FCC Test Report

Product Name	PanaCast 50
Model No.	VSM020
FCC ID.	BCE-VSM020

Applicant	GN Audio A/S
Address	Lautrupbjerg 7, 2750 Ballerup, Denmark

Date of Receipt	Dec. 21, 2020
Issued Date	Feb. 26, 2021
Report No.	20C0767R-E3032110108
Report Version	V1.0
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The test results relate only to the samples tested.

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

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

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

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



Test Report

Issued Date: Feb. 26, 2021 Report No.: 20C0767R-E3032110108



Product Name	PanaCast 50				
Applicant	GN Audio A/S				
Address	Lautrupbjerg 7, 2750 Ballerup, Denmark				
Manufacturer	GN Audio A/S				
Model No.	VSM020				
FCC ID.	BCE-VSM020				
EUT Rated Voltage	AC 100-240V, 50-60Hz				
EUT Test Voltage	AC 120V, 60Hz				
Trade Name	Jabra				
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C				
	ANSI C63.4: 2014, ANSI C63.10: 2013				
Test Result	Complied				
Documented By :	Ida Tung				
	(Adm. Specialist / Ida Tung)				
Tested By :	Ivan Chuang				

(Senior Engineer / Ivan Chuang)

Approved By

:

(Director / Vincent Lin)



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Revision History

Report No.	Version	Description	Issued Date
20C0767R-E3032110108	V1.0	Initial issue of report.	Feb. 26, 2021



1. GENERAL INFORMATION

1.1. EUT Description

Product Name	PanaCast 50			
Trade Name	Jabra			
Model No.	VSM020			
FCC ID.	BCE-VSM020			
Frequency Range	2402 – 2480MHz			
Channel Number	79			
Type of Modulation	FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps)			
Antenna Type	PIFA Antenna			
Channel Control	Auto			
Antenna Gain	Refer to the table "Antenna List"			
USB Cable MFR: GN Audio A/S, M/N: Type C cable				
	Shielded, 2m			
Power Adapter	MFR: Wang Huei, M/N: WH-231			
	Input: AC 100-240V~1.5A, 50-60Hz			
	Output: 12.0V==5.0A, 60W			
	Cable Out: Non-shielded, 2m			
	Power Cord: Non-shielded, 1m			
Contain Module	Qualcomm / WCN3980			

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	GN Audio A/S	PanaCast 50	PIFA Antenna	4.16dBi for 2.4 GHz

Note: The antenna of EUT conforms to FCC 15.203.

Center Frequency of Each Channel:

		5						
Cł	nannel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Cł	nannel 00:	2402 MHz	Channel 20:	2422 MHz	Channel 40:	2442 MHz	Channel 60:	2462 MHz
Cł	nannel 01:	2403 MHz	Channel 21:	2423 MHz	Channel 41:	2443 MHz	Channel 61:	2463 MHz
Cł	nannel 02:	2404 MHz	Channel 22:	2424 MHz	Channel 42:	2444 MHz	Channel 62:	2464 MHz
Cł	nannel 03:	2405 MHz	Channel 23:	2425 MHz	Channel 43:	2445 MHz	Channel 63:	2465 MHz
Cł	nannel 04:	2406 MHz	Channel 24:	2426 MHz	Channel 44:	2446 MHz	Channel 64:	2466 MHz
Cł	nannel 05:	2407 MHz	Channel 25:	2427 MHz	Channel 45:	2447 MHz	Channel 65:	2467 MHz
Cł	nannel 06:	2408 MHz	Channel 26:	2428 MHz	Channel 46:	2448 MHz	Channel 66:	2468 MHz
Cł	nannel 07:	2409 MHz	Channel 27:	2429 MHz	Channel 47:	2449 MHz	Channel 67:	2469 MHz
Cł	nannel 08:	2410 MHz	Channel 28:	2430 MHz	Channel 48:	2450 MHz	Channel 68:	2470 MHz
Cł	nannel 09:	2411 MHz	Channel 29:	2431 MHz	Channel 49:	2451 MHz	Channel 69:	2471 MHz
Cł	nannel 10:	2412 MHz	Channel 30:	2432 MHz	Channel 50:	2452 MHz	Channel 70:	2472 MHz
Cł	nannel 11:	2413 MHz	Channel 31:	2433 MHz	Channel 51:	2453 MHz	Channel 71:	2473 MHz
Cł	nannel 12:	2414 MHz	Channel 32:	2434 MHz	Channel 52:	2454 MHz	Channel 72:	2474 MHz
Cł	nannel 13:	2415 MHz	Channel 33:	2435 MHz	Channel 53:	2455 MHz	Channel 73:	2475 MHz
Cł	nannel 14:	2416 MHz	Channel 34:	2436 MHz	Channel 54:	2456 MHz	Channel 74:	2476 MHz
Cł	nannel 15:	2417 MHz	Channel 35:	2437 MHz	Channel 55:	2457 MHz	Channel 75:	2477 MHz
Cł	nannel 16:	2418 MHz	Channel 36:	2438 MHz	Channel 56:	2458 MHz	Channel 76:	2478 MHz
Cł	nannel 17:	2419 MHz	Channel 37:	2439 MHz	Channel 57:	2459 MHz	Channel 77:	2479 MHz
Cł	nannel 18:	2420 MHz	Channel 38:	2440 MHz	Channel 58:	2460 MHz	Channel 78:	2480 MHz
Cł	nannel 19:	2421 MHz	Channel 39:	2441 MHz	Channel 59:	2461 MHz		

- 1. The EUT is an PanaCast 50 with built-in WLAN (802.11a/b/g/n/ac) with Bluetooth V5.0 \cdot V2.1+EDR transceiver, this report for Bluetooth V2.1+EDR.
- 2. These tests were conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
- 3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 4. The test mode is based on the Bluetooth technology, while testing 1Mbps, 2Mbps and 3Mbps, the worst case is 1Mbps and 3Mbps, and only worse case data is recorded in this report.

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

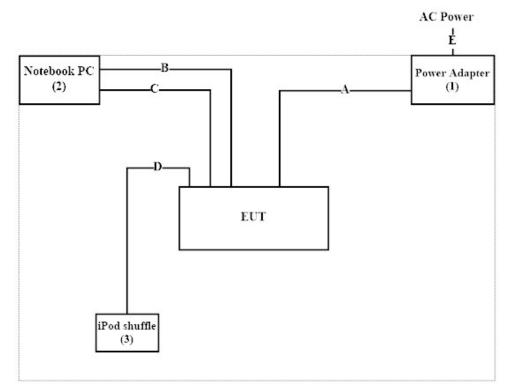
1.2. Tested System Details

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

Pr	oduct	Manufacturer	Model No.	Serial No.	Power Cord
1	Power Adapter	Wang Huei	WH-231	N/A	N/A
2	Notebook PC	Lenovo	T470	N/A	N/A
3	iPod shuffle	APPLE	A1373	CC4PG9NGF4RY	N/A

Sig	gnal Cable Type	Signal cable Description
Α	Power Cable	Non-shielded, 2m
В	USB Cable	Shielded, 2m
С	LAN Cable	Non-shielded, 2m
D	Audio Cable	Shielded, 1.8m
E	Power Cable	Non-shielded, 1m

1.3. Configuration of Tested System



1.4. EUT Exercise Software

- 1. Setup the EUT as shown in Section 1.3.
- 2. Execute software "Qualcomm Radio Control Toolkit Version 4.0.00177.0" 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
	Temperature (°C)	10~40 °C	20.0 °C
Conducted Emission	Humidity (%RH)	10~90 %	67.6 %
	Temperature (°C)	10~40 °C	20.1 °C
Radiated Emission	Humidity (%RH)	10~90 %	65.5 %
Can lasting	Temperature (°C)	10~40 °C	22.0 °C
Conductive	Humidity (%RH)	10~90 %	55.0 %

USA	:	FCC Registration Number: TW0023
Canada	:	IC Registration Number: 25880

Site Description	:	Accredited by TAF
		Accredited Number: 3023
Test Laboratory	:	DEKRA Testing and Certification Co., Ltd
Address	:	No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist.,
		New Taipei City 24457, Taiwan, R.O.C.
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

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
Х	EMI Test Receiver	R&S	ESR7	101601	2020.05.28	2021.05.27
Х	Two-Line V-Network	R&S	ENV216	101306	2020.03.25	2021.03.24
Х	Two-Line V-Network	R&S	ENV216	101307	2020.04.17	2021.04.16
Х	Coaxial Cable	DEKRA	RG400_BNC	RF001	2020.05.24	2021.05.23

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 /ASR2

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
Х	Spectrum Analyzer	Agilent	N9010A	MY55150401	2020.09.15	2021.09.14
Х	Spectrum Analyzer	R&S	FSV30	103466	2020.12.28	2021.12.27
Х	Power Meter	Anritsu	ML2496A	MY51000539	2020.05.13	2021.05.12
Х	Power Sensor	Anritsu	MA2411B	MY59240002	2020.05.22	2021.05.21
Х	Power Sensor	Anritsu	MA2411B	MY59240003	2020.05.22	2021.05.21

Note:

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 /ACB1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
Х	Loop Antenna	AMETEK	HLA6121	49611	2020.03.16	2021.03.15
Х	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2020.07.20	2021.07.19
Х	Horn Antenna	ETS-Lindgren	3117	00201366	2020.09.21	2021.09.20
Х	Horn Antenna	Com-Power	AH-840	101088	2020.09.11	2021.09.10
Х	Pre-Amplifier	EMCI	EMC001330	980301	2020.06.04	2021.06.03
Х	Pre-Amplifier	EMCI	EMC051845SE	980632	2020.08.21	2021.08.20
Х	Pre-Amplifier	EMCI	EMC05820SE	980308	2020.09.18	2021.09.17
Х	Pre-Amplifier	EMCI	EMC184045SE	980314	2020.06.10	2021.06.09
Х	Filter	MICRO TRONICS	BRM50702	G251	2020.09.17	2021.09.16
	Filter	MICRO TRONICS	BRM50716	G188	2020.09.17	2021.09.16
Х	EMI Test Receiver	R&S	ESR7	101601	2020.05.21	2021.05.20
Х	Spectrum Analyzer	R&S	FSV40	101147	2020.04.20	2021.04.19
Х	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2020.07.03	2021.07.02
Х	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2020.06.10	2021.06.09

Note:

1. Loop Antenna is calibrated every two years, the other 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.} All equipments are calibrated every one year.

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%.

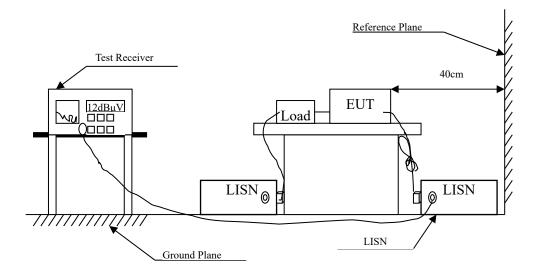
Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	Uncer	tainty	
Conducted Emission	±3.42 dB		
Peak Power Output	±0.9	1 dB	
De li de l De insien	Under 1GHz	Above 1GHz	
Radiated Emission	±4.06 dB	±3.73 dB	
RF Antenna Conducted Test	±2.53 dB		
	Under 1GHz	Above 1GHz	
Band Edge	±4.06 dB	±3.73 dB	
Channel Number	N/A		
Channel Separation	±682.	83 Hz	
Dwell Time	±2.31 ms		
Occupied Bandwidth	±682.83 Hz		
Duty Cycle	±2.31 ms		



2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit					
Frequency	Limits				
MHz	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 invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

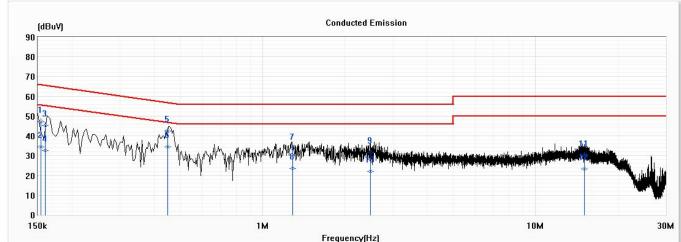
The EUT setup and the test procedure are according to ANSI C63.4, 2014 to comply with the requirements of FCC 47CFR Subpart C.



2.4. Test Result of Conducted Emission

Product	:	PanaCast 50
Test Item	:	Conducted Emission Test
Power Line	:	L 1
Test Mode	:	Mode 2: Transmit - 3Mbps (2441MHz)
Test Date	:	2021/02/10

L 1



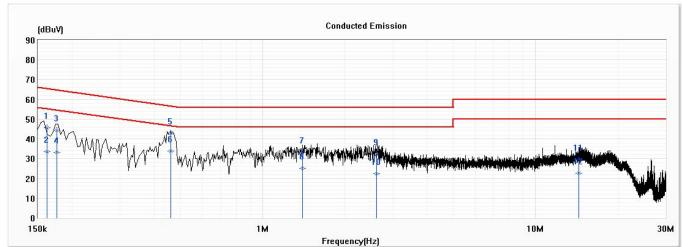
	Frequeilcy(inz)						
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV)	(dB)	(dBuV)	(dB)	Туре
		(dBuV)					
1	0.154	47.09	65.78	-18.69	37.43	9.66	QP
2	0.154	34.41	55.78	-21.36	24.75	9.66	AV
3	0.160	45.44	65.48	-20.04	35.78	9.66	QP
4	0.160	32.68	55.48	-22.80	23.03	9.66	AV
5	0.448	42.67	56.91	-14.25	33.01	9.66	QP
*6	0.448	34.40	46.91	-12.51	24.74	9.66	AV
7	1.289	33.62	56.00	-22.38	23.92	9.70	QP
8	1.289	23.64	46.00	-22.36	13.94	9.70	AV
9	2.488	31.81	56.00	-24.19	22.08	9.73	QP
10	2.488	22.08	46.00	-23.92	12.35	9.73	AV
11	15.101	29.97	60.00	-30.03	20.02	9.94	QP
12	15.101	23.35	50.00	-26.65	13.41	9.94	AV

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "*" means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



Product	:	PanaCast 50
Test Item	:	Conducted Emission Test
Power Line	:	Ν
Test Mode	:	Mode 2: Transmit - 3Mbps (2441MHz)
Test Date	:	2021/02/10

Ν

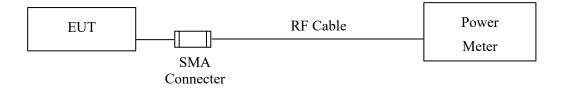


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.162	45.62	65.37	-19.75	35.95	9.67	QP
2	0.162	33.45	55.37	-21.92	23.78	9.67	AV
3	0.176	44.33	64.67	-20.34	34.66	9.67	QP
4	0.176	33.19	54.67	-21.48	23.52	9.67	AV
5	0.460	42.90	56.69	-13.79	33.23	9.67	QP
*6	0.460	33.86	46.69	-12.83	24.19	9.67	AV
7	1.396	33.34	56.00	-22.66	23.64	9.70	QP
8	1.396	25.03	46.00	-20.97	15.32	9.70	AV
9	2.620	32.35	56.00	-23.65	22.61	9.74	QP
10	2.620	22.48	46.00	-23.52	12.73	9.74	AV
11	14.425	29.43	60.00	-30.57	19.45	9.98	QP
12	14.425	22.81	50.00	-27.19	12.83	9.98	AV

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "*" means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

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	:	PanaCast 50
Test Item	:	Peak Power Output
Test Mode	:	Mode 1: Transmit - 1Mbps
Test Date	:	2021/01/04

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402	6.53	1 Watt= 30 dBm	Pass
Channel 39	2441	6.89	1 Watt= 30 dBm	Pass
Channel 78	2480	7.52	1 Watt= 30 dBm	Pass



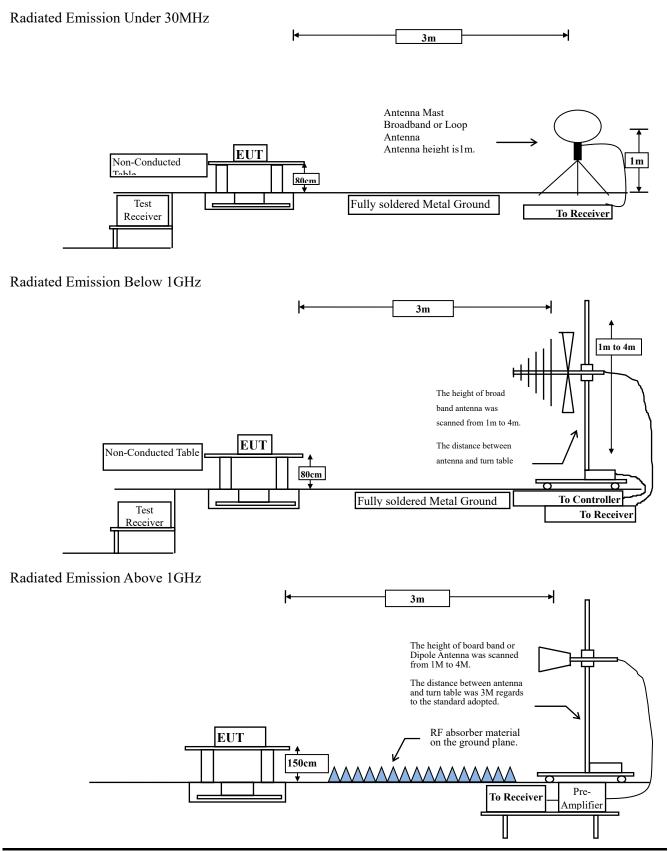
Product	:	PanaCast 50
Test Item	:	Peak Power Output
Test Mode	:	Mode 2: Transmit - 3Mbps
Test Date	:	2021/01/04

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402	5.49	1 Watt= 30 dBm	Pass
Channel 39	2441	5.96	1 Watt= 30 dBm	Pass
Channel 78	2480	6.62	1 Watt= 30 dBm	Pass



4. Radiated Emission

4.1. Test Setup





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	Measurement distance			
	(microvolts/meter)	(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.

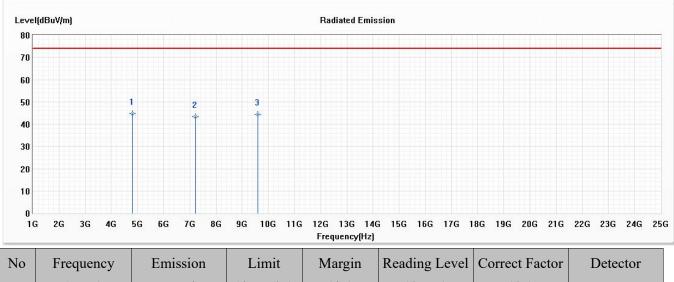
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the 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 form 9kHz - 10th Harmonic of fundamental was investigated.



4.4. Test Result of Radiated Emission

Product	:	PanaCast 50
Test Item	:	Harmonic Radiated Emission
Test Mode	:	Mode 1: Transmit - 1Mbps(2402MHz)
Test Date	:	2021/02/04

Horizontal



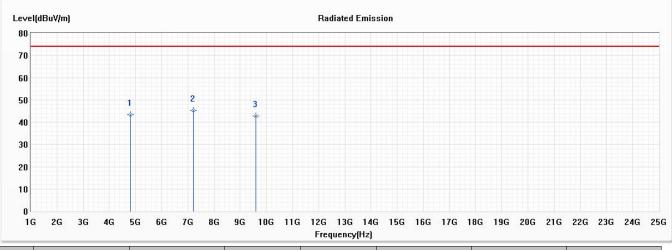
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
* 1	4804.000	44.79	74.00	-29.21	57.84	-13.05	РК
2	7206.000	43.41	74.00	-30.59	55.10	-11.69	РК
3	9608.000	44.35	74.00	-29.65	55.53	-11.18	РК

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



Product:PanaCast 50Test Item:Harmonic Radiated EmissionTest Mode:Mode 1: Transmit - 1Mbps(2402MHz)Test Date:2021/02/04

Vertical



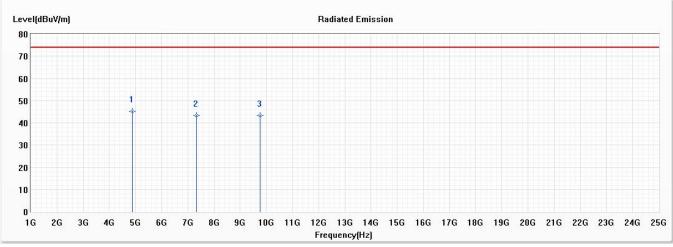
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	4804.000	43.21	74.00	-30.79	56.26	-13.05	PK
* 2	7206.000	45.28	74.00	-28.72	56.97	-11.69	РК
3	9608.000	42.76	74.00	-31.24	53.94	-11.18	РК

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



Product:PanaCast 50Test Item:Harmonic Radiated EmissionTest Mode:Mode 1: Transmit - 1Mbps(2441MHz)Test Date:2021/02/04

Horizontal



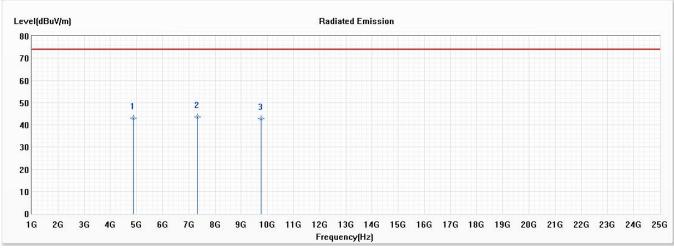
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
* 1	4882.000	45.28	74.00	-28.72	58.29	-13.01	РК
2	7323.000	43.42	74.00	-30.58	55.37	-11.95	РК
3	9764.000	43.28	74.00	-30.72	54.23	-10.95	РК

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



- Product:PanaCast 50Test Item:Harmonic Radiated EmissionTest Mode:Mode 1: Transmit 1Mbps(2441MHz)
- Test Date : 2021/02/04

Vertical



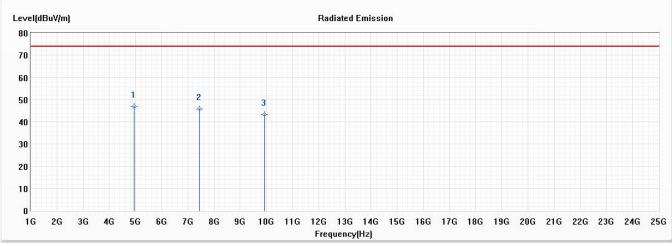
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	4882.000	43.14	74.00	-30.86	56.15	-13.01	РК
* 2	7323.000	43.66	74.00	-30.34	55.61	-11.95	РК
3	9764.000	42.84	74.00	-31.16	53.79	-10.95	РК

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



Product	:	PanaCast 50
Test Item	:	Harmonic Radiated Emission
Test Mode	:	Mode 1: Transmit - 1Mbps(2480MHz)
Test Date	:	2021/02/05

Horizontal



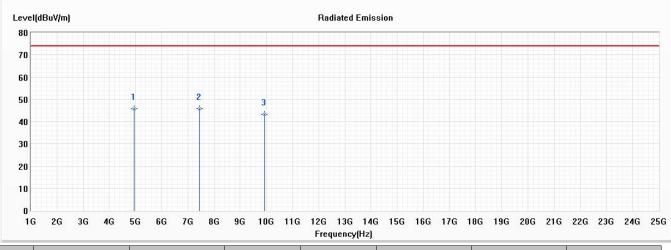
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
* 1	4960.000	46.85	74.00	-27.15	59.56	-12.71	РК
2	7440.000	45.86	74.00	-28.14	57.94	-12.08	РК
3	9920.000	43.41	74.00	-30.59	54.28	-10.87	РК

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



- Product Test Item
- : PanaCast 50
- Harmonic Radiated Emission
- Test Mode : Mode 1: Transmit 1Mbps(2480MHz)
- Test Date : 2021/02/05

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
* 1	4960.000	45.79	74.00	-28.21	58.50	-12.71	РК
2	7440.000	45.68	74.00	-28.32	57.76	-12.08	РК
3	9920.000	43.22	74.00	-30.78	54.09	-10.87	РК

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

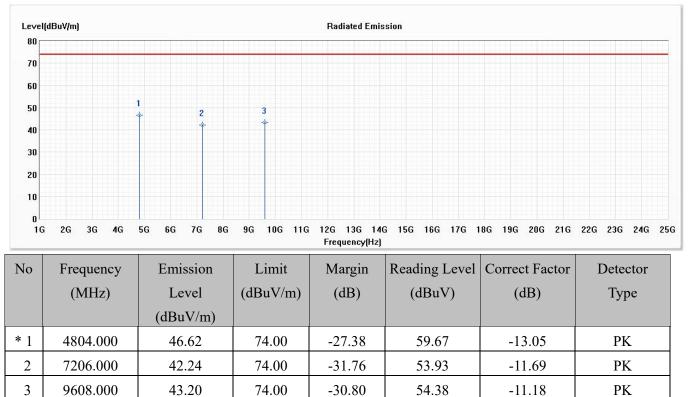


Product	:
Test Item	:
Test Mode	:

: PanaCast 50

- h : Harmonic Radiated Emission
- bde : Mode 2: Transmit 3Mbps(2402MHz)
- Test Date : 2021/02/05

Horizontal



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

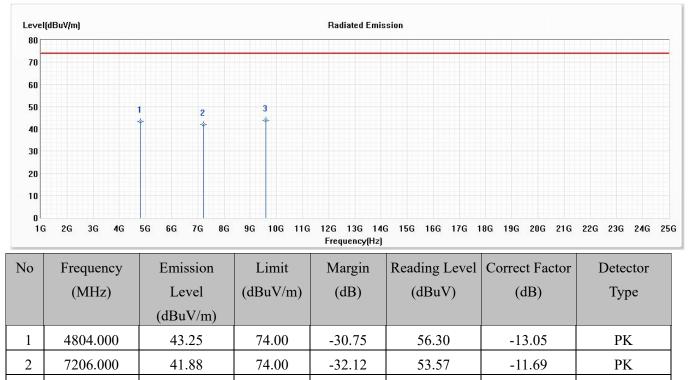


Product							
Test Item							
Test Mode							

: PanaCast 50

- : Harmonic Radiated Emission
- de : Mode 2: Transmit 3Mbps(2402MHz)
- Test Date : 2021/02/05

Vertical



Note:

* 3

9608.000

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.

-30.24

54.94

-11.18

PK

2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.

74.00

3. Measurement Level = Reading Level + Correct Factor.

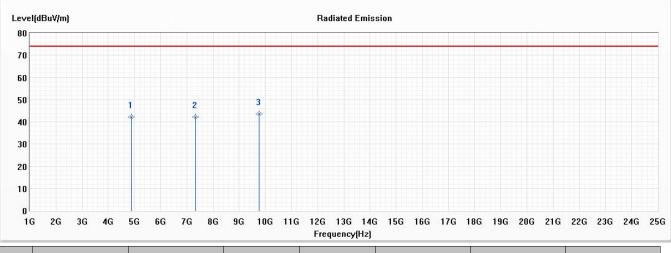
43.76

- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	PanaCast 50
Test Item	:	Harmonic Radiated Emission
Test Mode	:	Mode 2: Transmit - 3Mbps (2441MHz)
Test Date	:	2021/02/05

Horizontal



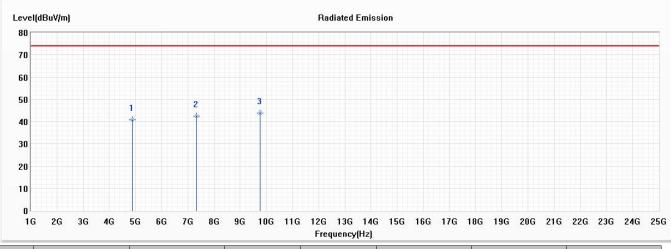
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	4882.000	42.29	74.00	-31.71	55.30	-13.01	РК
2	7323.000	42.31	74.00	-31.69	54.26	-11.95	РК
* 3	9764.000	43.52	74.00	-30.48	54.47	-10.95	РК

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



- Product Test Item
- : PanaCast 50
 - Harmonic Radiated Emission
- Test Mode : Mode 2: Transmit 3Mbps (2441MHz)
- Test Date : 2021/02/05

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	4882.000	40.91	74.00	-33.09	53.92	-13.01	РК
2	7323.000	42.54	74.00	-31.46	54.49	-11.95	РК
* 3	9764.000	43.78	74.00	-30.22	54.73	-10.95	РК

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



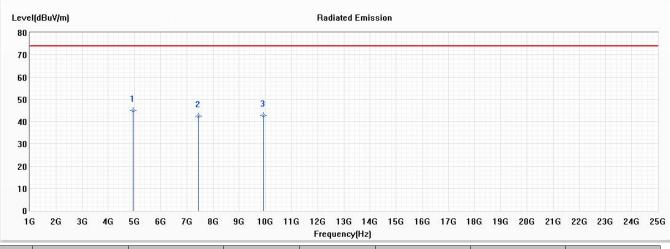
Product	:
Test Item	:

: PanaCast 50

Harmonic Radiated Emission

- Test Mode : Mode 2: Transmit 3Mbps (2480MHz)
- Test Date : 2021/02/05

Horizontal



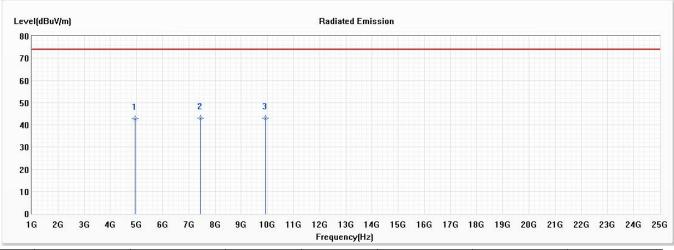
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
* 1	4960.000	44.91	74.00	-29.09	57.62	-12.71	РК
2	7440.000	42.56	74.00	-31.44	54.64	-12.08	РК
3	9920.000	42.89	74.00	-31.11	53.76	-10.87	РК

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



- Product : PanaCast 50 Test Item : Harmonic Ra
 - : Harmonic Radiated Emission
- Test Mode : Mode 2: Transmit 3Mbps (2480MHz)
- Test Date : 2021/02/05

Vertical



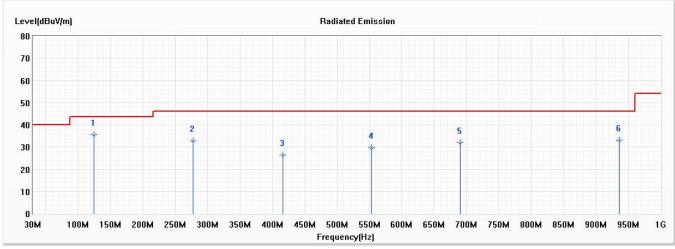
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	4960.000	42.78	74.00	-31.22	55.49	-12.71	РК
* 2	7440.000	42.92	74.00	-31.08	55.00	-12.08	РК
3	9920.000	42.90	74.00	-31.10	53.77	-10.87	РК

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



- Product : PanaCast 50
- Test Item : General Radiated Emission
- Test Mode : Mode 2: Transmit 3Mbps (2441MHz)
- Test Date : 2021/02/05

Horizontal



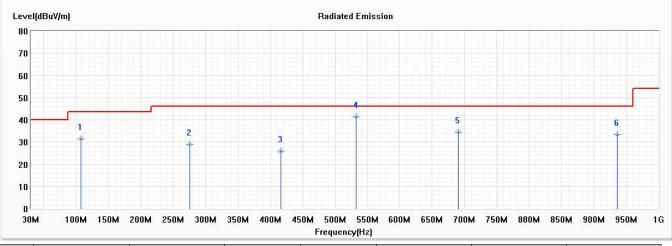
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
* 1	124.090	35.53	43.50	-7.97	48.30	-12.77	QP
2	277.350	32.93	46.00	-13.07	43.42	-10.49	QP
3	416.060	26.38	46.00	-19.62	33.46	-7.08	QP
4	552.830	29.70	46.00	-16.30	34.08	-4.38	QP
5	690.570	31.91	46.00	-14.09	34.01	-2.10	QP
6	935.980	33.11	46.00	-12.89	32.13	0.98	QP

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement 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 Test Item
- : PanaCast 50
 - m : General Radiated Emission
- Test Mode : Mode 2: Transmit 3Mbps (2441MHz)
- Test Date : 2021/02/05

Vertical



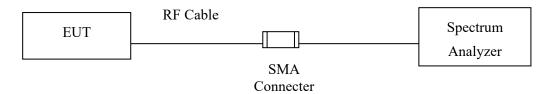
No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	107.600	31.44	43.50	-12.06	45.95	-14.51	QP
2	275.410	29.07	46.00	-16.93	39.64	-10.57	QP
3	416.060	25.87	46.00	-20.13	32.95	-7.08	QP
* 4	532.460	41.36	46.00	-4.64	46.07	-4.71	QP
5	690.570	34.37	46.00	-11.63	36.47	-2.10	QP
6	935.980	33.51	46.00	-12.49	32.53	0.98	QP

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement 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	:	PanaCast 50
Test Item	:	RF Antenna Conducted Test
Test Mode	:	Mode 1: Transmit - 1Mbps
Test Date	:	2021/01/04

Figure Channel 00:

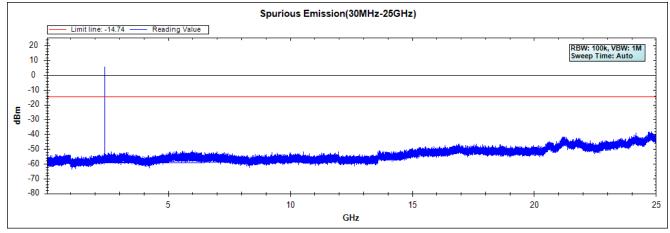


Figure Channel 39:

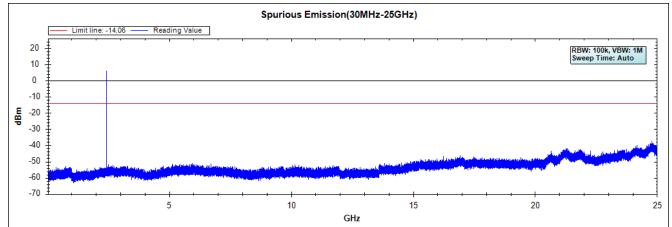
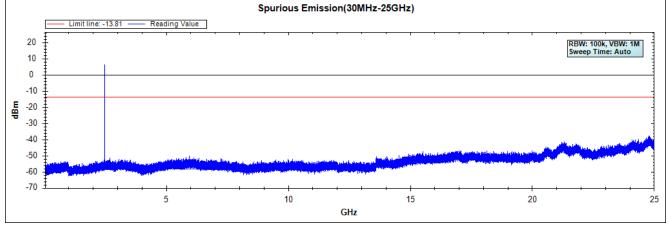


Figure Channel 78:



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



Product : PanaCast 50

: RF Antenna Conducted Test

Test Mode

Test Item

- : Mode 2: Transmit 3Mbps : 2021/01/04
- Test Date

Figure Channel 00:	
i igure Channel oo.	

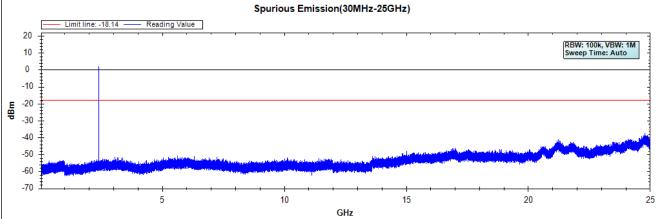


Figure Channel 39:

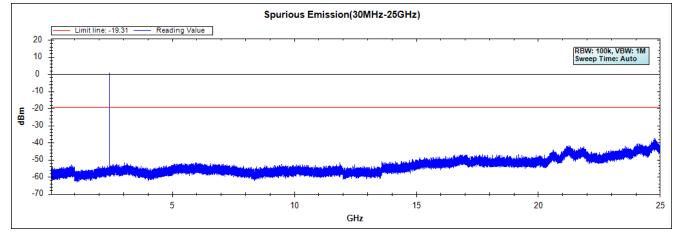
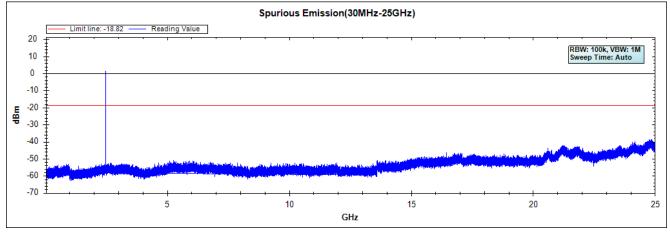


Figure Channel 78:



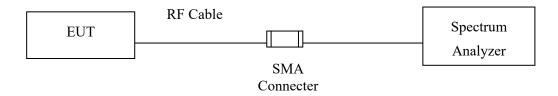
Note: The above test pattern is synthesized by multiple of the frequency range.



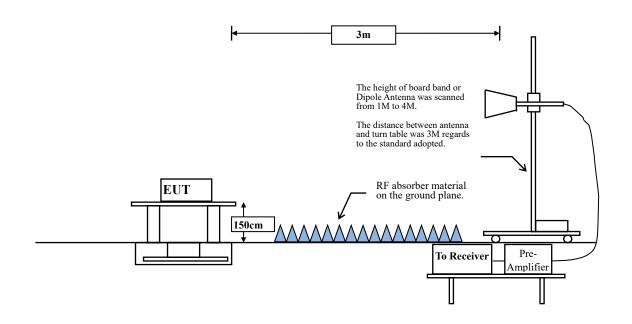
6. Band Edge

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.

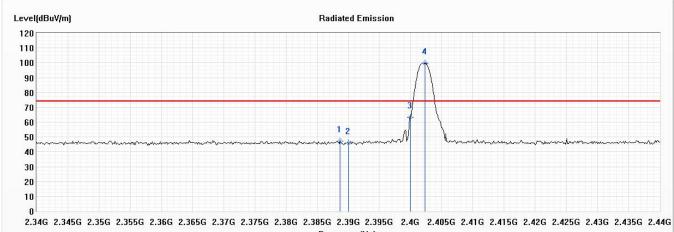
The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.



6.4. Test Result of Band Edge

Product	:	PanaCast 50
Test Item	:	Band Edge
Test Mode	:	Mode 1: Transmit - 1Mbps (2402MHz)
Test Date	:	2021/02/04

Horizontal



Frequency(Hz)

No	Frequency (MHz)	Emission Level	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
		(dBuV/m)					
1	2388.696	47.11	74.00	-26.89	35.20	11.91	РК
2	2390.000	45.85	74.00	-28.15	33.93	11.92	РК
3	2400.000	63.27			51.31	11.96	РК
4	2402.319	99.85			87.88	11.97	РК

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. Measurement 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 (dBm)	Duty Cycle Factor (dB)	Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
00 (Average)	2388.696	47.110	-31.066	16.044	-37.956	54.000	Pass
00 (Average)	2390.000	45.850	-31.066	14.784	-39.216	54.000	Pass
00 (Average)	2400.000	63.270	-31.066	32.204			Pass
00 (Average)	2402.319	99.850	-31.066	68.784			Pass

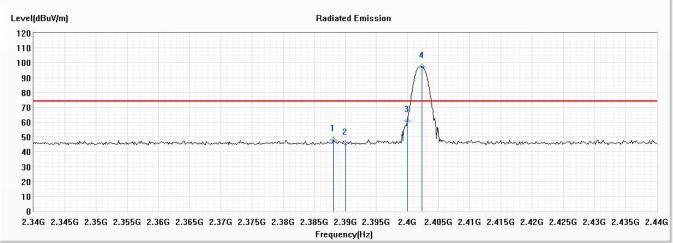
Note:

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 12.



- Product PanaCast 50 :
- Test Item Band Edge :
- Test Mode
- Mode 1: Transmit 1Mbps (2402MHz) : Test Date 2021/02/04 :

Vertical



No	Frequency (MHz)	Emission Level	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
		(dBuV/m)					
1	2388.116	47.85	74.00	-26.15	35.94	11.91	РК
2	2390.000	45.50	74.00	-28.50	33.58	11.92	РК
3	2400.000	60.64			48.68	11.96	РК
4	2402.319	97.35			85.38	11.97	РК

Note:

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

Channel No.	Frequency (MHz)	Peak Measurement (dBm)	Duty Cycle Factor (dB)	Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
00 (Average)	2388.116	47.850	-31.066	16.784	-37.216	54.000	Pass
00 (Average)	2390.000	45.500	-31.066	14.434	-39.566	54.000	Pass
00 (Average)	2400.000	60.640	-31.066	29.574			Pass
00 (Average)	2402.319	97.350	-31.066	66.284			Pass

Note:

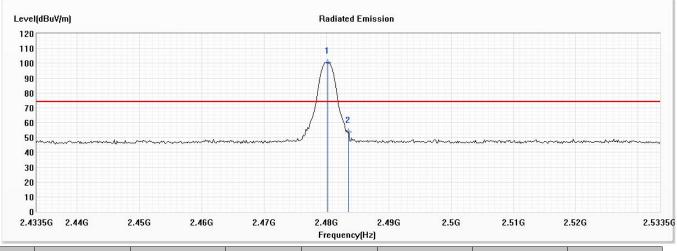
1. Average Measurement=Peak Measurement + Duty Cycle Factor

2. The Duty Cycle is refer to section 12.



- Product : PanaCast 50
- Test Item : Band Edge
- Test Mode : Mode 1: Transmit 1Mbps (2480MHz)
- Test Date : 2021/02/04

Horizontal



No	Frequency (MHz)	Emission Level	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2480.167	(dBuV/m) 100.46			88.23	12.23	PK
2	2483.500	53.60	74.00	-20.40	41.36	12.24	РК

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. Measurement 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 (dBm)	Duty Cycle Factor (dB)	Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
78 (Average)	2480.167	100.460	-31.066	69.394			Pass
78 (Average)	2483.500	53.600	-31.066	22.534	-31.466	54.000	Pass

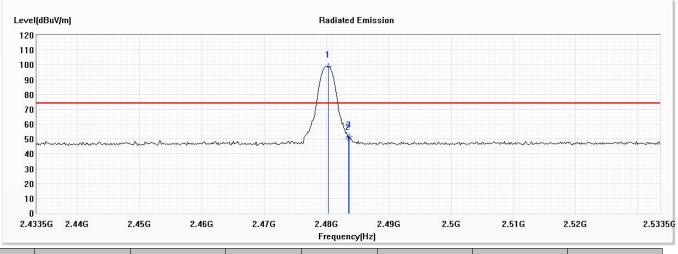
Note:

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 12.



- Product PanaCast 50 :
- Test Item Band Edge :
- Test Mode
- Mode 1: Transmit 1Mbps (2480MHz) : Test Date 2021/02/04 :

Vertical



N	0	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
		(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
			(dBuV/m)					
	1	2480.312	98.87			86.64	12.23	РК
	2	2483.500	49.94	74.00	-24.06	37.70	12.24	РК
	3	2483.645	51.62	74.00	-22.38	39.38	12.24	РК

Note:

- All readings above 1GHz are performed with peak and/or average measurements as necessary. 1.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Measurement 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 (dBm)	Duty Cycle Factor (dB)	Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
78 (Average)	2480.312	98.870	-31.066	67.804			Pass
78 (Average)	2483.500	49.940	-31.066	18.874	-35.126	54.000	Pass
78 (Average)	2483.645	51.620	-31.066	20.554	-33.446	54.000	Pass

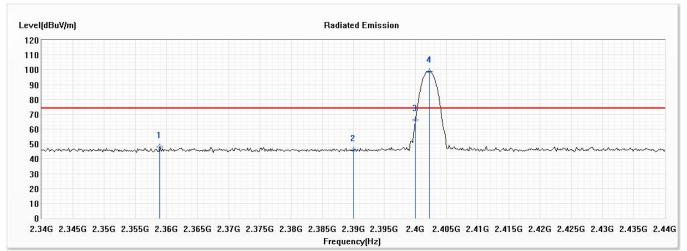
Note:

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- The Duty Cycle is refer to section 12. 2.



Product	:	PanaCast 50
Test Item	:	Band Edge
Test Mode	:	Mode 2: Transmit - 3Mbps (2402MHz)
Test Date	:	2021/02/04

Horizontal



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	2358.986	48.09	74.00	-25.91	36.32	11.77	РК
2	2390.000	45.81	74.00	-28.19	33.89	11.92	РК
3	2400.000	66.35			54.39	11.96	РК
4	2402.174	99.00			87.03	11.97	РК

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. Measurement 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 (dBm)	Duty Cycle Factor (dB)	Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
00 (Average)	2358.986	48.090	-31.066	17.024	-36.976	54.000	Pass
00 (Average)	2390.000	45.810	-31.066	14.744	-39.256	54.000	Pass
00 (Average)	2400.000	66.350	-31.066	35.284			Pass
00 (Average)	2402.174	99.000	-31.066	67.934			Pass

Note:

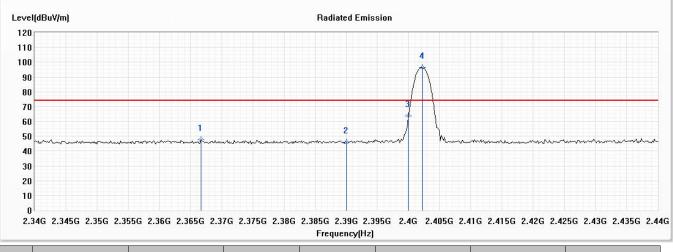
1. Average Measurement=Peak Measurement + Duty Cycle Factor

2. The Duty Cycle is refer to section 12.



- Product : PanaCast 50
- Test Item : Band Edge
- Test Mode
- : Mode 2: Transmit 3Mbps (2402MHz)
- Test Date : 2021/02/04

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	2366.667	47.44	74.00	-26.56	35.64	11.80	РК
2	2390.000	45.89	74.00	-28.11	33.97	11.92	РК
3	2400.000	63.80			51.84	11.96	РК
4	2402.174	96.45			84.48	11.97	РК

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. Measurement 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 (dBm)	Duty Cycle Factor (dB)	Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
00 (Average)	2366.667	47.440	-31.066	16.374	-37.626	54.000	Pass
00 (Average)	2390.000	45.890	-31.066	14.824	-39.176	54.000	Pass
00 (Average)	2400.000	63.800	-31.066	32.734			Pass
00 (Average)	2402.174	96.450	-31.066	65.384			Pass

Note:

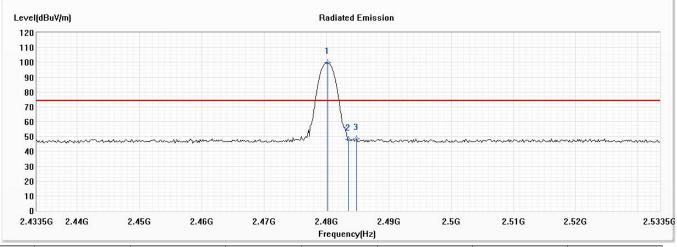
1. Average Measurement=Peak Measurement + Duty Cycle Factor

2. The Duty Cycle is refer to section 12.



- Product : PanaCast 50
- Test Item : Band Edge
- Test Mode : Mode 2: Transmit 3Mbps (2480MHz)
- Test Date : 2021/02/04

Horizontal



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	2480.167	99.65			87.42	12.23	РК
2	2483.500	48.02	74.00	-25.98	35.78	12.24	РК
3	2484.804	48.35	74.00	-25.65	36.10	12.25	РК

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. Measurement 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.	(MHZ) (dBm		Duty Cycle Factor (dB)	Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
78 (Average)	2480.167	99.650	-31.066	68.584			Pass
78 (Average)	2483.500	48.020	-31.066	16.954	-37.046	54.000	Pass
78 (Average)	2484.804	48.350	-31.066	17.284	-36.716	54.000	Pass

Note:

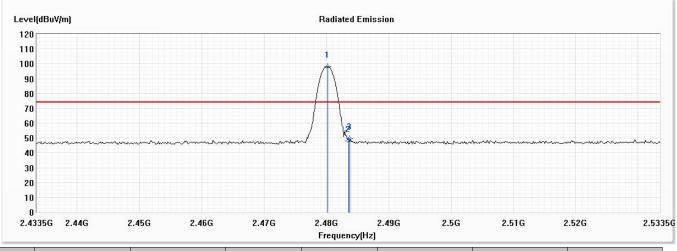
- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 12.



- Product : PanaCast 50 Test Item : Band Edge
- Test Mode
- Test Date

ode : Mode 2: Tra te : 2021/02/04

Vertical



Mode 2: Transmit - 3Mbps (2480MHz)

No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB)	Туре
		(dBuV/m)					
1	2480.167	98.17			85.94	12.23	РК
2	2483.500	47.91	74.00	-26.09	35.67	12.24	РК
3	2483.790	49.60	74.00	-24.40	37.36	12.24	РК

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. Measurement 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)	YPeakDuty CycleMeasurementFactor1(dBm)(dB)		Average Measurement (dBm)	Margin (dB)	Average Limit (dBm)	Result
78 (Average)	2480.167	98.170	-31.066	67.104			Pass
78 (Average)	2483.500	47.910	-31.066	16.844	-37.156	54.000	Pass
78 (Average)	2483.790	49.600	-31.066	18.534	-35.466	54.000	Pass

Note:

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 12.



Product	:	PanaCast 50
Test Item	:	Band Edge
Test Mode	:	Mode 1: Transmit - 1Mbps(Hopping off)
Test Date	:	2021/01/04

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

	ght Spec		nalyzer - S					0								- 0 -
Cente	er Fro	RF eq 2	.3970		00 GH	Z O: Fast		SEI	Run	Avg		LIGN AUTO	TR	AM Jan 04, 202 ACE 1 2 3 4 5 YPE M WWW	6	Frequency
10 dB/	div		Offset (20.50		IFG	0: Fast ain:Low		#Atten: 3			N	/kr3 2.3	99 989	9 70 GH	Z	Auto Tun
10.5 0.500																Center Fre 2.397000000 GH
-19.5 - -29.5 -												▲3		-14.50 dE		Start Fre 2.39000000 GH
-49.5 -59.5 🚧 -69.5	where we have	1101000	entileren inner	whore land	-restablishing	5.5.5.0.0.0.0	~~~	de fan de de fan de	448/81/101944)	anticitarionapita	north (M			1)/\tag		Stop Fre 2.404000000 GH
#Res	2.390 BW 1	00				#V	BW :	300 kHz		Swee		Swp) 2.0 Gwonwidth	667 ms (04000 GH 40001 pt	s)	CF Ste 1.400000 Mi Auto Ma
1 N 2 N 3 N 4 5	1 1 1	f f f		2.402	007 45 000 00 989 70	GHz		5.50 dl -49.93 dl -48.05 dl	3m 3m	oke nov			Tone			Freq Offs 0 F
7 8 9 10 11															•	
∢ [ISG								ш				STATUS		•		

Figure Channel 78:

Keysight Spectrum Analyze	er - Swept SA	<u> </u>				- J -X-
Center Freq 2.48		SENSE:	Avg Type	ALIGN AUTO E: Log-Pwr	12:10:21 PM Jan 04, 2021 TRACE 1 2 3 4 5 6 TYPE M	Frequency
10 dB/div Ref 20	PNO: Fast IFGain:Low et 0.5 dB 50 dBm		В	/lkr3 2.4	84 377 25 GHz -54.70 dBm	Auto Tune
10.5 0.500						Center Freq 2.489000000 GHz
-19.5					-13:09 dBm	Start Freq 2.478000000 GHz
-49.5		nt al anno anno anno anno anno anno anno a	hinge-at-in-that-sh-madembalag	panyttenin frentstern	alaa liinee ahaa kariyaa kariy	Stop Fred 2.50000000 GHz
Start 2.47800 GHz #Res BW 100 kHz		BW 300 kHz	• •		Stop 2.50000 GHz 67 ms (40001 pts) FUNCTION VALUE	CF Step 2.200000 MHz <u>Auto</u> Man
1 N 1 f 2 N 1 f 3 N 1 f 4 5 6	2.480 011 90 GHz 2.483 500 00 GHz 2.484 377 25 GHz	6.91 dBm -56.99 dBm -54.70 dBm				Freq Offset 0 Hz
7 8 9 10 11						
MSG		m		STATUS	•	



Product	:	PanaCast 50
Test Item	:	Band Edge
Test Mode	:	Mode 2: Transmit - 3Mbps (Hopping off)
Test Date	:	2021/01/04

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

🍺 Keysig	ht Spect	rum Analy	zer - Swe	pt SA								- 0 ×
a _{RL} Cente	r Fre	RF q 2.3	50 Ω 9700	AC 0000 G		Tria: F	SENSE:INT	Avg Ty	ALIGN AUTO	TRAC	M Jan 04, 2021 E 1 2 3 4 5 6 PE M WWWWW	Frequency
10 dB/c		PNO: Fast IFGain:Low Ref Offset 0.5 dB Ref 20.50 dBm					#Atten: 30 dB			99 958 -53.	Auto Tun	
10.5										1 martin		Center Fre 2.397000000 GH
-19.5											-17.43 dBm	Start Fre 2.390000000 GH
49.5 -59.5	hannahath	atta analo	Austra	hamiana mina na	weedow.ew	damilitäinen et	n de la mana	and you the south	and and a second		W	Stop Fre 2.404000000 GH
	BW 1	000 G 00 kH:		×	#V	BW 300 ki		· ·	S (#Swp) 2.6	67 ms (4		CF Ste 1.400000 Mi <u>Auto</u> Mi
1 N 2 N 3 N 4 5 6 7 8	1	f f f	2	A02 160 400 000 399 958	00 GHz	2.57 -56.52 -53.27	dBm dBm			PUNCTR		Freq Offs 0 ł
9 10 11						m						

Figure Channel 78:

pectrum Analyzer - Swept SA	J J X
RF 50 Ω AC SENSE:INT ALIGN AUTO 02:06:59 PM Jan 04, 2021 Freq 2.489000000 GHz Avg Type: Log-Pwr TRACE [1 2 3 4 5 6 Frequ	<u> </u>
PHO: Fast Trig: Free Run Trig: Free Run <thtrig: free="" ru<="" td=""><td>to Tune</td></thtrig:>	to Tune
1 Cen 2.489000	ter Frec 0000 GH:
2.478000	art Free
St 2:50000	op Free 0000 GH
V 100 kHz #VBW 300 kHz Sweep (#Swp) 2.667 ms (40001 pts) TRC Sci x Y FUNCTION FUNCTION WIDTH FUNCTION VALUE ALLO	CF Ste 0000 MH Ma
1 f 2.480 158 75 GHz 4.03 dBm 1 f 2.483 500 00 GHz -57.03 dBm 1 f 2.485 080 30 GHz -55.03 dBm	q Offse 0 H:
STATUS	



Product	:	PanaCast 50
Test Item	:	Band Edge
Test Mode	:	Mode 1: Transmit - 1Mbps(Hopping on)
Test Date	:	2021/01/04

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel Hopping:

	m Analyzer - Swept SA RF 50 Ω AC		SENSE:INT	ALIG	AUTO 11:46:26 A	M Jan 04, 2021				
	2.397000000	GHz		Avg Type: Lo	-Pwr TRA	CE 1 2 3 4 5 6	Frequency			
	•	PNO: Fast	Trig: Free Run #Atten: 30 dB		- - -	PE MWWWW				
	iroanicow #riten oo ub									
R	Ref Offset 0.5 dB Mkr3 2.399 745 05 GHz									
I0 dB/div R	ef 20.50 dBm				-53.	08 dBm				
og						1				
10.5							Center Fre			
500						$f \setminus f$	2.397000000 G			
9.50					-+	-14.5% dBm				
19.5					- 1		Otort Fr			
29.5					/		Start Fr			
39.5					~	. II	2.39000000 G			
				A3 a						
19.5					ull l		Stop Fr			
59.5	a and a star and a star and a star and a star a	with the second and a	Same and a constrained and a second	and a second second second second second		- I	2.404000000 G			
39.5							2.40400000 G			
tart 2.3900					Stop 2.40		CF Ste			
Res BW 10	0 KHZ	#VBV	V 300 kHz	Sweep (#Sw	p) 2.667 ms (4		1.400000 M			
			Y	FUNCTION FUNCTIO	N WIDTH FUNCT	ION VALUE	<u>Auto</u> M			
1 N 1 1	f 2.403 000		5.42 dBm	FUNCTION FUNCTIO	N WIDTH FUNCT		<u>Auto</u> M			
1 N 1 1 2 N 1 1) 00 GHz		FUNCTION FUNCTIO	N WIDTH FUNCT	ION VALUE				
1 N 1 1 2 N 1 1 3 N 1 1 4	f 2.403 000 f 2.400 000) 00 GHz	5.42 dBm -56.65 dBm	FUNCTION FUNCTIO	N WIDTH FUNCT		Freq Offs			
1 N 1 1 2 N 1 1 3 N 1 1 4 5 6 6	f 2.403 000 f 2.400 000) 00 GHz	5.42 dBm -56.65 dBm	FUNCTION FUNCTIO	N WIDTH FUNCT		Freq Offs			
1 N 1 1 2 N 1 1 3 N 1 1 4 5 6 7	f 2.403 000 f 2.400 000) 00 GHz	5.42 dBm -56.65 dBm		N WIDTH FUNCT		Freq Offs			
2 N 1 1 3 N 1 1 4 5 6	f 2.403 000 f 2.400 000) 00 GHz	5.42 dBm -56.65 dBm	FUNCTION FUNCTIO	N WIDTH FUNCT	E	Freq Offs			
1 N 1 1 2 N 1 1 3 N 1 1 4 - - - 5 - - - 6 - - - 7 - - - 9 - - - 9 - - - 10 - - -	f 2.403 000 f 2.400 000) 00 GHz	5.42 dBm -56.65 dBm	FUNCTION FUNCTIO	N WIDTH FUNCT	E	Freq Offs			
1 N 1 1 2 N 1 1 3 N 1 1 4 - - 5 - - 6 - - 7 - - 8 - -	f 2.403 000 f 2.400 000) 00 GHz	5.42 dBm -56.65 dBm -53.08 dBm	FUNCTION FUNCTIO	N WIDTH FUNCT	E E	Freq Offs			
1 N 1 1 2 N 1 1 3 N 1 1 4 - - - 5 - - - 6 - - - 7 - - - 9 - - - 10 - - -	f 2.403 000 f 2.400 000) 00 GHz	5.42 dBm -56.65 dBm	FUNCTION FUNCTIO	STATUS		Auto Ma Freq Offs 0 ł			

Figure Channel Hopping:

〕 Keysight Spectrum Analyze						
Center Freq 2.48		SENSE:IN	Avg Type	ALIGN AUTO : Log-Pwr	12:12:21 PM Jan 04, 2021 TRACE 1 2 3 4 5 6 TYPE M WWWWW	Frequency
Ref Offs 10 dB/div Ref 20.	PNO: Fast IFGain:Lov et 0.5 dB 50 dBm			/lkr3 2.4	97 858 85 GHz -54.64 dBm	Auto Tune
Log 10.5 0.500						Center Fred 2.489000000 GHz
-19.5					-13.94 oBm	Start Free 2.478000000 GH;
-49.5	Uning the second s	http://www.com/out	monter alternation	huttaatikatitadat	3	Stop Free 2.500000000 GH:
Start 2.47800 GHz #Res BW 100 kHz		/BW 300 kHz			Stop 2.50000 GHz 67 ms (40001 pts)	CF Step 2.200000 MH Auto Mar
1 N 1 f 2 N 1 f 3 N 1 f 4 6 6	2.478 963 60 GHz 2.483 500 00 GHz 2.497 858 85 GHz	6.06 dBm -59.27 dBm -54.64 dBm			E	Freq Offse 0 Hi
7 8 9 10 11						
MSG				STATUS	•	<u></u>



Product	:	PanaCast 50
Test Item	:	Band Edge
Test Mode	:	Mode 2: Transmit - 3Mbps (Hopping on)
Test Date	:	2021/01/04

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel Hopping:

K		C 101					<u> </u>			
Keysight Spe	ctrum Analyzer	- Swept SA 50 Ω AC			SE:INT		ALIGN AUTO	01-54-51.0	Mine 04 2021	
		7000000 GI	Hz			Avg Typ	e: Log-Pwr	TRA	M Jan 04, 2021 DE 1 2 3 4 5 6 PE M WWWWW	Frequency
	Ref Offse	IF t 0.5 dB	PNO:Fast G Gain:Low	#Atten: 30			Mkr3 2.3	99 902	90 GHz 85 dBm	Auto Tu
odB/div og	Ref 20.	SU dBm	1					-00.		
10.5 500								1	MANNAN	Center Fr 2.397000000 G
.50	-							f ,	-17.55 dBm	
9.5									-17.55 dBm	Start Fr 2.390000000 G
39.5										2.39000000 G
19.5							▲ ³ , M			
	und man	monorpunderal	mound	Annon	-	haman	Jan Marine			Stop Fr
9.5										2.40400000 G
Res BW			#VB۱	V 300 kHz			#Swp) 2.6	667 ms (4	4000 GHz 0001 pts)	CF St 1.400000 M Auto N
KR MODE TR		× 2.402 012 7		Y 2.45 dE		CTION FU	INCTION WIDTH	FUNCT	ON VALUE	
2 N 1 3 N 1 4	f	2.402 012 7 2.400 000 0 2.399 902 9	0 GHz	-57.28 dE -53.85 dE	m					Freq Offs
5									=	°
7										
8										
9										
9 10 11										1
0				m					•	

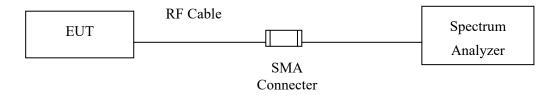
Figure Channel Hopping:

🎉 Keysight Spectrum Analyzer - Sv					- đ ×
Center Freq 2.4890		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	02:08:55 PM Jan 04, 2021 TRACE 1 2 3 4 5 6 TYPE MWWWW	Frequency
Ref Offset 0 10 dB/div Ref 20.50	IFGain:Low	#Atten: 30 dB	Mkr3 2.4	199 030 35 GHz -54.07 dBm	Auto Tune
10.5					Center Fred 2.489000000 GHz
-19.5				-18.03 dBm	Start Free 2.478000000 GH:
-49.5 -59.5 -69.5	2 20 minding of a strand and	anter openation of the descel and the openation of the descel	erre franktennatier er ander andere er an	3 ////////////////////////////////////	Stop Free 2.500000000 GH:
Start 2.47800 GHz #Res BW 100 kHz	#VBW	300 kHz	Sweep (#Swp) 2.0	Stop 2.50000 GHz 567 ms (40001 pts) FUNCTION VALUE	CF Stej 2.200000 MH <u>Auto</u> Ma
1 N 1 f 2 N 1 f 3 N 1 f 4 - - 5 - - 6 - -	2.478 040 15 GHz 2.483 500 00 GHz 2.499 030 35 GHz	1.97 dBm -57.53 dBm -54.07 dBm			Freq Offse 0 H
7 8 9 10 11					
MSG			STATU	3	<u> </u>



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	:	PanaCast 50
Test Item	:	Channel Number
Test Mode	:	Mode 1: Transmit - 1Mbps
Test Date	:	2021/01/04

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

2402-2421MHz

2422-2441MHz

🇱 Keysight Spectrum Analyzer - Swept SA			🗱 Keysight Spectrum Analyzer - Swept SA 📃 🔂	6 ×
M RL RF 50Ω AC SENSEINT ALION AUTO Center Freq 2.411000000 GHz PN0: Fast □ Trig: Free Run	12:13:10 PM Jan 04, 2021 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P N N N N N		M R R SO AC SSINSE:INT ALIGN AUTO 12:13:23 PM and AV 2011 Center Freq 2.431500000 GHz Trig: Free Run Avg Type: Log-Pwr Tracce[1:3:3:45 Frequent PNO: Fast Trig: Free Run Avg Type: Log-Pwr Tracce[1:3:45 Frequent	ıcy
Ref Offset 0.5 dB MKr2 10 dB/div Ref 20.50 dBm		Auto Tune	Ref Offset 0.5 dB Mkr2 2.441 00 GHz Auto	o Tune
		Center Freq 1 1000000 GHz 0.6		
		Start Freq -11 0500000 GHz -2	-195	rt Freq 00 GHz
495		Stop Freq 1500000 GHz		p Freq 00 GHz
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH	Auto	2.100000 MHz #	#Res BW 100 kHz #VBW 100 kHz Sweep (#Swp) 2.467 ms (1001 pts) 2.00000 Itiks product the isolation X Y Function Function Function Auto	F Step 00 MHz Man
1 N 1 f 2.402.000.GHz 4.10.dBm 2 N 1 f 2.421.000 GHz 4.70.dBm 3	F	Freq Offset 0 Hz		Offset 0 Hz
0		1	0	
MSG STAT	, ,		NSG STATUS	

2442-2461MHz

2462-2480MHz

🃕 Keysight Spe														ctrum A	Analyzer - Sw									
Center Fi	req 2.45	50 Ω AC 1500000	GHz		SEN	ISE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	12:13:41 P TRAI	M Jan 04, 2021 CE 1 2 3 4 5 6 PE M WWWW ET P N N N N	Frequency	Cen		® req 2		00000 GH	łz		VSE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	TRA	CE 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offse Ref 20.		PNO: Fast IFGain:Lov		#Atten: 30	0 dB		Mkr	2 2.461	00 GHz 14 dBm	Auto Tune	10 d	B/div		Offset 0.0	5 dB	NO: Fast Gain:Low	#Atten: 3			Mkr	2 2.480	00 GHz	Austa Toma
10.5 0.500	ΛĄ			Λſ	\mathcal{V}	M	\mathcal{N}		ДΛ	A	Center Freq 2.451500000 GHz	Log 10.5 0.500 -9.50	Å	Ą	$\Lambda \Lambda$	h	ΛΛ	ЛЛ	Л	ΛΛ		M	◆ ²	Center Freq 2.471500000 GHz
-19.5 -29.5 -39.5					_						Start Freq 2.441500000 GHz	-19.5 -29.5 -39.5												Start Fred 2.461500000 GH;
-49.5 -59.5 -69.5					_						Stop Freq 2.461500000 GHz	-49.5 -59.5 -69.5											4	Stop Free 2.481500000 GH
#Res BW	4150 GHz 100 kHz	×			00 kHz		<u> </u>		.467 ms (6150 GHz (1001 pts)		#Re	SBW	100 G SCU	kHz	x		/ 100 kHz	FUN	<u> </u>		2.467 ms	8150 GHz (1001 pts)	CF Stej 2.000000 MH <u>Auto</u> Ma
1 N 1 2 N 1 3 4 5	1 f 1 f	2.4 2.4	42 00 GHz 61 00 GHz		5.97 dE 5.14 dE	3m 3m					Freq Offset 0 Hz	2	N 1 N 1			2.462 0 2.480 0	0 GHz 0 GHz	6.24 dE 5.73 dE	3m 3m					Freq Offse 0 H
6 7 8 9 10 11										=		0 7 8 9 10 11											=	
∢ (MSG								STATUS	5	•		K 📄						т			STATU	s	•	



Product	:	PanaCast 50
Test Item	:	Channel Number
Test Mode	:	Mode 2: Transmit - 3Mbps
Test Date	:	2021/01/04

Frequency Range (MHz)	Measurement	Required Limit	Result
(IVIEZ)	(Hopping Channel)	(Hopping Channel)	
$2402\sim 2480$	79	>75	Pass

2402-2421MHz

2422-2441MHz

	ctrum Analyzer - Swept									ım Analyzer - S									
Center Fr	RF 50 Ω req 2.411000	000 GHz	SENSE	Avg Typ	ALIGN AUTO e: Log-Pwr	02:09:45 PM Jan 04, 202 TRACE 1 2 3 4 5	Frequency	Cen			Ω AC			SE:INT		ALIGN AUTO E: Log-Pwr	TRAC	M Jan 04, 2021 CE 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 0.5 c Ref 20.50 dE	PNO: Fast IFGain:Low IB 3m	Trig: Free Ri #Atten: 30 d	B	Mkr2	2.421 000 GH 2.65 dBn	Auto Tune		F B/div F	Ref Offset (Ref 20.50	1F0	NO: Fast Gain:Low	#Atten: 30			Mkr	2 2.441	00 GHz	Auto Tomo
10.5 0.500 -9.50	1 May www.warve	there was	18th marganet	Mar Mar Var Var and	KM 1999	Var Marine Ma	Center Freq 2.411000000 GHz		1	Moluna	V M WAR	mar	e Any America	xanyadh	washe Varia	የዋልሌላታት _{ምሥ} ን	whygathy	w ^{or} noverthe	Center Freq 2.431500000 GHz
-19.5							Start Freq 2.400500000 GHz	-19.5 -29.5 -39.5											Start Free 2.421500000 GH
-49.5							Stop Freq 2.421500000 GHz	-49.5 -59.5 -69.5											Stop Free 2.441500000 GH
Start 2.40 #Res BW	100 kHz	#VE	3W 100 kHz	Sweep	(#Swp) 2.	Stop 2.42150 GH .533 ms (1001 pts		#Re	rt 2.4215 s BW 10	00 kHz	×	#VBV	/ 100 kHz	EUNC	Sweep ((#Swp) 2	2.467 ms (4150 GHz (1001 pts)	CF Ste 2.000000 MH Auto Ma
1 N 1 2 N 1 3 4 5	f	2.402 000 GHz 2.421 000 GHz	0.66 dBm 2.65 dBm				Freq Offset 0 Hz	1 2 3 4 5	N 1 N 1	f	2.422 0 2.441 0	0 GHz 0 GHz	2.77 dB 0.78 dB	m					Freq Offse 0 H
6 7 8 9 10								6 7 8 9 10 11											
	1 1				STATUS	•		× □					m			STATU	el	•	

2442-2461MHz

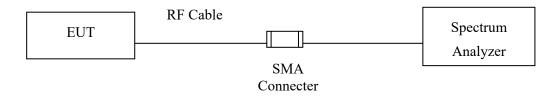
2462-2480MHz

🇱 Keysight Spectrum Analyzer - Swept SA			📁 Keysight Spectrum Analyzer - Swept SA		
22 RL RF 50 Ω AC SENSE:INT Center Freq 2.451500000 GHz PN0: Fast C Trig: Free Run	ALIGN AUTO 02:10:16 PM Jan 04, 2021 Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 TYPE M WWWWW oET P N N N N	Frequency	02 RL RF 50Ω AC SENSE::INT Center Freq 2.471500000 GHz PNO: Fast _ Trig: Free Run	ALIGN AUTO 02:10:35 PMJan 04, 2021 Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P N N N N N	Frequency
FRGintLow #Atten: 30 dB IFGainLow #Atten: 30 dB 10 dB/div Ref 20.50 dBm	oet P NNNN Mkr2 2.461 00 GHz -5.64 dBm	Auto Tune	IFGain:Low #Atten: 30 dB	^{0€T P NNNNN} Mkr2 2.480 00 GHz -0.31 dBm	Auto Tune
105 105 9.00 9.00 105 105 105 105 105 105 105 1	program and a second	Center Freq 2.451500000 GHz	10.5	www.www.www.www.	Center Freq 2.471500000 GHz
-19.5 -29.5 -39.5		Start Freq 2.441500000 GHz	.195 .295 .395		Start Fred 2.461500000 GH:
49.5		Stop Freq 2.461500000 GHz	-49.5 -59.5 -69.5		Stop Fre 2.481500000 GH
Start 2.44150 GHz #Res BW 100 kHz #VBW 100 kHz	Stop 2.46150 GHz Sweep (#Swp) 2.467 ms (1001 pts)	CF Step 2.000000 MHz Auto Man	Start 2.46150 GHz #Res BW 100 kHz #VBW 100 kHz	Stop 2.48150 GHz Sweep (#Swp) 2.467 ms (1001 pts)	CF Ste 2.000000 MH Auto Ma
I N 1 f 2.442.00 GHz -0.43 dBm Z N 1 f 2.442.00 GHz -5.64 dBm 3	UNCTION FUNCTION WIDTH FUNCTION VALUE	Freq Offset 0 Hz	N I F 2.462.00 GHz 0.21 dBm 3 1 1 2.480.00 GHz -0.21 dBm 3 4 -0.31 dBm -0.31 dBm		Freq Offse 0 H
6			6 7 7 8 9 9 10 11 11 11 11 11 11 11 11 11 11 11 11		
KS NS	STATUS		r i m MSG	STATUS	



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	:	PanaCast 50
Test Item	:	Channel Separation
Test Mode	:	Mode 1: Transmit - 1Mbps
Test Date	:	2021/01/04

	Fraguanau	Measurement	Limit	Limit of (2/3)*20dB	
Channel No.	Frequency (MHz)	Level	(kHz)	Bandwidth (kHz)	Result
	. ,	(kHz)	` ´ ´	· · · ·	
00	2402	1000	>25 kHz	628.0	Pass
39	2441	1000	>25 kHz	630.0	Pass
78	2480	1000	>25 kHz	628.0	Pass

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

🎉 Keysight Spectrum Analyzer - S	wept SA		× /		
Center Freq 2.4020		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	11:41:28 AM Jan 04, 2021 TRACE 1 2 3 4 5 6	Frequency
	PNO: Wide ⊂ IFGain:Low	Trig: Free Run #Atten: 30 dB		TYPE M WWWW DET P N N N N N	Auto Tune
Ref Offset 0 10 dB/div Ref 20.50			Mkr	2 2.403 00 GHz 5.48 dBm	
10.5		1	2		Center Freq
-9.50		-			2.402000000 GHz
-19.5					Start Freq
-29.5		J			2.397000000 GHz
-49.5	and a supply a supply and a supply and a supply and a supply a sup		مىلىم لە لمەرلىر	Mapphilion management of the second	Stop Freq
-59.5				1.1.1 Barren de de de la construction de la construcción de la	2.407000000 GHz
Center 2.402000 GH #Res BW 100 kHz		100 kHz	#Sweep 5	Span 10.00 MHz 00.0 ms (1001 pts)	CF Step 1.000000 MHz
MKR MODE TRC SCL	x 2.402 00 GHz	Y FU 5.34 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
2 N 1 f 3	2.403 00 GHz	5.48 dBm			Freq Offset
4 5 6				E	0 Hz
7 8					
9 10 11					
≺			STATUS	Þ	

Channel 00 (2402MHz)

	ectrum Analyzer - Sv	vept SA						
	RF 50 Ω req 2.4410	00000 GHz	Trig: Free Ru	Avg Type	ALIGN AUTO : Log-Pwr	TRAC	MJan 04, 2021 E 1 2 3 4 5 6 E M WWWWW	Frequency
10 dB/div	Ref Offset 0 Ref 20.50				Mkr	2 2.442	00 GHz 67 dBm	Auto Tune
10.5 0.500 -9.50				2				Center Freq 2.441000000 GHz
-19.5 -29.5 -39.5					Marken .			Start Freq 2.436000000 GHz
-49.5 -59.5 -69.5	galianthan agu fa tha 19	Narawayahar masarahar warawar			11170179719	Wiedowson	mijilaimaans	Stop Freq 2.446000000 GHz
Center 2.4 #Res BW			BW 100 kHz		Sweep 5	00.0 ms (0.00 MHz 1001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
1 N 1 2 N 1 3 4 5 6	f f	2.441 00 GHz 2.442 00 GHz	5.88 dBm 5.67 dBm					Freq Offset 0 Hz
7 8 9 10 11								
MSG			m		STATUS	6		

Channel 39 (2441MHz)

Channel 78 (2480MHz)

	ectrum Analyzer -	Swept SA								
Center F		0000000 GH	Z		SE:INT	Avg Type	ALIGN AUTO e: Log-Pwr	TRAC	M Jan 04, 2021	Frequency
10 dB/div	Ref Offset Ref 20.5	IFGa	D: Wide ⊂ ain:Low	#Atten: 30			Mkr	1 2.479	00 GHz 34 dBm	Auto Tune
10.5 0.500			7		2					Center Freq 2.480000000 GHz
-19.5 -29.5 -39.5										Start Freq 2.475000000 GHz
-49.5 -59.5 -69.5	ann Interiorit	htty 10 10 10 10 10 10 10 10 10 10 10 10 10					a Barton Linino H. B. Jarg	uleen and an open de	klihmissko-modu:	Stop Freq 2.485000000 GHz
Center 2. #Res BW		iz ×	#VBW	100 kHz	FUNG		Sweep 5	00.0 ms (0.00 MHz 1001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
1 N 2 N 3 4 5 6 7		2.479 00 2.480 00		6.34 dE 6.72 dE	Bm				E	Freq Offset 0 Hz
8 9 10 11				III						



Product	:	PanaCast 50
Test Item	:	Channel Separation
Test Mode	:	Mode 2: Transmit - 3Mbps
Test Date	:	2021/01/04

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

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

	ectrum Analyzer - Swept S	5A					
K RL Center Fi	RF 50 Ω A req 2.4020000	DOO GHz	Trig: Free Ru	Avg Type	ALIGN AUTO : Log-Pwr	01:51:37 PM Jan 04, 2021 TRACE 1 2 3 4 5 TYPE MWWWW	Frequency
10 dB/div	Ref Offset 0.5 dl Ref 20.50 dB		#Atten: 30 dB		Mkr	2 2.403 00 GHz 2.54 dBm	Auto Tune
Log 10.5 0.500			1				Center Freq 2.402000000 GHz
-19.5 -29.5 -39.5					a		Start Freq 2.397000000 GHz
-49.5 -59.5 -69.5	ndrath ann print than abrill 189	water-all the poly of the second			"THURDAN NOTING	Hlecoprography and and	Stop Fred 2.407000000 GHz
Center 2.4 #Res BW		#VBV	V 100 kHz		Sweep 5	Span 10.00 MHz 00.0 ms (1001 pts) FUNCTIONWAUE	
1 N 1 2 N 1 3 4 5 5	f	2.402 00 GHz 2.403 00 GHz	2.34 dBm 2.54 dBm				Freq Offset 0 Hz
6 7 8 9 10 11							
< MSG			m		STATUS	•	

Channel 00 (2402MHz)

	t Spectrum	Analyzer - Swe	ept SA							
Center		F 50 Ω 2.44100	AC 0000 GHz	Tria	SENSE:INT		ALIGN AUTO E: Log-Pwr	TRAC	MJan 04, 2021 E 1 2 3 4 5 6 E M WWWWW	Frequency
		of Offset 0.5			n: 30 dB		Mkr	DE 2 2.442	00 GHz	Auto Tune
10 dB/di Log 0.500 -9.50		ef 20.50 c			1	2		-0.		Center Freq 2.441000000 GHz
-19.5 -29.5 -39.5							hone have			Start Freq 2.436000000 GHz
-49.5 -59.5	utor to ab	an da far far far far far star star far far far far far far far far far f	www.weath.astract				The second se	And Internetical	humuna	Stop Freq 2.446000000 GHz
#Res B	W 100			VBW 100 k			<u> </u>	00.0 ms (0.00 MHz 1001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
MKR MODE 1 N 2 N 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 -			x 2.441 00 GHz 2.442 00 GHz		5 dBm 3 dBm		ICTION WIDTH	FUNCTION		Freq Offset 0 Hz
MSG							STATUS	3		

Channel 39 (2441MHz)

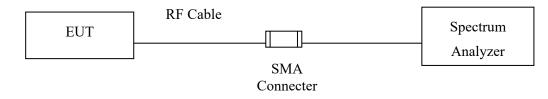
Channel 78 (2480MHz)

🎉 Keysight Spectrum Analyzer - Swe	ept SA		×	,	
Center Freq 2.48000		SENSE:INT	ALIGN Avg Type: Log	AUTO 02:05:48 PM Jan 04, 202: 9-Pwr TRACE 1 2 3 4 5	
Ref Offset 0.5	PNO: Wide IFGain:Low	☐ Trig: Free Run #Atten: 30 dB		Mkr1 2.479 00 GH2 3.95 dBn	Auto Tune
10 dB/div Ref 20.50 c Log 10.5 0.500	3Bm	12_ pr			Center Freq 2.48000000 GHz
-19.5 -29.5 -39.5					Start Freq 2.475000000 GHz
-49.5 -59.5	antre and a second s			Muran market and a state of the	2.485000000 GHz
Center 2.480000 GHz #Res BW 100 kHz	#VBV	V 100 kHz		Span 10.00 MH ep 500.0 ms (1001 pts	
I N 1 f 2 N 1 f 3 - - - 4 - - - 5 - - - 6 - - - -	2.479 00 GHz 2.480 00 GHz	3.95 dBm 3.80 dBm			Freq Offse
7 3 9 10 11 11					
MSG		m		STATUS	



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.

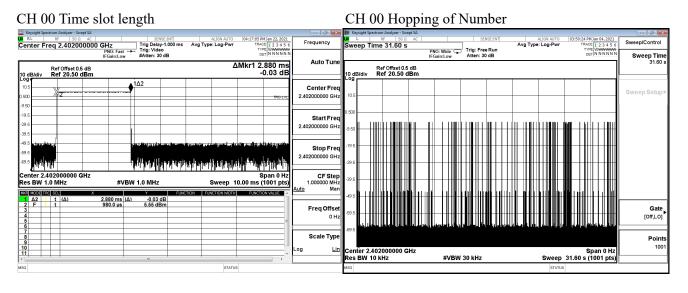


9.4. Test Result of Dwell Time

Product	:	PanaCast 50
Test Item	:	Dwell Time
Test Mode	:	Mode 1: Transmit - 1Mbps (Channel 00,39,78)
Test Date	:	2021/01/22

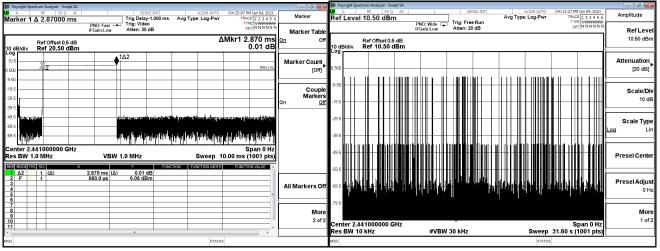
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.880	99	31600	284.130	400	Pass
2441	2.870	89	31600	255.430	400	Pass
2480	2.880	96	31600	276.480	400	Pass

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



CH 39 Time slot length

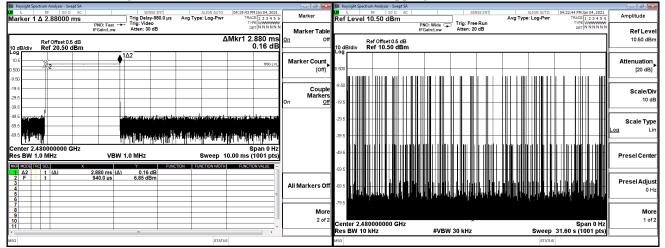
CH 39 Hopping of Number





CH 78 Time slot length

CH 78 Hopping of Number



Note:

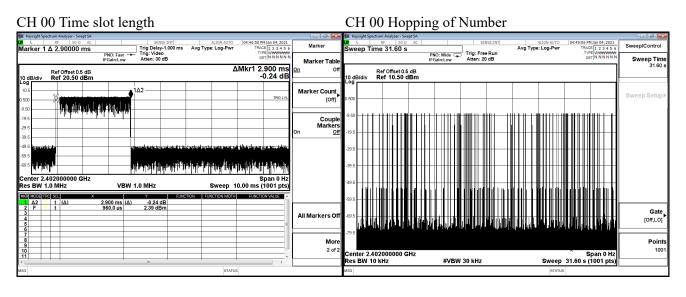
The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.



Product	:	PanaCast 50
Test Item	:	Dwell Time
Test Mode	:	Mode 2: Transmit - 3Mbps (Channel 00,39,78)
Test Date	:	2021/01/04

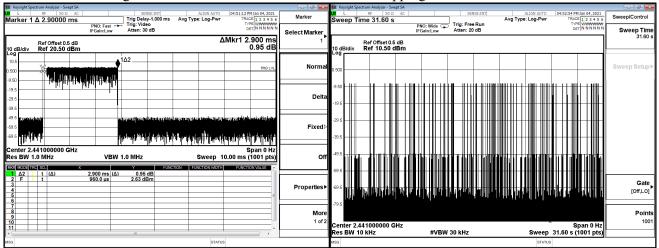
Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.900	97	31600	281.300	400	Pass
2441	2.900	100	31600	290.000	400	Pass
2480	2.900	93	31600	269.700	400	Pass

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



CH 39 Time slot length

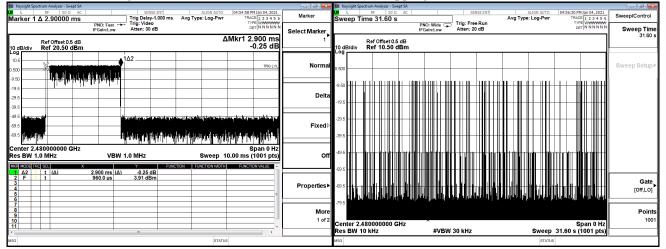
CH 39 Hopping of Number





CH 78 Time slot length

CH 78 Hopping of Number



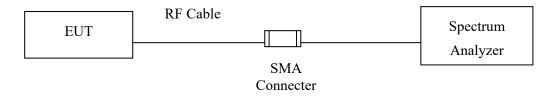
Note:

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.



10.4. Test Result of Occupied Bandwidth

Product	:	PanaCast 50
Test Item	:	Occupied Bandwidth Data
Test Mode	:	Mode 1: Transmit - 1Mbps
Test Date	:	2021/01/04

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	942		NA
39	2441	945		NA
78	2480	942		NA

Keysight Spectrum Analyzer - Swept SA a l 11:47:28 AM Jan 04, 2021 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P N N N N N RI Frequency Center Freq 2.402000000 GHz Avg Type: Log-Pwr Trig: Free Run #Atten: 30 dB PNO: Wide IFGain:Low Auto Tune Mkr2 2.401 547 GHz -16.10 dBm Ref Offset 0.5 dB Ref 20.50 dBm 10 dB/div Log 1 10.5 **Center Freq** 2.40200000 GHz .500 **◆**²-3-9.50 -16.03 dBr 19.5 Start Freq -29.5 2.400500000 GHz -39.5 -49.6 Stop Freq -59.6 2.403500000 GHz -69.6 **CF Step** 300.000 kHz Man Center 2.402000 GHz Span 3.000 MHz #VBW 100 kHz Sweep (#Swp) 3.200 ms (1001 pts) #Res BW 30 kHz Auto MKR MODE TRC SCL FUNCTION FUNCTION WIDTH FUNCTION VALUE 1 N 1 f 2 N 1 f 3 N 1 f 2.402 018 GHz 2.401 547 GHz 2.402 489 GHz 3.97 dBm -16.10 dBm -16.36 dBm Freq Offset 0 Hz 6 9 10 11 STATUS

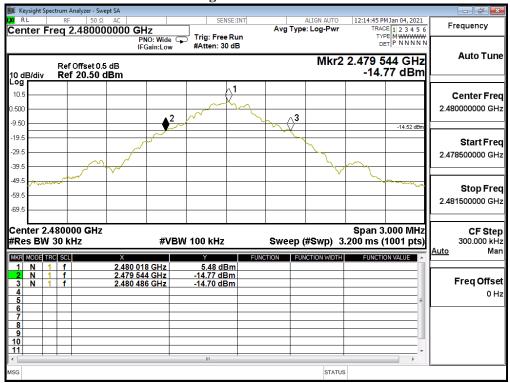
Figure Channel 00:



		Analyzer - Swe	•								
Center	Freq		AC 0000 GH	lz	7	NSE:INT		ALIGN AUTO E: Log-Pwr	TRAC	M Jan 04, 2021 E 1 2 3 4 5 6 PE M WWWWW	Frequency
	Bei	f Offset 0.5	IF	NO: Wide ⊂ Gain:Low	#Atten: 3			Mkr2	Di	44 GHz	Auto Tune
10 dB/div		f 20.50 c							-15.	53 dBm	
10.5 0.500				▲2	~~~~	1					Center Freq 2.441000000 GHz
-9.50						<u> </u>	\sim 3			-15.40 dBm	
-19.5		~^	2	~~							Start Freq 2.439500000 GHz
-39.5		~~~	Ŵ					\sim	- My		
-49.5	and a second									a farment	Stop Freq
-69.5											2.442500000 GHz
-69.5											
Center 2 #Res BV				#VBW	/ 100 kHz		Sweep	(#S wp) 3.	Span 3 .200 ms (.000 MHz 1001 pts)	CF Step 300.000 kHz Auto Man
MKR MODE	TRC SCI	-	× 2.441 01		Y 4.60 di	FUNC	TION FUI	NCTION WIDTH	FUNCTION	ON VALUE	<u>Auto</u> Mari
2 N	1 f		2.440 54	4 GHz	-15.53 dE	3m					Freq Offset
3 N 4	1 f		2.441 48	9 GHz	-15.81 dE	3m					0 Hz
5 6						_				=	
7 8											
9											
10 11											
•					III					P .	
MSG								STATUS			

Figure Channel 39:

Figure Channel 78:





Product	:	PanaCast 50
Test Item	:	Occupied Bandwidth Data
Test Mode	:	Mode 2: Transmit - 3Mbps
Test Date	:	2021/01/04

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

Figure Channel 00:

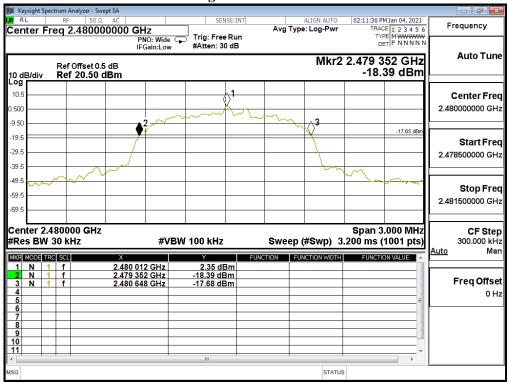
🎉 Keysight Spectrum Analyzer - Swe	ept SA				
RL RF 50 Ω Center Freq 2.40200	0000 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	01:55:51 PM Jan 04, 2021 TRACE 1 2 3 4 5 6 TYPE M WWWWW	Frequency
Ref Offset 0.5 10 dB/div Ref 20.50 c		#Atten: 30 dB	Mkr2	2.401 355 GHz -19.35 dBm	Auto Tune
10.5 0.500	2-	1	~~~~~		Center Freq 2.402000000 GHz
-19.5	↓ ↓			-19.09 dBm	Start Freq 2.400500000 GHz
-49.5 -59.5 -69.5				we have my	Stop Freq 2.403500000 GHz
Center 2.402000 GHz #Res BW 30 kHz	#VBW	/ 100 kHz	Sweep (#Swp) 3	Span 3.000 MHz 200 ms (1001 pts)	CF Step 300.000 kHz <u>Auto</u> Man
1 N 1 f 2 N 1 f 3 N 1 f 4	2.402 018 GHz 2.401 355 GHz 2.402 651 GHz	0.91 dBm -19.35 dBm -19.34 dBm		=	Freq Offset 0 Hz
7 8 9 10 11					
MSG			STATUS		L



	ht Spectr		nalyzer - Swe	pt SA								
Cente	r Fre	RF q 2	50 Ω .44100	AC 0000 GH	łz	_	NSE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	TRAC	MJan 04, 2021 E 1 2 3 4 5 6 E M WWWWW	Frequency
		D.6/	08	IF	NO: Wide Ģ Gain:Low	#Atten: 3			Mkr2	Di	55 GHz	Auto Tune
10 dB/d			Offset 0.5 20.50 d								52 dBm	
10.5 0.500							1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Center Freq 2.441000000 GHz
-9.50 —				•	2	-		w	√ ³		-18.41 dBm	
-19.5 -29.5 —												Start Freq 2.439500000 GHz
-39.5 —		_	~	mand					how	-		
-49.5 🏹	~~~~	~	<u>۷</u> کسرسی	r								Stop Freq
-59.5												2.442500000 GHz
Center #Res I)0 GHz Iz		#VBV	V 100 kHz		Sweep	(#Swp) 3	Span 3 .200 ms (.000 MHz 1001 pts)	CF Step 300.000 kHz Auto Man
MKR MOT		SCL		× 2.441 01	2.04	Y 1.59 di		TION FU	NCTION WIDTH	FUNCTION	ON VALUE	Auto Mari
2 N 3 N 4 5	1	f		2.441 01 2.440 35 2.441 65	5 GHz	-18.52 dE -18.71 dE	3m				=	Freq Offset 0 Hz
6 7 8												
9 10 11												
•						Ш	1	1	I	1	•	
MSG									STATUS	6		

Figure Channel 39:

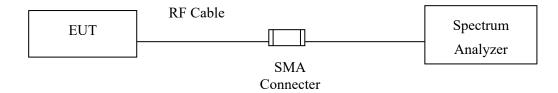
Figure Channel 78:





11. Duty Cycle

11.1. Test Setup





11.2. Test Result of Duty Cycle

Product	:	PanaCast 50
Test Item	:	Duty Cycle Data
Test Mode	:	Mode 1: Transmit - 1Mbps

	m Analyzer - Swep										
Center Free	RF 50 Ω 2.40200	AC 0000 GHz PNO: Fa:	et interi	SENSE Trig Delay-1 Trig: Video			ALIGN AUTO E: Log-Pwr	TRAC	M Jan 22, 2021 CE 1 2 3 4 5 6 PE WWWWWW	F	requency
10 dB/div F	tef Offset 0.5 tef 20.50 d	IFGain:Lo		#Atten: 30 d	В		Δ	Mkr1 2	.797 ms 0.02 dB		Auto Tune
10.5 0.500			1∆2						TRIG LVL		Center Freq 02000000 GHz
-19.5 -29.5 -39.5										2.4	Start Freq 02000000 GHz
-49.5 atulo eta 1 -59.5 -69.5	i tale de reales			ter and teration in	louista il i	agantale actual de		da se algundar		2.4	Stop Freq 02000000 GHz
Center 2.402 Res BW 1.0	MHz	Hz		4 autor mail 1.0 MHz	FUNC			9 00.1 ms (pan 0 Hz 1001 pts)	Auto	CF Step 1.000000 MHz Mar
1 Δ2 1	t (Δ) t	<u>2.797 ms</u> 30.84 ms		-0.02 dB 5.53 dBm					E		Freq Offsel 0 Hz
7 8 9 10										Log	Scale Type
11 •				III			STATUS		•		

Time on of 100ms= 2.797ms Duty Cycle= 2.797ms / 100ms= 0.02797 Duty Cycle correction factor= 20 LOG 0.02797= -31.066 dB

Duty Cycle correction factor	-31.066	dB
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Product	:	PanaCast 50
Test Item	:	Duty Cycle Data
T () (1		

Test Mode : Mode 2: Transmit - 3Mbps

	pectrum Analyzer -							- 6
enter F		0 Ω AC 000000 GHz PNO: Fa	Trig Delay		ALIGN AUTO	TYPE	123456 WWWWW	Frequency
0 dB/div	Ref Offset Ref 20.5	IFGain:L		dB	Δ	Mkr1 2.7	797 ms .52 dB	Auto Tun
- og 10.5 0.500 9.50		*	1Δ2				TRIG LVL	Center Fre 2.402000000 G⊦
19.5 —— 29.5 —— 39.5 ——								Start Fre 2.402000000 GH
49.5 ublide	بهرعار فيقتح ومرفاسي	denter de sector de sete	فمالية وماراهة المالية	وأحداثه والمرجع المرجلان	وجريبهم واللبام الماد	والمتحادث والمراجع		
69.5 halil		ilitation of the state	6) al .n.6606_cast.cl	ւ աներ անդրությունների է։	ասիսիի մանինե			2.402000000 G
enter 2. tes BW	.402000000 1.0 MHz	0 GHz #	VBW 1.0 MHz		Sweep 1	Sp 00.1 ms (1	oan 0 Hz 001 pts)	2.402000000 G CF Ste 1.000000 M
69.5 Center 2. Ces BW KR MODE T 1 A2 2 F 3 4 5	.402000000 1.0 MHz	0 GHz	VBW 1.0 MHz s (Δ) 1.52 c	FUNCTION		Sp	oan 0 Hz 001 pts)	2.402000000 Gi CF Ste 1.000000 Mi <u>Auto</u> M Freq Offs
Center 2. Res BW Item Mode It I A2 2 F 3 4 5 6 7 8 9 9	.402000000 1.0 MHz TRC SCL	0 GHz # 2.797 ms	VBW 1.0 MHz	FUNCTION	Sweep 1	Sp 00.1 ms (1	oan 0 Hz 001 pts)	2.40200000 Gł CF Ste 1.000000 Mł <u>Auto</u> Mł Freq Offs 0 ł Scale Typ
69.5 ATTIL Center 2. Ces BW KR Mode I 1 A2 2 F 3 4 5 6 7 8	.402000000 1.0 MHz TRC SCL	0 GHz # 2.797 ms	VBW 1.0 MHz	FUNCTION	Sweep 1	Sp 00.1 ms (1	oan 0 Hz 001 pts)	Stop Fre 2.402000000 GH CF Ste 1.000000 MH Auto Freq Offs 0 H Scale Typ Log

Time on of 100ms= 2.797ms Duty Cycle= 2.797ms / 100ms= 0.02797 Duty Cycle correction factor= 20 LOG 0.02797= -31.066 dB

	Duty Cycle correction factor	-31.066	dB
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12. EMI Reduction Method During Compliance Testing

No modification was made during testing.