9.79	17.44	50.00	-32.56	AVG
11	12.6059	21.55	9.70	31.25	60.00	-28.75	QP
12	12.6059	9.01	9.70	18.71	50.00	-31.29	AVG

All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.



Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	101kPa	Phase :	Ν
Test Voltage :	AC 120V/60Hz	Test Mode :	Mode 4



Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = Insertion Loss + Cable Loss.

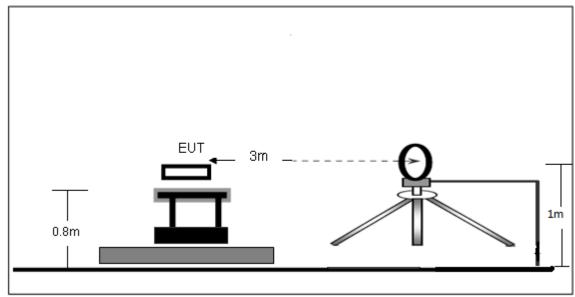
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.1768	29.57	9.49	39.06	64.63	-25.57	QP
2		0.1768	12.88	9.49	22.37	54.63	-32.26	AVG
3		0.6108	25.37	9.96	35.33	56.00	-20.67	QP
4	*	0.6108	15.58	9.96	25.54	46.00	-20.46	AVG
5		1.0485	23.32	9.57	32.89	56.00	-23.11	QP
6		1.0485	8.68	9.57	18.25	46.00	-27.75	AVG
7		2.4476	16.30	9.62	25.92	56.00	-30.08	QP
8		2.4476	5.32	9.62	14.94	46.00	-31.06	AVG
9		5.7135	17.12	9.77	26.89	60.00	-33.11	QP
10		5.7135	5.99	9.77	15.76	50.00	-34.24	AVG
11		18.8205	11.68	9.77	21.45	60.00	-38.55	QP
12		18.8205	1.47	9.77	11.24	50.00	-38.76	AVG

No. : BCTC/RF-EMC-005

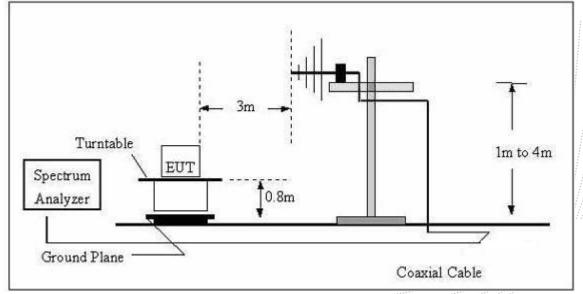


7. RADIATED EMISSIONS

- 7.1 Block Diagram Of Test Setup
 - (A) Radiated Emission Test-Up Frequency Below 30MHz

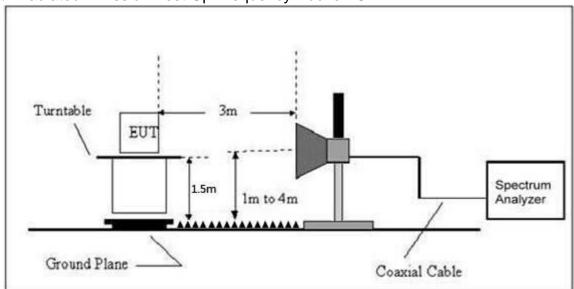


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz









7.2 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency	Field Strength	Distance	Field Strength Limit at 3m Distance		
(MHz)	uV/m	(m)	uV/m	dBuV/m	
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	20log ^{(2400/F(kHz))} + 80	
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log ^{(24000/F(kHz))} + 40	
1.705 ~ 30	30	30	100 * 30	20log ⁽³⁰⁾ + 40	
30 ~ 88	100	3	100	20log ⁽¹⁰⁰⁾	
88 ~ 216	150	3	150	20log ⁽¹⁵⁰⁾	
216 ~ 960	200	3	200	20log ⁽²⁰⁰⁾	
Above 960	500	3	500	20log ⁽⁵⁰⁰⁾	

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENC	Limit (dBuV/	/m) (at 3M)
Y (MHz)	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1)The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).



7.3 Test procedure

Receiver Parameter	Setting
Attenuation	Auto
9kHz~150kHz	RBW 200Hz for QP
150kHz~30MHz	RBW 9kHz for QP
30MHz~1000MHz	RBW 120kHz for QP

Spectrum Parameter	Setting
1-25GHz	RBW 1 MHz /VBW 1 MHz for Peak, RBW 1 MHz / VBW 10Hz for Average

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).

h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel.

Note:



Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

Above 1GHz test procedure as below:

a.The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b.The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c.The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.

e.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g.Test the EUT in the lowest channel, the Highest channel.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

7.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



7.5 Test Result

Below 30MHz

Temperature:	26 ℃	Relative Humidtity:	24%
Pressure:	101 kPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 5	Polarization :	

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
				PASS
				PASS

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

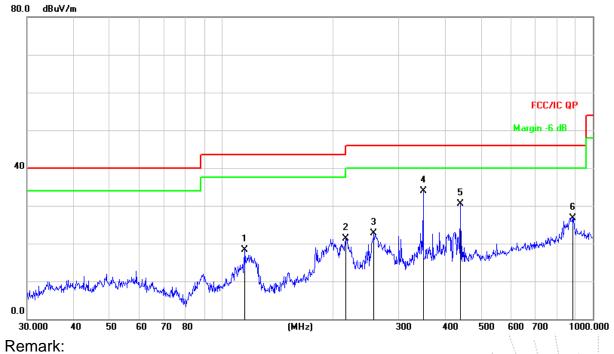
Distance extrapolation factor =40 log (specific distance/test distance)(dB); Limit line = specific limits(dBuv) + distance extrapolation factor.

No. : BCTC/RF-EMC-005



Between 30MHz – 1GHz				
Temperature:	26 ℃	Relative Humidtity:	54%	
Pressure:	101 kPa	Test Voltage :	DC 3.7V	
Test Mode :	Mode 5	Polarization :	Horizontal	



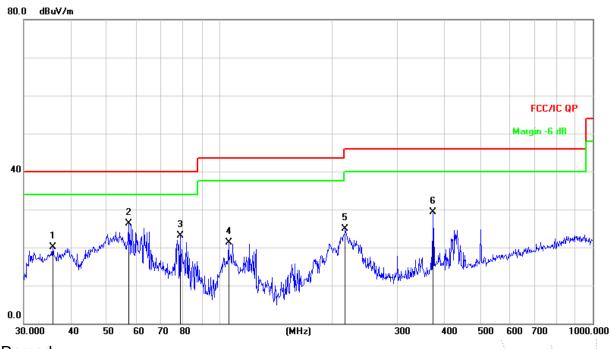


Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		115.7256	34.71	-16.49	18.22	43.50	-25.28	QP
2		216.0240	36.22	-14.93	21.29	46.00	-24.71	QP
3		257.4222	36.72	-13.96	22.76	46.00	-23.24	QP
4	*	349.2500	44.97	-11.09	33.88	46.00	-12.12	QP
5		440.1963	39.26	-8.83	30.43	46.00	-15.57	QP
6		881.4067	27.18	-0.38	26.80	46.00	-19.20	QP



Temperature:	26 ℃	Relative Humidtity:	54%
Pressure:	101 kpa	Test Voltage :	DC 3.7V
Test Mode :	Mode 5	Polarization :	Vertical



Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		35.8746	35.53	-15.42	20.11	40.00	-19.89	QP
2	*	57.1914	40.80	-14.50	26.30	40.00	-13.70	QP
3		78.6888	42.37	-19.21	23.16	40.00	-16.84	QP
4		106.0126	37.13	-15.86	21.27	43.50	-22.23	QP
5	1	217.5443	39.73	-14.90	24.83	46.00	-21.17	QP
6		373.3112	39.68	-10.42	29.26	46.00	-16.74	QP



Between 1GHz – 25GHz

Polar	Frequency	Reading Level	Correct Factor	Measure- ment	Limits	Over	Detector		
(H/V)	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	Туре		
	GFSK Low channel								
V	4804.00	53.31	-0.43	52.88	74.00	-21.12	PK		
V	4804.00	44.07	-0.43	43.64	54.00	-10.36	AV		
V	7206.00	45.45	8.31	53.76	74.00	-20.24	PK		
V	7206.00	36.06	8.31	44.37	54.00	-9.63	AV		
Н	4804.00	49.55	-0.43	49.12	74.00	-24.88	PK		
Н	4804.00	38.97	-0.43	38.54	54.00	-15.46	AV		
Н	7206.00	42.98	8.31	51.29	74.00	-22.71	PK		
Н	7206.00	34.95	8.31	43.26	54.00	-10.74	AV		
	-	GF	SK Middle o	channel			-		
V	4882.00	49.47	-0.38	49.09	74.00	-24.91	PK		
V	4882.00	41.43	-0.38	41.05	54.00	-12.95	AV		
V	7323.00	41.08	8.83	49.91	74.00	-24.09	PK		
V	7323.00	32.34	8.83	41.17	54.00	-12.83	AV		
Н	4882.00	45.83	-0.38	45.45	74.00	-28.55	PK		
Н	4882.00	36.61	-0.38	36.23	54.00	_. -17.77	AV		
Н	7323.00	38.36	8.83	47.19	74.00	-26.81	PK		
Н	7323.00	29.98	8.83	38.81	54.00	-15.19	AV		
		GF	FSK High cl	hannel					
V	4960.00	51.96	-0.32	51.64	74.00	-22.36	PK		
V	4960.00	42.78	-0.32	42.46	54.00	-11.54	AV		
V	7440.00	44.05	9.35	53,40	74.00	-20.60	PK		
V	7440.00	34.52	9.35	43.87	54.00	-10.13	AV		
Н	4960.00	49.13	-0.32	48.81	74.00	-25.19	PK		
Н	4960.00	38.95	-0.32	38.63	54.00	-15.37	AV		
Н	7440.00	41.99	9.35	51.34	74.00	-22.66	PK		
Н	7440.00	33.34	9.35	42.69	54.00	-11.31	AV		

Remark:

1.Emission Level = Meter Reading + Factor,

Factor = Antenna Factor + Cable Loss - Pre-amplifier.

Over= Emission Level - Limit

2.If peak below the average limit, the average emission was no test.

3. In restricted bands of operation, The spurious emissions below the permissible value more than 20dB

4. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

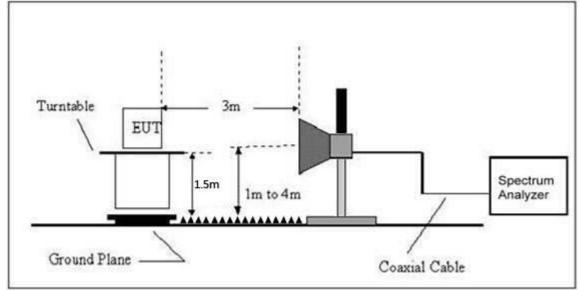
5.All the Modulation are test, the worst mode is GFSK, the data recording in the report.



8. RADIATED BAND EMISSION MEASUREMENT AND RESTRICTED BANDS OF OPERATION

8.1 Block Diagram Of Test Setup

Radiated Emission Test-Up Frequency Above 1GHz



8.2 Limit

FCC Part15 C Section 15.209 and 15.205

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENC	Limit (dBuV/m) (at 3M)		
Y (MHz)	PEAK	AVERAGE	
Above 1000	74	.54	

Notes:

(1)The limit for radiated test was performed according to FCC PART 15C.



(2)The tighter limit applies at the band edges.(3)Emission level (dBuV/m)=20log Emission level (uV/m).

8.3 Test procedure

Receiver Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Above 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b.The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c.The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.

e.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g.Test the EUT in the lowest channel, the Highest channel.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

8.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



8.5 Test Result

MHz) 390.00 400.00 390.00 400.00 483.50 483.50 483.50 485.00	57.29 49.06 56.97 49.56 High 56.52 48.92	(dB) <u>Channel 2</u> -6.70 -6.71 -6.70 -6.71 <u>Channel 2</u> -6.79	50.59 42.35 50.27 42.85	PK 74.00 74.00 74.00 74.00	AV 54.00 54.00 54.00 54.00	PASS PASS PASS		
400.00 390.00 400.00 483.50 485.00 483.50	57.29 49.06 56.97 49.56 High 56.52 48.92	-6.70 -6.71 -6.70 -6.71 Channel 2 -6.79	50.59 42.35 50.27 42.85 2480MHz	74.00 74.00 74.00	54.00 54.00	PASS PASS		
400.00 390.00 400.00 483.50 485.00 483.50	49.06 56.97 49.56 High 56.52 48.92	-6.71 -6.70 -6.71 Channel 2 -6.79	42.35 50.27 42.85 2480MHz	74.00 74.00 74.00	54.00 54.00	PASS PASS		
390.00 400.00 483.50 485.00 483.50	56.97 49.56 High 56.52 48.92	-6.70 -6.71 Channel 2 -6.79	50.27 42.85 2 480MHz	74.00 74.00	54.00	PASS		
400.00 483.50 485.00 483.50	49.56 High 56.52 48.92	-6.71 Channel 2 -6.79	42.85 2 480MHz	74.00				
483.50 485.00 483.50	High 56.52 48.92	Channel 2 -6.79	2480MHz		54.00	DACC		
485.00 483.50	56.52 48.92	-6.79				PASS		
485.00 483.50	48.92		10 73					
483.50			43.73	74.00	54.00	PASS		
		-6.81	42.11	74.00	54.00	PASS		
485.00	55.15	-6.79	48.36	74.00	54.00	PASS		
100.00	47.68	-6.81	40.87	74.00	54.00	PASS		
Low Channel 2402MHz								
390.00	56.25	-6.70	49.55	74.00	54.00	PASS		
400.00	47.32	-6.71	40.61	74.00	54.00	PASS		
390.00	56.03	-6.70	49.33	74.00	54.00	PASS		
400.00	48.04	-6.71	41.33	74.00	54.00	PASS		
High Channel 2480MHz								
483.50	56.21	-6.79	49.42	74.00	54.00	PASS		
485.00	49.04	-6.81	42.23	74.00	54.00	PASS		
483.50	55.19	-6.79	48.40	74.00	54.00	PASS		
485.00	47.64	-6.81	40.83	74.00	54.00	PASS		
	Low (Channel 2	402MHz					
390.00	57.74	-6.70	51.04	74.00	54.00	PASS		
400.00	50.27	-6.71	43.56	74.00	54.00	PASS		
390.00	57.49	-6.70	50.79	74.00	54.00	PASS		
400.00	49.43	-6.71	42.72	74.00	54.00	PASS		
	High	Channel 2	2480MHz					
483.50	57.77	-6.79	50.98	74.00	54.00	PASS		
485.00	49.61	-6.81	42.80	74.00	54.00	PASS		
483.50	57.79	-6.79	51.00	74.00	54.00	PASS		
485.00	49.54	-6.81	42.73	74.00	54.00	PASS		
	400.00 390.00 400.00 483.50 485.00 485.00 485.00 390.00 400.00 390.00 400.00 483.50 483.50 483.50	390.00 56.25 400.00 47.32 390.00 56.03 400.00 48.04 High 483.50 56.21 485.00 49.04 483.50 55.19 485.00 47.64 Low G 390.00 57.74 400.00 50.27 390.00 57.49 400.00 50.27 390.00 57.74 400.00 50.27 390.00 57.79 483.50 57.77 483.50 57.77 483.50 57.79	$\begin{array}{r c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	390.00 56.25 -6.70 49.55 74.00 400.00 47.32 -6.71 40.61 74.00 390.00 56.03 -6.70 49.33 74.00 400.00 48.04 -6.71 41.33 74.00 400.00 48.04 -6.71 41.33 74.00 400.00 48.04 -6.71 41.33 74.00 483.50 56.21 -6.79 49.42 74.00 485.00 49.04 -6.81 42.23 74.00 483.50 55.19 -6.79 48.40 74.00 485.00 47.64 -6.81 40.83 74.00 400.00 50.27 -6.71 43.56 74.00 400.00 50.27 -6.71 43.56 74.00 400.00 57.49 -6.70 50.79 74.00 400.00 49.43 -6.71 42.72 74.00 483.50 57.77 -6.79 50.98 74.00 483.50 57.79 -6.79 51.00 74.00 483.50 57.79 -6.79 51.00 74.00	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		

Remark:

1. Emission Level = Meter Reading + Factor,

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Over= Emission Level - Limit

2. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

3 In restricted bands of operation, The spurious emissions below the permissible value more than 20dB

4. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



9. CONDUCTED EMISSION

9.1 Block Diagram Of Test Setup



9.2 Limit

Regulation 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 a radiated 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, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))

9.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer:

Below 30MHz:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

Above 30MHz:

RBW = 100KHz, VBW = 300KHz, Sweep = auto

Detector function = peak, Trace = max hold



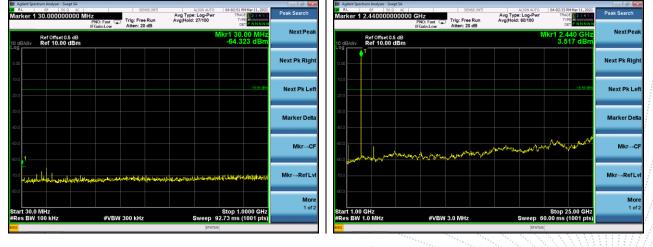
9.4 Test Result

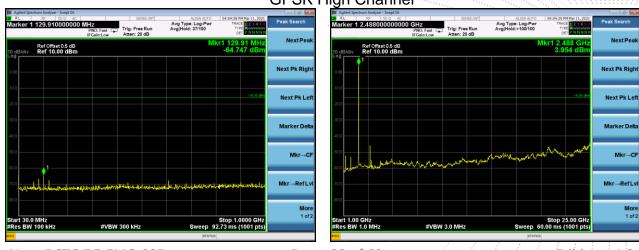
Temperature :	26 ℃	Relative Humidity :	54%
Test Voltage :	DC 3.7V	Remark:	N/A

RL RF 50 DO GHZ PNO: Fast C Trig: Free Run Atten: 20 dB ALIGN AUTO Avg Type: Log-Pwr Avg|Hold:>100/100 ALIGN AUTO Avg Type: Log-Pwr Avg|Hold: 26/100 Fast C Trig: Free Run Atten: 20 dB vtP NextP Ref Offset 0.5 dB Ref 10.00 dBm Ref Offset 0.5 dB Ref 10.00 dBm Next Pk Righ Next Pk Ri Next Pk Lef Next Pk Le Marker Del Marker De Mkr→CF Mkr→C Mkr→RefLv Mkr→RefL More 1 of 3 Mor 1 of Stop 25.00 GHz Sweep 60.00 ms (1001 pts) 30.0 MHz BW 100 kH Stop 1.0000 GF eep 92.73 ms (1001 p art 1.00 GHz tes BW 1.0 MHz #VBW 3.0 MHz

30MHz – 25GHz GFSK Low Channel

GFSK Middle Channel





GFSK High Channel

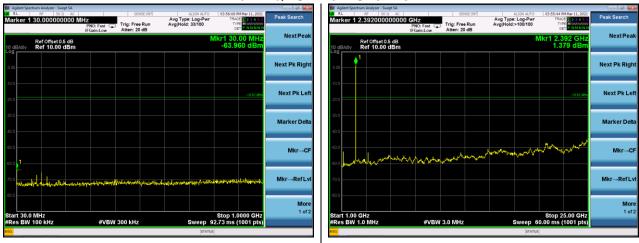
No. : BCTC/RF-EMC-005

Page: 28 of 69

Edition : A.3



Pi/4 DQPSK Low Channel

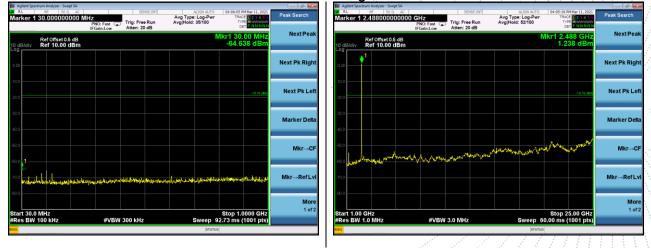


Pi/4 DQPSK Middle Channel

	PNO: Fast Trig: Free Run IFGain:Low Atten: 20 dB	Avg Hold: 35/100 TYPE DET P NNNN		
Ref Offset 0.5 dB		Mkr1 30.00 MH -63.130 dBn	2 Next Peak	Ref C 10 dB/div Ref
.00			Next Pk Right	0.00
10.0			Next Pk Left	-10.0
0.0			Marker Deita	-40.0
80.0 80.0 1			Mkr→CF	-50.0
	enghandanadestatungderte Arthopeter anterior og an the	เลาไปเขาสูงแห่งๆ- เขาเหต่องๆในสาขางๆ เปลาขึ้นเขางๆไม่หน่าไปหน่างหนุ	Mkr⊸RefLvi	-70.0
tart 30.0 MHz Res BW 100 kHz	#VBW 300 kHz	Stop 1.0000 GH Sweep 92.73 ms (1001 pts	More 1 of 2	Start 1.00 GHz #Res BW 1.0 N
	#4D44 300 KHZ	Sweep sz.rs ms (1001 pts	2	MSG

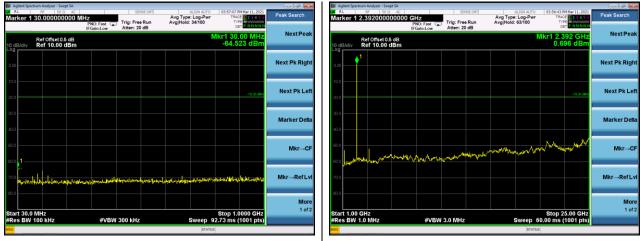


Pi/4 DQPSK High Channel

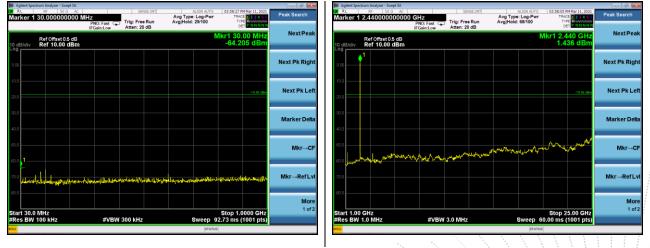




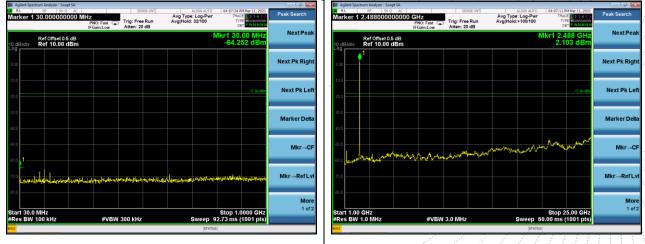
8DPSK Low Channel



8DPSK Middle Channel



8DPSK High Channel

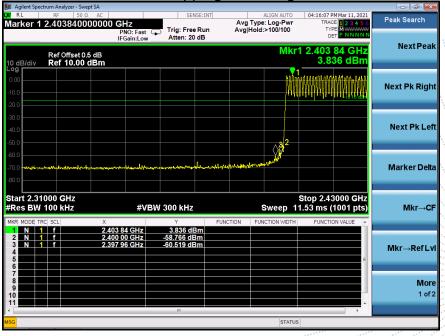




📕 Agilent Spectrum Analyzer - Swept SA			
Marker 1 2.402200000000	CHZ PNO: Fast	ALIGN AUTO 04:16:51 PM Mar 11, 2021 Avg Type: Log-Pwr TRACE 12:34:5:6 Avg Hold:>100/100 Type MWWWWW	Peak Search
Ref Offset 0.5 dB 10 dB/div Ref 10.00 dBm	IFGain:Low Atten: 20 dB	^{вет Р NNNNN} Mkr1 2.402 2 GHz 3.962 dBm	Next Peak
-10.0		16.04 dBt	Next Pk Right
-30.0			Next Pk Left
-60.0 -70.0	nghagtyan ang ang ang ang ang ang ang ang ang a	Alexandra and a second second and a second	Marker Delta
Start 2.31000 GHz #Res BW 100 kHz	#VBW 300 kHz	Stop 2.41000 GHz Sweep 9.600 ms (1001 pts)	Mkr→CF
2 N 1 f 2.40	102 2 GHz 3.962 dBm 10 00 GHz -49.199 dBm 198 4 GHz -58.117 dBm		Mkr→RefLvl
7 8 9 10 11	"		More 1 of 2
MSG		STATUS	

GFSK Transmitting Band edge-left side

GFSK Hopping Band edge-left side

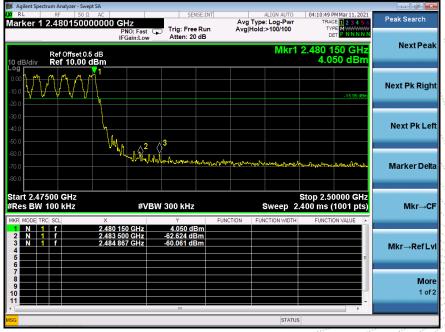




	um Analyzer - Swept SA	4					
Marker 1	RF 50 Ω A 2.479848000		SENSE:II	Avg	ALIGN AUTO Type: Log-Pwr	04:10:14 PM Mar 11, 202 TRACE 1 2 3 4 5	6 Peak Search
10 dB/div	Ref Offset 0.5 dl Ref 10.00 dB		Atten: 20 dB	n Avg	Hold:>100/100 Mkr1	2.479 848 GHz 3.990 dBm	Next Peak
Log 0.00 -10.0 -20.0						-16.01 dBr	Next Pk Right
-30.0 -40.0 -50.0	- John -						Next Pk Left
-60.0 -70.0 -80.0			alana ana ana ana ana ana ana ana ana an	.l	and the second second	philline and a condu	Marker Delta
Start 2.478 #Res BW	SCL	X	V 300 kHz	FUNCTION	Sweep 2	Stop 2.50000 GH: .133 ms (1001 pts FUNCTION VALUE	Mkr→CF
1 N 1 2 N 1 3 N 1 4 5 6	f	2.479 848 GHz 2.483 500 GHz 2.485 392 GHz	3.990 dBm -58.043 dBm -61.412 dBm				Mkr→RefLvl
7 8 9 10 11			111				More 1 of 2
MSG					STATUS	5	

GFSK Transmitting Band edge-right side

GFSK Hopping Band edge-right side

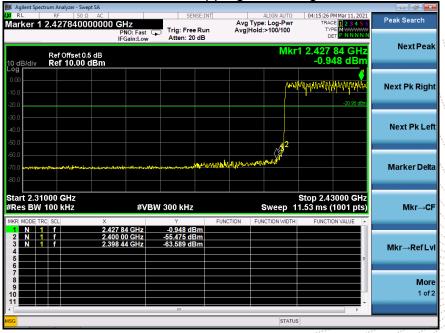




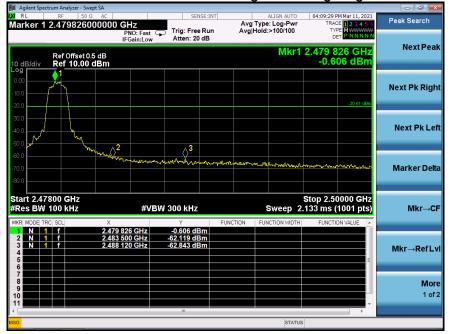
📕 Agilent Spectrum Analyzer - Swept SA				
W RL RF 50 Ω AC Marker 1 2.40180000000	O GHZ PNO: Fast Trig: Free Run	ALIGN AUTO Avg Type: Log-Pwr AvglHold:>100/100	04:17:40 PM Mar 11, 2021 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Peak Search
Ref Offset 0.5 dB 10 dB/div Ref 10.00 dBm	IFGain:Low Atten: 20 dB	Mk	r1 2.401 8 GHz -0.427 dBm	Next Peak
0 00			-20.43 dBm	Next Pk Righ
-30.0			²	Next Pk Lef
-60.0 -70.0	transfering and the second	And Annal providence of the second	llower whet	Marker Delt
Start 2.31000 GHz #Res BW 100 kHz MKR MODE TRC SCL X			Stop 2.41000 GHz 600 ms (1001 pts) FUNCTION VALUE	Mkr→Ci
2 N 1 f 2.	2.401 8 GHz -0.427 dBm .400 00 GHz -53.172 dBm 2.398 3 GHz -60.032 dBm		E	Mkr→RefLv
7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9				Mor 1 of 2
sg		STATUS		

Pi/4 DQPSK Transmitting Band edge-left side

Pi/4 DQPSK Hopping Band edge-left side

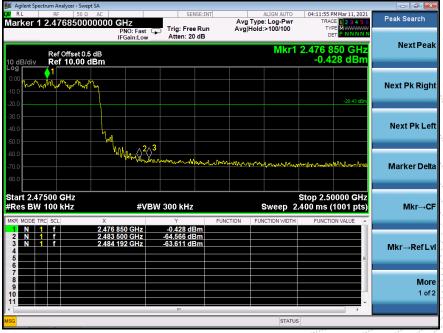






Pi/4 DQPSK Transmitting Band edge-right side

Pi/4 DQPSK Hopping Band edge-right side

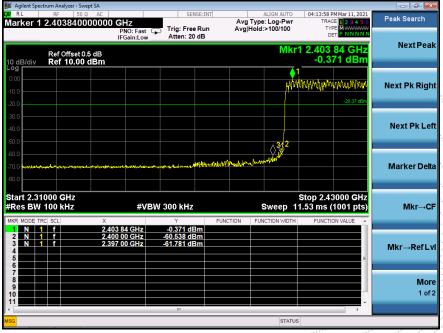




	ctrum Analyzer - Swept S/	A					
LXI RL	RF 50 Ω /		SENSE:IN		ALIGN AUTO	04:18:13 PM Mar 11, 2021	Peak Search
Marker 1	2.401800000	000 GHz	Trig: Free Run		pe: Log-Pwr ld:>100/100	TRACE 1 2 3 4 5 6 TYPE MWWWW	r eak Search
		PNO: Fast G	Atten: 20 dB	Avgino	10100/100	DET P NNNN	
		in Gamileon					NextPeak
	Ref Offset 0.5 d				INIK	r1 2.401 8 GHz	
10 dB/div	Ref 10.00 dB	m				-0.400 dBm	
Log							
0.00						Å	Next Pk Right
-10.0							Hoxer Kright
-20.0						-20.40 dBm	
-30.0							
							Next Pk Left
-40.0							NEXT PK LEIL
-50.0						/	
-60.0						У 🔪	
				ሰ	1200 March March	www.	Marchard Dates
-70.0 -70. 0	where where the stand of the st	nonenananan gerekananan	ale and the second and a second and a second as the second	Aviolation () Brancielous	1000-000-000		Marker Delta
-80.0							
	1000 GHz					Stop 2.41000 GHz	
#Res BW	100 kHz	#VBV	/ 300 kHz		Sweep 9.	.600 ms (1001 pts)	Mkr→CF
MKR MODE T	RC SCL	Х	Y	FUNCTION F	UNCTION WIDTH	FUNCTION VALUE	
	1 f	2.401 8 GHz	-0.400 dBm				
2 N 3 N	1 f 1 f	2.400 00 GHz 2.399 3 GHz	-53.274 dBm -57.420 dBm				
4		2.399.3 GHZ	-57.420 dBm				Mkr→RefLvl
5						E	
6							
8							More
9							
10							1 of 2
MSG					STATUS		
mog					STATUS		

8DPSK Transmitting Band edge-left side

8DPSK Hopping Band edge-left side

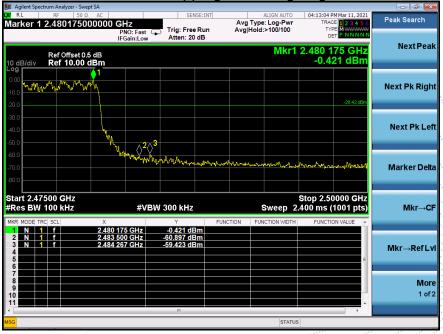




鱦 Agilent Spec								
Marker 1		0Ω AC 3000000	GHz	SENSE	Av	ALIGN AUTO	04:08:26 PM Mar 11, 2 TRACE 1 2 3 4 TYPE M	5 6 Peak Search
10 dB/div	Ref Offset Ref 10.0		PNO: Fast (IFGain:Low	Trig: Free R Atten: 20 dB		Hold:>100/100 Mkr1	2.479 848 GH -0.369 dB	NN Next Peak
Log 0.00 -10.0 -20.0							-20.37 c	Next Pk Right
-30.0 -40.0 -50.0		2	A 3					Next Pk Lef
-60.0 -70.0 -80.0				anton for the former to an a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		mmmul	Marker Delta
Start 2.47 #Res BW	100 kHz	X	#VB	W 300 kHz Y	FUNCTION		Stop 2.50000 Gl .133 ms (1001 pt FUNCTION VALUE	
1 N 1 2 N 1 3 N 1 4 5 6	f f f	2.483	848 GHz 500 GHz 490 GHz	-0.369 dBm -61.393 dBm -61.580 dBm				Mkr→RefLv
7 8 9 10 11				m				More 1 of 2
MSG				III		STATUS	5	

8DPSK Transmitting Band edge-right side

8DPSK Hopping Band edge-right side





10. 20 DB BANDWIDTH

10.1 Block Diagram Of Test Setup



10.2 Limit

N/A

- 10.3 Test procedure
- 1. Set RBW = 30kHz.
- 2. Set the video bandwidth (VBW) \ge 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.

7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.



10.4 Test Result

Temperature :	26 (Relative Humidity:	54%
Test Voltage :	DC 3.7V	Remark	N/A

Modulation	Test Channel	Bandwidth(MHz)
GFSK	Low	0.956
GFSK	Middle	0.955
GFSK	High	0.953
Pi/4 DQPSK	Low	1.345
Pi/4 DQPSK	Middle	1.348
Pi/4 DQPSK	High	1.348
8DPSK	Low	1.309
8DPSK	Middle	1.311
8DPSK	High	1.313

Test plots GFSK Low Channel

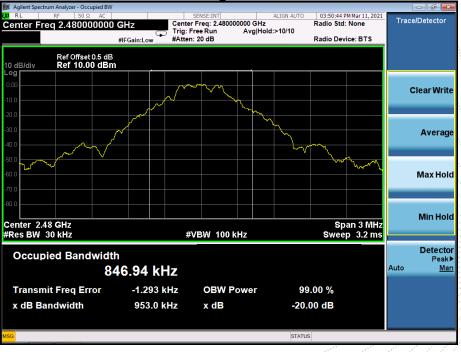






GFSK Middle Channel

GFSK High Channel







Pi/4 DQPSK Low Channel

Pi/4 DQPSK Middle Channel

