FCC Test Report

Product Name	Digital Camera
Model No.	N1721
FCC ID.	CGJ1155EB

Applicant	NIKON CORPORATION
Address	Shinagawa Intercity Tower C, 2-15-3,Konan Minato-ku,
	Tokyo 108-6290 Japan

Date of Receipt	Mar. 28, 2018
Issued Date	Apr. 23, 2018
Report No.	1830420R-RFUSP04V00
Report Version	V1.0



The test results relate only to the samples tested.

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

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Test Report

Issued Date: Apr. 23, 2018 Report No.: 1830420R-RFUSP04V00

Product Name	Digital Camera		
Applicant	NIKON CORPORATION		
Address	Shinagawa Intercity Tower C, 2-15-3,Konan Minato-ku, Tokyo 108-6290		
	Japan		
Manufacturer	NIKON CORPORATION		
Model No.	N1721		
FCC ID.	CGJ1155EB		
EUT Rated Voltage	DC3.7V by Battery		
EUT Test Voltage	AC 120 V / 60 Hz(Adapter) or DC3.7V by Battery		
Trade Name	Nikon		
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2017		
	ANSI C63.4: 2014, ANSI C63.10: 2013		
Test Result	Complied		
	$\int \int \int da da da$		
Documented By	Genle Unlang		

(Senior Adm. Specialist / Genie Chang)

Tested By :

Tuan Jason

(Engineer / Jason Tuan)

Approved By :

(Director / Vincent Lin)



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Attachment 1:EUT Test PhotographsAttachment 2:EUT Detailed Photographs



1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Digital Camera
Trade Name	Nikon
Model No.	N1721
FCC ID.	CGJ1155EB
Frequency Range	2402-2480MHz
Channel Number	79
Type of Modulation	FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps)
Antenna Type	Chip Antenna
Channel Control	Auto
Antenna Gain	Refer to the table "Antenna List"
USB Cable	Shielded, 0.8m, with one ferrite core bonded.
Power Adapter	MFR: MITSUMI, M/N: EH-73P
	Input: AC 100-240V~50/60Hz 0.14A-0.08A
	Output: DC 5V=1.5A

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	YAGEO	ANT3216LL11R2400A	Chip Antenna	-1.44dBi for 2.4 GHz

Note:

1. The antenna of EUT conforms to FCC 15.203.

2. Only the higher gain antenna was tested and recorded in this report.





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

- 1. The EUT is a Digital Camera with a built-in WLAN ➤ Bluetooth V3.0, V2.1+EDR, V4.1 transceiver, this report for Bluetooth V3.0, V2.1+EDR.
- 2. The WLAN module of EUT has been made in FCC ID: CGJ1155EB
- 3. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
- 4. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test
- 5. Bluetooth operation was evaluated at both 1Mb/s and 3Mb/s data rates. 2Mb/s data rate was found, through pre-testing, to produce emissions similar to those for 3Mb/s.
- 6. The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

Test Mode	Mode 1: Transmit - 1Mbps (GFSK)	
	Mode 2: Transmit - 3Mbps (8DPSK)	
Mode 3: Charger Mode		

1.3. Tested System Details

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

TX Mode

Pro	oduct	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	HG26TZ1	Non-Shielded, 0.8m
2	SD Card 2GB	Transcend	TS2GSDC	205380-8144	N/A
3	LED Monitor	ViewSonic	VX2257-mhd	UFY163502150	Non-Shielded, 1.8m

TX Mode

Signal Cable Type		Signal cable Description		
А	USB Cable	Non-shielded, 0.8m, with one ferrite core bonded.		
В	Signal Cable	Non-shielded, 1.0m		

Charger Mode

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	LED Monitor	ViewSonic	VX2257-mhd	UFY163502150	Non-Shielded, 1.8m
2	SD Card 2GB	Transcend	TS2GSDC	205380-8144	N/A

Charger Mode

Signal Cable Type	Signal cable Description	
A HDMI Cable	Non-shielded, 1.0m	



1.4. Configuration of Tested System



Charger Mode





1.5. EUT Exercise Software

- 1. Setup the EUT as shown in Section 1.4.
- 2. Execute software "Sample Project 01.05.20060915" on the Notebook PC.
- 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.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	30-65
Barometric pressure (mbar)	860-1060	950-1000

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	E-Mail: info.tw@dekra.com

FCC Accreditation Number: TW3023



1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2018/2/12	2019/2/11
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2017/10/13	2018/10/12
X	Power Meter	Anritsu	ML2495A	6K00003357	2017/8/7	2018/8/6
X	Pulse power sensor	Anritsu	MA2411B	0846193	2017/8/7	2018/8/6
X	EMI Test Receiver	R&S	ESCS 30	100369	2017/11/7	2018/11/6
X	LISN	R&S	ESH3-Z5	836679/017	2018/2/9	2019/2/8
X	LISN	R&S	ENV216	100097	2018/2/9	2019/2/8
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2017/6/22	2018/6/21

For Radiated measurements /Site3/CB8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
Х	Spectrum Analyzer	R&S	FSP40	100170	2018/3/12	2019/3/11
Х	Loop Antenna	Teseq	HLA6121	37133	2017/10/13	2018/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2017/06/25	2018/06/24
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2017/06/15	2018/06/14
Х	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330	2017/07/19	2018/07/18
X	Coaxial Cable	QuieTek	SF-106	LC035/37/41-	2017/6/21	2018/6/20
X	Horn Antenna	ETS-Lindgren	3117	00135205	2017/04/28	2018/04/27
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2017/02/24	2018/02/23
	Amplifier + Cable	EMCI	EMC184045SE	980370	2018/03/21	2019/03/20
	Horn Antenna	Com-Power	AH-840	101043	2018/01/09	2019/01/08
X	Filter	MicroTRON	BRM50701	019	2017/11/21	2018/11/20
	Filter	Microwave Circuits	N0257881	36681	2018/1/22	2019/1/21

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 :QuieTek EMI 2.0 V2.1.113.



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 was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product	:	Digital Camera
Test Item	:	Conducted Emission Test
Power Line	:	Line 1
Test Date	:	2018/04/10
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.185	9.672	35.200	44.872	-20.128	65.000
0.439	9.687	35.720	45.407	-12.336	57.743
3.689	9.864	24.720	34.584	-21.416	56.000
9.634	9.988	23.240	33.228	-26.772	60.000
12.072	10.014	16.760	26.774	-33.226	60.000
27.029	10.126	19.440	29.566	-30.434	60.000
Average					
0.185	9.672	29.090	38.762	-16.238	55.000
0.439	9.687	29.670	39.357	-8.386	47.743
3.689	9.864	19.550	29.414	-16.586	46.000
9.634	9.988	17.630	27.618	-22.382	50.000
12.072	10.014	13.070	23.084	-26.916	50.000
27.029	10.126	14.910	25.036	-24.964	50.000

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Note:

1. All Reading Levels are Quasi-Peak and average value.

2. "means the worst emission level.



Product	: Digital Camera						
Test Item	: Conducted Emission Test						
Power Line	: Line 2						
Test Date	: 2018/04	/10					
Test Mode	: Mode 2	: Transmit - 3Mbp	os (8DPSK)				
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	dBµV	dB	dBµV		
Line 2							
Quasi-Peak							
0.189	9.671	37.920	47.591	-17.295	64.886		
0.588	9.687	30.080	39.767	-16.233	56.000		
0.916	9.718	18.460	28.178	-27.822	56.000		
3.619	9.852	27.500	37.352	-18.648	56.000		
9.396	9.995	19.320	29.315	-30.685	60.000		
19.841	10.250	15.820	26.070	-33.930	60.000		
Average							
0.189	9.671	28.200	37.871	-17.015	54.886		
0.588	9.687	21.370	31.057	-14.943	46.000		
0.916	9.718	9.200	18.918	-27.082	46.000		
3.619	9.852	10.520	20.372	-25.628	46.000		
9.396	9.995	13.750	23.745	-26.255	50.000		
19.841	10.250	8.630	18.880	-31.120	50.000		

1. All Reading Levels are Quasi-Peak and average value.

2. "means the worst emission level.



Product Test Item Power Line Test Date Test Mode	 Digital Camera Conducted Emission Test Line 1 2018/04/10 Mode 3: Charger Mode 				
1000111000					
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.408	9.685	36.960	46.645	-11.984	58.629
0.509	9.692	38.600	48.292	-7.708	56.000
1.134	9.742	34.920	44.662	-11.338	56.000
1.400	9.759	37.000	46.759	-9.241	56.000
2.541	9.828	37.860	47.688	-8.312	56.000
8.494	9.967	36.060	46.027	-13.973	60.000
Average					
0.408	9.685	28.360	38.045	-10.584	48.629
0.509	9.692	25.340	35.032	-10.968	46.000
1.134	9.742	21.840	31.582	-14.418	46.000
1.400	9.759	33.280	43.039	-2.961	46.000
2.541	9.828	23.970	33.798	-12.202	46.000
8.494	9.967	34.110	44.077	-5.923	50.000

4. All Reading Levels are Quasi-Peak and average value.

5. "means the worst emission level.



Product	Product : Digital Camera							
Test Item	: Conducte	: Conducted Emission Test						
Power Line	e : Line 2							
Test Date	: 2018/04/	10						
Test Mode	: Mode 3:	Charger Mode						
Frequency	Correct	Reading	Measurement	Margin	Limit			
	Factor	Level	Level					
MHz	dB	dBµV	dBµV	dB	dBµV			
Line 2								
Quasi-Peak								
0.298	9.671	25.380	35.052	-26.719	61.771			
0.498	9.681	36.320	46.001	-10.056	56.057			
0.685	9.693	32.300	41.993	-14.007	56.000			
1.744	9.780	34.640	44.420	-11.580	56.000			
2.572	9.818	40.400	50.218	-5.782	56.000			
8.490	9.977	40.000	49.977	-10.023	60.000			
Average								
0.298	9.671	18.170	27.842	-23.929	51.771			
0.498	9.681	31.280	40.961	-5.096	46.057			
0.685	9.693	23.740	33.433	-12.567	46.000			
1.744	9.780	22.660	32.440	-13.560	46.000			
2.572	9.818	32.580	42.398	-3.602	46.000			
8.490	9.977	33.410	43.387	-6.613	50.000			

4. All Reading Levels are Quasi-Peak and average value.

5. "means the worst emission level.

3. Peak Power Output

3.1. Test Setup



3.2. Limit

The maximum peak power shall be less 1Watt.

3.3. Test Procedure

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

3.4. Uncertainty

± 1.19 dB



3.5. Test Result of Peak Power Output

Product	:	Digital Camera
Test Item	:	Peak Power Output
Test Site	:	No.3 OATS
Test date	:	2018/03/30
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402.00	4.43	0.125W = 20.97dBm	Pass
Channel 39	2441.00	4.72	0.125W = 20.97dBm	Pass
Channel 78	2480.00	5.04	0.125W = 20.97dBm	Pass

Note: For AFH mode using 20 hopping channels, the maximum output power limit is 0.125W.



Product	:	Digital Camera
Test Item	:	Peak Power Output
Test Site	:	No.3 OATS
Test date	:	2018/03/30
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402.00	3.40	0.125W = 20.97dBm	Pass
Channel 39	2441.00	3.43	0.125W = 20.97dBm	Pass
Channel 78	2480.00	3.64	0.125W = 20.97dBm	Pass

Note: For AFH mode using 20 hopping channels, the maximum output power limit is 0.125W.



4. Radiated Emission

4.1. Test Setup

Under 30MHz

Receiver



Above 1GHz



4.2. Limits

General Radiated Emission Limits

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

FCC Part 15 Subpart C Paragraph 15.209 Limits					
Frequency MHz	Field strength	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 $(dB\mu V) = 20 \log RF$ 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 worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

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

4.4. Uncertainty

± 4.08 dB above 1GHz
± 4.22 dB below 1GHz



4.5. Test Result of Radiated Emission

Product	:	Digital Camera							
Test Item	:	Harmonic R	Harmonic Radiated Emission						
Test Site	:	No.3 OATS	No.3 OATS						
Test date	:	2018/04/11							
Test Mode	:	Mode 1: Tra	nsmit - 1Mbps (GI	FSK)(2402MHz)					
Frequency		Correct Factor	Reading Level	Measurement Level	Margin	Limit			
MHz		dB	dBµV	$dB\mu V/m$	dB	dBµV/m			
Horizontal									
Peak Detector:									
4804.000		-9.896	47.620	37.724	-36.276	74.000			
7206.000		-5.013	47.310	42.297	-31.703	74.000			
9608.000		-1.472	45.230	43.759	-30.241	74.000			
Average									
Detector:									
Vertical									
Peak Detector:									
4804.000		36.974	49.800	43.215	-30.785	74.000			
7206.000		39.397	47.860	43.716	-30.284	74.000			
9608.000		42.642	44.780	43.706	-30.294	74.000			
Average									
Detector:									

- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Digital Camera				
Test Item	:	Harmonic R	adiated Emission			
Test Site	:	No.3 OATS				
Test date	:	2018/04/11				
Test Mode	:	Mode 1: Tra	nsmit - 1Mbps (Gl	FSK)(2441MHz)		
Frequency		Correct	Reading	Measurement	Margin	Limit
		Factor	Level	Level		
MHz		dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal						
Peak Detector:						
4882.000		-10.318	47.670	37.352	-36.648	74.000
7323.000		-3.858	47.030	43.172	-30.828	74.000
9764.000		-2.596	44.400	41.804	-32.196	74.000
Average						
Detector:						
Vertical						
Peak Detector:						
4882.000		-7.606	47.460	39.854	-34.146	74.000
7323.000		-2.977	46.690	43.714	-30.286	74.000
9764.000		-2.131	44.240	42.109	-31.891	74.000
Average						
Detector:						

- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Digital Camera							
Test Item	:	Harmonic I	Harmonic Radiated Emission						
Test Site	:	No.3 OATS	No.3 OATS						
Test date	:	2018/04/11							
Test Mode	:	Mode 1: Tr	ansmit - 1Mbps (GF	SK)(2480MHz)					
Frequency		Correct	Reading	Measurement	Margin	Limit			
		Factor	Level	Level					
MHz		dB	dBµV	dBµV/m	dB	dBµV/m			
Horizontal									
Peak Detector:									
4960.000		-10.666	47.970	37.305	-36.695	74.000			
7440.000		-3.631	45.890	42.259	-31.741	74.000			
9920.000		-2.397 46.170 43.773 -30.227 74.000							
Average									
Detector:									
Vertical									
Peak Detector:									
4960.000		-7.869	46.760	38.892	-35.108	74.000			
7440.000		-2.772	45.710	42.938	-31.062	74.000			
9920.000		-1.895	46.170	44.275	-29.725	74.000			
Average									

Detector:

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- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Digital Camera						
Test Item	:	Harmonic R	Harmonic Radiated Emission					
Test Site	:	No.3 OATS						
Test date	:	2018/04/11						
Test Mode	:	Mode 2: Tra	ansmit - 3Mbps (8D	OPSK)(2402MHz)				
Frequency		Correct Factor	Reading Level	Measurement Level	Margin	Limit		
MHz		dB	dBµV	dBµV/m	dB	dBµV/m		
Horizontal								
Peak Detector:								
4804.000		-9.896	47.380	37.484	-36.516	74.000		
7206.000		-5.013	47.650	42.637	-31.363	74.000		
9608.000		-1.472	44.890	43.419	-30.581	74.000		
Average								
Detector:								
Vertical								
Peak Detector:								
4804.000		-6.585	50.290	43.705	-30.295	74.000		
7206.000		-4.144	48.370	44.226	-29.774	74.000		
9608.000		-1.075	45.340	44.266	-29.734	74.000		
Average								

Detector:

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- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	: Digital Camera					
Test Item	: Harmonic Radiated Emission					
Test Site	: No.3 OA	TS				
Test date	: 2018/04/	11				
Test Mode	: Mode 2:	Transmit - 3Mbp	s (8DPSK) (2441MH	[z)		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m	
Horizontal						
Peak Detector:						
4882.000	-10.318	47.870	37.552	-36.448	74.000	
7323.000	-3.858	46.710	42.852	-31.148	74.000	
9764.000	-2.596	45.020	42.424	-31.576	74.000	
Average						
Detector:						
Vertical						
Peak Detector:						
4882.000	-7.606	47.370	39.764	-34.236	74.000	
7323.000	-2.977	46.970	43.994	-30.006	74.000	
9764.000	-2.131	45.060	42.929	-31.071	74.000	
Average						
Detector:						

- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Digital Camera				
Test Item	:	Harmonic I	Radiated Emission			
Test Site	:	No.3 OATS	5			
Test date	:	2018/04/11				
Test Mode	:	Mode 2: Tr	ansmit - 3Mbps (8D	PSK) (2480MHz)		
Frequency		Correct	Reading	Measurement	Margin	Limit
		Factor	Level	Level		
MHz		dB	dBµV	$dB\mu V/m$	dB	dBµV/m
Horizontal						
Peak Detector:						
4960.000		-10.666	46.790	36.125	-37.875	74.000
7440.000		-3.631	46.050	42.419	-31.581	74.000
9920.000		-2.397	46.310	43.913	-30.087	74.000
Average						
Detector:						
Vertical						
Peak Detector:						
4960.000		-7.869	47.260	39.392	-34.608	74.000
7440.000		-2.772	45.640	42.868	-31.132	74.000
9920.000		-1.895	46.980	45.085	-28.915	74.000
Average						
_						

Detector:

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- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Digital Camera
Test Item	:	General Radiated Emission
Test Site	:	No.3 OATS
Test date	:	2018/04/18
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m
Horizontal					
121.715	-9.600	37.904	28.304	-15.196	43.500
242.965	-6.076	31.955	25.879	-20.121	46.000
432.612	1.773	33.990	35.763	-10.237	46.000
575.625	5.905	26.546	32.451	-13.549	46.000
793.253	7.677	26.972	34.648	-11.352	46.000
864.760	7.748	27.733	35.481	-10.519	46.000
Vertical					
93.734	-5.009	28.946	23.937	-19.563	43.500
216.538	-0.115	26.417	26.302	-19.698	46.000
432.612	0.852	25.610	26.462	-19.538	46.000
504.119	1.218	30.004	31.221	-14.779	46.000
575.625	3.065	26.343	29.408	-16.592	46.000
936.266	9.030	23.666	32.696	-13.304	46.000

- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product	:	Digital Camera
Test Item	:	General Radiated Emission
Test Site	:	No.3 OATS
Test date	:	2018/04/18
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$
Horizontal					
39.327	3.591	28.266	31.857	-8.143	40.000
121.715	-9.600	35.653	26.053	-17.447	43.500
404.631	1.541	30.329	31.870	-14.130	46.000
575.625	5.905	24.920	30.825	-15.175	46.000
793.253	7.677	27.159	34.835	-11.165	46.000
864.760	7.748	26.770	34.518	-11.482	46.000
Vertical					
67.308	-11.429	36.705	25.277	-14.723	40.000
244.519	-0.497	25.569	25.072	-20.928	46.000
432.612	0.852	25.233	26.085	-19.915	46.000
504.119	1.218	30.080	31.297	-14.703	46.000
575.625	3.065	26.280	29.345	-16.655	46.000
936.266	9.030	23.838	32.868	-13.132	46.000

- 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. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. 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

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

5.4. Uncertainty

± 1.20dB



5.5. Test Result of RF Antenna Conducted Test

Product	:	Digital Camera
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test date	:	2018/03/30
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Figure Channel 00:









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



- Product : Digital Camera Test Item : RF Antenna Conducted Test
- Test Site
 - e : No.3 OATS
- Test date : 2018/03/30
- Test Mode : Mode 2: Transmit 3Mbps (8DPSK)









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



6. Band Edge

6.1. Test Setup

RF Radiated Measurement:

Above 1GHz



RF Conducted Measurement



6.2. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. 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. Uncertainty

- ± 4.08 dB above 1GHz
- ± 4.22 dB below 1GHz



6.5. **Test Result of Band Edge**

Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test date	:	2018/03/29
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Arerage Limit (dBµV/m)	Result
00 (Peak)	2390.000	-2.687	48.552	45.865	74.00	54.00	Pass
00 (Peak)	2400.000	-2.660	65.800	63.140	74.00	54.00	Pass
00 (Peak)	2401.800	-2.658	97.173	94.515			
00 (Average)	2390.000	-2.687	35.631	32.944	74.00	54.00	Pass
00 (Average)	2400.000	-2.660	46.098	43.438	74.00	54.00	Pass
00 (Average)	2402.000	-2.657	84.290	81.633			



Horizontal (Peak)



Figure Channel 00:

Horizontal (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level. 1.
- 2. 3.
- 4.
- Measurement Level = Reading Level + Correction Factor. 5.
- The average measurement was not performed when the peak measured data is under the limit of 6. average detection.



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test date	:	2018/03/29
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

RF Radiated Measurement (VERTICAL):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Docult
Channel No.	(MHz)	(dB)	(dBµV)	(dBµV/m)	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
00 (Peak)	2390.000	-4.159	48.336	44.177	74.00	54.00	Pass
00 (Peak)	2400.000	-4.171	65.681	61.510	74.00	54.00	Pass
00 (Peak)	2402.100	-4.171	96.691	92.520			
00 (Average)	2390.000	-4.159	35.641	31.482	74.00	54.00	Pass
00 (Average)	2400.000	-4.171	45.783	41.612	74.00	54.00	Pass
00 (Average)	2402.000	-4.171	83.920	79.749			

Figure Channel 00:

VERTICAL (Peak)



Figure Channel 00:

VERTICAL (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level. Measurement Level = Reading Level + Correction Factor. 1.
- 2. 3.
- 4. 5.
- The average measurement was not performed when the peak measured data is under the limit of 6. average detection.



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test date	:	2018/03/29
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)

RF Radiated Measurement (Horizontal):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Dogult
Channel No.	(MHz)	(dB)	(dBµV)	(dBµV/m)	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
78 (Peak)	2480.000	-2.605	97.137	94.532			Pass
78 (Peak)	2483.500	-2.601	48.663	46.061	74.00	54.00	Pass
78 (Average)	2480.000	-2.605	84.201	81.596			Pass
78 (Average)	2483.500	-2.601	36.120	33.518	74.00	54.00	Pass

Figure Channel 78:

Horizontal (Peak)



Figure Channel 78:

Horizontal (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level. 1.
- 2. 3.
- 4.
- Measurement Level = Reading Level + Correction Factor. 5.
- The average measurement was not performed when the peak measured data is under the limit of 6. average detection.



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test date	:	2018/03/29
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)

RF Radiated Measurement (VERTICAL):

Channel No	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Result
Chamiler 100.	(MHz)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
78 (Peak)	2480.000	-3.978	96.718	92.740			Pass
78 (Peak)	2483.500	-3.966	47.760	43.793	74.00	54.00	Pass
78 (Average)	2480.000	-3.978	83.863	79.885			Pass
78 (Average)	2483.500	-3.966	36.132	32.165	74.00	54.00	Pass

Figure Channel 78:

VERTICAL (Peak)



Figure Channel 78:

VERTICAL (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level. 1.
- 2. 3.
- 4.
- 5. Measurement Level = Reading Level + Correction Factor.
- The average measurement was not performed when the peak measured data is under the limit of 6. average detection.



Product	:	Digital Camera
Test Iter	n :	Band Edge
Test Site	e :	No.3 OATS
Test dat	e :	2018/03/29
Test Mo	ode :	Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

RF Radiated Measurement (Horizontal):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Docult
Channel No.	(MHz)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
00 (Peak)	2390.000	-2.687	47.092	44.405	74.00	54.00	Pass
00 (Peak)	2400.000	-2.660	65.892	63.232	74.00	54.00	Pass
00 (Peak)	2402.000	-2.657	95.839	93.182			
00 (Average)	2390.000	-2.687	35.570	32.883	74.00	54.00	Pass
00 (Average)	2400.000	-2.660	50.450	47.790	74.00	54.00	Pass
00 (Average)	2402.000	-2.657	80.782	78.125			

Figure Channel 00:

Horizontal (Peak)



Figure Channel 00:

Horizontal (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level.
- 1. 2. 3.
- 4.
- 5. Measurement Level = Reading Level + Correction Factor.
- 6. The average measurement was not performed when the peak measured data is under the limit of average detection.



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test date	:	2018/03/29
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

RF Radiated Measurement (VERTICAL):

Channel Ma	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Docult
Channel No.	(MHz)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
00 (Peak)	2346.800	-3.967	49.382	45.416	74.00	54.00	Pass
00 (Peak)	2390.000	-4.159	47.163	43.004	74.00	54.00	Pass
00 (Peak)	2400.000	-4.171	65.100	60.929	74.00	54.00	Pass
00 (Peak)	2402.000	-4.171	95.291	91.120			
00 (Average)	2390.000	-4.159	35.576	31.417	74.00	54.00	Pass
00 (Average)	2400.000	-4.171	49.763	45.592	74.00	54.00	Pass
00 (Average)	2402.000	-4.171	80.319	76.148			



VERTICAL (Peak)



Figure Channel 00:

VERTICAL (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level. 1.
- 2. 3.
- 4.
- Measurement Level = Reading Level + Correction Factor. 5.
- The average measurement was not performed when the peak measured data is under the limit of 6. average detection.



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test date	:	2018/03/29
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Arerage Limit (dBµV/m)	Result
78 (Peak)	2480.000	-2.605	95.564	92.959			Pass
78 (Peak)	2483.500	-2.601	47.928	45.326	74.00	54.00	Pass
78 (Average)	2480.000	-2.605	80.603	77.998			Pass
78 (Average)	2483.500	-2.601	35.887	33.285	74.00	54.00	Pass

Figure Channel 00:

Horizontal (Peak)



Figure Channel 00:

Horizontal (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level.
- 1. 2. 3.
- 4.
- 5.
- Measurement Level = Reading Level + Correction Factor. The average measurement was not performed when the peak measured data is under the limit of 6. average detection.



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test date	:	2018/03/29
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

RF Radiated Measurement (VERTICAL):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Arerage Limit	Docult
Channel No.	(MHz)	(dB)	(dBµV)	(dBµV/m)	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
78 (Peak)	2480.000	-3.978	95.482	91.504			Pass
78 (Peak)	2483.500	-3.966	47.066	43.099	74.00	54.00	Pass
78 (Average)	2480.000	-3.978	80.548	76.570			Pass
78 (Average)	2483.500	-3.966	35.961	31.994	74.00	54.00	Pass

Figure Channel 78:

VERTICAL (Peak)



Figure Channel 78:

VERTICAL (Average)



- All readings above 1GHz are performed with peak and/or average measurements as necessary. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. "*", means this data is the worst emission level. 1.
- 2. 3.
- 4.
- 5. Measurement Level = Reading Level + Correction Factor.
- The average measurement was not performed when the peak measured data is under the limit of 6. average detection.



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(Hopping off)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

🎉 Keysi	ght Spe	ctrum	Analyzer - Sw	ept SA									- ē 🔀
Cente	er Fi	® req	50 Ω 2.39700	AC 00000 GH	łz	S Trin Fr	ENSE:INT		Avg Type	ALIGN AUTO E: Log-Pwr	06:54:36 P TRAC	M Mar 30, 2018	Frequency
10 dB/	div	Re' Re	f Offset 0.4	FI 5 dB dBm	NO: Fast Gain:Low	#Atten:	30 dB		1	Mkr3 2.	399 999 -54.	50 GHz 03 dBm	Auto Tune
10.5 - 0.500 - -9.50 -											Å		Center Freq 2.397000000 GHz
-19.5 -29.5 -39.5 -										2		-16.82 dBm	Start Freq 2.390000000 GHz
-49.5 - -59.5 🌥 -69.5 -	<u>natur i</u>	للعمير	hanningaa	the second and an interest with	internet of	smassannalmunt.	a deserved and the second	and and have	ywannedd yw			- mark	Stop Freq 2.404000000 GHz
⊾ Start #Res	2.39 BW	000 100	0 GHz kHz		#VI	BW 300 kH	z	SI	weep (#	[≴] Swp) 2.	Stop 2.404 667 ms (4	1000 GHz 0001 pts)	CF Step 1.400000 MHz Auto Mar
MKR MG 1 N 2 N 3 N 4 5 6 7 8 9				X 2.402 154 4 2.400 000 0 2.399 999 5	5 GHz 0 GHz 0 GHz	3.18 (-54.03 (-54.03 (dBm iBm iBm	FUNCTIO		ICTION WIDTH	FUNCTI		Freq Offset
10 11 1	Ŧ	F								STATU	s		

Figure Channel 78:

📕 Keysight Spectrum Analyzer - Swept SA				- 6 ×
X RL RF 50 Ω AC	SENSE:INT	ALIGN AUTO	07:31:25 PM Mar 30, 2018	Frequency
Center Freq 2.489000000 GHz	Trig: Free Run	Avg Type: Log-Pwr	TYPE MWWWW	. requeriey
PNO: IFGain	Low #Atten: 30 dB		DET P NNNNN	
ſ		Mkr3 2 /	83 501 10 CH7	Auto Tune
Ref Offset 0.5 dB		WIKI 5 2.4	-53 78 dBm	
10 dB/div Ref 20.50 dBm			-55.76 0.511	
10.5				Center Fred
0.500				2.489000000 GHZ
-9.50			-15.74 dBm	
-19.5				Start From
-29.5				StartFrey
				2.478000000 GHZ
-39.5				
-49.5				Stop From
-59.5	and the second	and a stand and a stand of the second and the second as the second second second second second second second se	mark marked with the second	StopFreq
-69.5				2.500000000 GHz
Start 2.47800 GHz			Stop 2.50000 GHz	CF Step
#Res BW 100 kHz	#VBW 300 kHz	Sweep (#Swp) 2.6	67 ms (40001 pts)	2.200000 MHz
	× ×			<u>Auto</u> Man
1 N 1 f 2480 163 70 G	Iz 4.26 dBm	FONCTION FONCTION WIDTH	FUNCTION VALUE	
2 N 1 f 2.483 500 00 G	Iz -53.79 dBm			F O ff
3 N 1 f 2.483 501 10 G	Hz -53.78 dBm			Frequiset
5			E	0 Hz
6				
9				
10				
MSG		STATUS		



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (Hopping off)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

🎉 Key:	sight	Spect	rum	Analyzer - S	wept SA	Α.												- ē 🔀
Cent	er	Fre	RF ≥q	50 2.3970	Ω A	c 100 GH	Ηz		SEI	NSE:II	T	Avg	, Type	ALIGN AUTO : Log-Pwr	07:42:45 TR	PM Mar 30, 20	18 5 6	Frequency
10 d⊟	3/div	,	Ref Re	Offset (f 20.50	0.5 dE dBr	P IF 3 n	NO: Fast Gain:Lov		#Atten: 3	0 dB	n		N	/kr3 2.3	399 582 -54	2 65 GH	iz m	Auto Tune
10.5 0.500															Junk			Center Freq 2.397000000 GHz
-19.5 -29.5 -39.5														. Awy		-20.32 0	Bm	Start Freq 2.390000000 GHz
-49.5 -59.5 -69.5	<u>Kopole</u>	n de la constante	un cu	ann an an Anna		- Anisteinen	lenour nel	ww.	andra da Ale Joshan gi	, mar	An control of	المجمود مقاضاً	.	5.2/ Jac			×*	Stop Freq 2.404000000 GHz
Start #Res	t 2.3 5 B\	390 N 1	00) GHz kHz			#\	/BW	300 kHz			Swee) (#	ء Swp) 2.0	Stop 2.4 667 ms (04000 GI 40001 pt	lz (s)	CF Step 1.400000 MHz <u>Auto</u> Mar
MKR N 1 2 3 4 5 6 7 8 9 10 11		1 1 1	f f		2.40 2.40 2.39	× 02 153 0 00 000 0 09 582 6	05 GHz 00 GHz 55 GHz		+ -0.32 dl -55.75 dt -54.52 dt	Bm Bm Bm	FUNC	TION	FUN	CTION WIDTH	FUNC		4	Freq Offsel 0 Hz
									iii									
MSG														STATU	5			

Figure Channel 78:

📕 Keysight Spectrum Analyzer - Swept SA				
κL RF 50 Ω AC Center Freq 2.489000000 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	08:04:07 PM Mar 30, 2018 TRACE 1 2 3 4 5 6	Frequency
PNO: Fast IFGain:Low Ref Offset 0.5 dB 10 dB/div Ref 20.50 dBm	Trig: Free Run #Atten: 30 dB	Mkr3 2.4	99 194 80 GHz -55.07 dBm	Auto Tune
Log 10.5 0.500				Center Freq 2.489000000 GHz
-19.5 -29.5 -39.5			-19.45 dBm	Start Freq 2.478000000 GHz
-49.5 -59.5 -69.5	utgen muunden den terreten terreten		3	Stop Freq 2.500000000 GHz
Start 2.47800 GHz #Res BW 100 kHz #VI	BW 300 kHz	Sweep (#Swp) 2.6	Stop 2.50000 GHz 667 ms (40001 pts)	CF Step 2.200000 MHz <u>Auto</u> Man
N 1 f 2.479 844 70 GHz 2 N 1 f 2.479 844 70 GHz 3 N 1 f 2.433 500 00 GHz 4 - <	0.55 dBm -57.63 dBm -55.07 dBm		E	Freq Offset 0 Hz
7				
MSG		STATUS		·



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(Hopping on)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

🃁 Keysig	ht Spect	trum A	Analyzer - Swe	ept SA											
Cente	er Fre	RF ∋q 2	50 Ω 2.39700	AC	łz	s	ENSE:II	T	Avg	ALIGN AU	TO (0 wr	06:58:07 PI TRAC	4 Mar 30, 201 E 1 2 3 4 5	8	Frequency
10 dB/d	div	Ref Ref	Offset 0.5	P IF 5 dB 3Bm	NO: Fast Gain:Low	#Atten:	ee Rui 30 dB	n		Mkr3	2.391	1 129 -54.0	10 GH 69 dBn	z	Auto Tune
Log 10.5												M	$\overline{\mathcal{N}}$		Center Freq 2.397000000 GHz
-19.5 -29.5 -39.5		- 2									A		-16.87°dB	m 	Start Freq 2.390000000 GHz
-49.5 -59.5 -			den jarin den den	alater and the second		naturny through the table that	1 - de sente	ana		- A - Marken	*				Stop Freq 2.404000000 GHz
Start 2 #Res I	2.390 BW 1	000	GHz kHz		#VE	300 kH	z		Sweep	o (#Swp)	Sto 2.667	p 2.404 'ms (4	000 GH 0001 pts	z S)	CF Step 1.400000 MHz Auto Man
MXX MO 1 N 2 N 3 N 4 5 6 7 8 9 10 11 - -		SCL f f f		X 2.403 836 9 2.400 000 0 2.391 129 1	0 GHz 0 GHz 0 GHz	¥ 3.20 -55.42 c -54.69 c	dBm dBm dBm	FUNC		FUNCTION WI		FUNCTION	DN VALUE		Freq Offset
MSG										ST	ATUS				

Figure Channel 78 Hopping:

📕 Keysight Spectrum Anal	yzer - Swept SA				- ē 💌
ØRL RF Center Freg 2.4	50 Ω AC	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	07:33:29 PM Mar 30, 2018 TRACE 1 2 3 4 5 6	Frequency
Ref Off	PNO: Fast IFGain:Low fset 0.5 dB 0.50 dBm	Trig: Free Run #Atten: 30 dB	Mkr3 2.4	185 636 20 GHz -54.67 dBm	Auto Tune
Log 10.5 0.500					Center Freq 2.489000000 GHz
-19.5				-16.19 dBm	Start Freq 2.478000000 GHz
-49.5 -59.5 -69.5		i utuna ata ata ang ata ata ata ata ata ata ata ata ata at	an a far an	รูปกรรีงการสามาร์เหตุสามาร์เหตุสามาร์เหตุสามาร์เหตุสามาร์ 	Stop Freq 2.50000000 GHz
Start 2.47800 GH #Res BW 100 kH	iz Iz #VI	BW 300 kHz	Sweep (#Swp) 2.0	Stop 2.50000 GHz 667 ms (40001 pts)	CF Step 2.200000 MHz <u>Auto</u> Man
MMCR MODE TAC SLI 1 N 1 f 2 N 1 f 3 N 1 f 4 - - - 6 - - - 7 - - - 9 - - - 11 - - -	x 2.480 051 50 GHz 2.483 500 00 GHz 2.485 636 20 GHz	Y F 3.81 dBm -57.92 dBm -54.67 dBm -		FUNCTION VALUE	Freq Offset 0 Hz
MSG			STATUS	5	



Product	:	Digital Camera
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (Hopping on)

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

🃁 Keysight Sp	ectrum Analyz	er - Swept SA								- đ 🔀
Center F	^{RF} req 2.39	50 Ω AC 97000000 GH	Ηz	SENS	SE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	07:51:48 P TRAC	M Mar 30, 2018 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offs Ref 20	P IF :et 0.5 dB .50 dBm	NO: Fast C Gain:Low	➡ Trig: Free #Atten: 30	Run dB		Mkr3 2.3	399 839 -54.	55 GHz 84 dBm	Auto Tune
10.5 0.500								wwwww	And Marine	Center Freq 2.397000000 GHz
-19.5 -29.5 -39.5							Jonest		-20.33 dBm	Start Freq 2.390000000 GHz
-49.5 -59.5 -69.5		iangahan Shinaharayanya			klag hegen generation of the second	e meneral and the second of the	3 <u>,</u>			Stop Freq 2.404000000 GHz
Start 2.39 #Res BW	90000 GH 100 kHz		#VB	W 300 kHz	2111/	Sweep (€ #Swp) 2.0	667 ms (4	4000 GHz 0001 pts)	CF Step 1.400000 MHz <u>Auto</u> Man
1 N 2 N 3 N 4 5 6 7	RC SCL 1 f 1 f 1 f 1 f	× 2.403 152 6 2.400 000 0 2.399 839 5	65 GHz 10 GHz 15 GHz	-0.33 dB -57.16 dB -54.84 dB	m m m			FUNCTI		Freq Offset 0 Hz
8 9 10 11 • MSG				m			STATU	3	•	

Figure Channel 78 Hopping:

Keysight Spectrum Analyzer - Swept SA			
RL RF 50Ω AC	SENSE:INT	ALIGN AUTO 08:09:15 PM Mar 30, 2018 Avg Type: Log-Pwr TRACE 1 2 3 4 5 6	Frequency
Ref Offset 0.5 dB	PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB	Mkr3 2.493 722 30 GPz	Auto Tune
10 dB/div Ref 20.50 dBm 10.5			Center Free 2.489000000 GH
-9.50 -19.5 -29.5 -39.5			Start Fre 2.478000000 GH
-49.5 -59.5 -69.5	2	3 <u> <u> </u> </u>	Stop Fre 2.500000000 GH
tart 2.47800 GHz Res BW 100 kHz	#VBW 300 kHz	Stop 2.50000 GHz Sweep (#Swp) 2.667 ms (40001 pts)	CF Ste 2.200000 M Auto M
NR MODE THE SEC A 1 N 1 f 2.478.8 2 N 1 f 2.478.8 3 N 1 f 2.483.5 3 N 1 f 2.493.7 5 6 6 7 8 9 9 9	43 70 GHz 0.53 dBm 500 00 GHz -56.67 dBm 722 30 GHz -54.56 dBm		Freq Offs 0
		status	



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 15 hopping frequencies.

7.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

7.4. Uncertainty

N/A



7.5. Test Result of Channel Number

Product	:	Digital Camera
Test Item	:	Channel Number
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Frequency Range	equency Range Measurement		Required Limit	Result	
(MHz) (Channel)		Hopping (Channel)	(Channel)		
2402 ~ 2480	79	20	>15	Pass	

2402-2421MHz

2422-2441MHz

🗱 Keysight Spectrum Analyzer - Swept SA	- 2 🛋	🖬 🕼 Keysight Spectrum Analyzer - Swept SA	- 2 💌
μα RL RF 50 Ω AC SENSE:INT ALIGN AUTO Center Freq 2.411000000 GHz Avg Type: Log-Pwr	07:35:02 PM Mar 30, 2018 TRACE 1 2 3 4 5 6 Frequency	μg RL RF 50 Ω AC SENSE:INT ALIGN AUTO 07:35:46 PMI Center Freg 2.431500000 GHz Avg Type: Log-Pwr TRACE	1 2 3 4 5 6 Frequency
PNO:Fast Trig: Free Run IFGaint.cov #Atten: 30 dB Mkr2	2.421 000 GHz Auto Tune	PROLFAST TYDE Free Run TYDE PROLFAST Atten: 30 dB OFF Ref Offset 0.5 dB Mkr2 2.441 0	Auto Tune
10 dB/div Ref 20.50 dBm	2.51 dBm Center Frec 2.411000000 GH;	10 dBaiw Ref 20.50 dBm 3.0 Cog 1 105 01 00 00 00 00 00 00 00 00 00 00 00 00	4 dBm Center Freq 2.431500000 GHz
195 	Start Free 2.400500000 GH2	1.955	Start Freq 2.421500000 GHz
495 N 495	2.421500000 GH:	495 695 2695	Stop Freq 2.441500000 GHz
Start 2.40050 GHz #Res BW 100 kHz #VBW 100 kHz Sweep (#Swp) 2. Cost Mond Host Sci x y Powerow Franciscowidted	Stop 2.42150 GHz .533 ms (1001 pts) EURCION WAY	Start 2.42150 GHz Stop 2.441 #Res BW 100 kHz #VBW 100 kHz Sweep (#Swp) 2.467 ms (1) Core core land stort x y Avance on the stort of t	150 GHz 001 pts) Auto Man
1 N 1 f 2.402.000 GHz 2.56 dBm 2 N 1 f 2.421.000 GHz 2.61 dBm 3 3 4 5 5 5	Freq Offse	1 N 1 f 2.422.00 GHz 2.72 dBm 2 N 1 f 2.441.00 GHz 3.04 dBm 3 - - - - - 4 - - - - - 5 - - - - -	Freq Offset
5: -		6 -	
MSG STATUS	5	MSG STATUS	

2442-2461MHz

2462-2480MHz

Keysight Spectrum Analyzer - Swept SA			🔜 📓 Keysight Spectrum Analyzer - Swept SA
Center Freq 2.451500000 GHz	ALIGN AUTO 07:36:34 PM Mar 30, 2018 Avg Type: Log-Pwr TRACE 1 2 3 4 5 6	Frequency	y Center Freq 2.471500000 GHz Avg Type: Log-Pwr TRACE 12.3.4.5.6 Frequence
PRO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB	Mkr2 2.461 00 GHz 3.30 dBm	Auto Tune	Two: Fract C Trig: Pres Run IFG into W #Kim: 30 dB Mkr2 2.480 00 GHZ Ref 076re105 dB 3.63 dBm 20.48/d0 gBm 3.63 dBm
	mmmm	Center Freq 2.451500000 GHz	Cogistrative Ref. 20.300 DBill Center Freq 105 1 42 2 1 (BH2) 0500 1 42 2.47150000
-19.5 -29.5 -39.5		Start Freq 2.441500000 GHz	Instruction
49.5		Stop Freq 2.461500000 GHz	435 Open Stop Stop 24815000 6042 605
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	Step Start 2.46150 GHz Stop 2.48150 GHz CF Minz #Res BW 100 kHz Sweep (#Swp) 2.467 ms (1001 pts) 2.00000 Man
Los Luce Indexet 2.422 00 GHz 3.30 dBm 1 N 1 f 2.442 00 GHz 3.30 dBm 2 N 1 f 2.442 00 GHz 3.30 dBm 3 4 5 5 5		Freq Offset 0 Hz	Image: Second
MSG	STATUS		MSG STATUS



Product	:	Digital Camera
Test Item	:	Channel Number
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Frequency Range	Measurement	Adaptive Frequency	Required Limit	Result	
(MHz)	(Channel)	Hopping (Channel)	(Channel)		
2402 ~ 2480	2402 ~ 2480 79		>15	Pass	

2402-2421MHz

2422-2441MHz

🗱 Keysight Spectrum Analyzer - Swept SA			📕 🌆 Keysight Spectrum Analyzer - Swept SA 👘 💼 🖃 🔤
Main RF 50 Ω AC SENSE:INT ALIGN AUTO Center Freq 2.411000000 GHz Avg Type: Log-Pwr	08:12:26 PM Mar 30, 2018 TRACE 1 2 3 4 5 6	Frequency	Og RL RF 50 Ω AC SENSE:INT ALIGN AUTO 08:14:18 PM Mar 30, 2018 Frequency Center Freq 2.431500000 GHz Avg Type: Log-Pwr TRACE[1] 2.3 4.5 6 Frequency
PNC: Fast Trig: Pree Run IFGain:Low #Atten: 30 dB Ref Offset 0.5 dB Mkr2	2.421 000 GHz	Auto Tune	e Ber Offset 0.5 dB Mkr2 2.441 00 GHz Auto Tun
10 dBldiv Ref 20.50 dBm	-0.73 dBm	Center Freq	- 10 dB/d/v Ref 20.50 dBm2.11 dBm2
	wang manage and	2.411000000 GHz	2 p 500 Gr mmmm
-29.5		Start Freq 2.400500000 GHz	1 1 1 Start Free 2.42500000 GH 39.5 2.42500000 GH
49.5		Stop Freq 2.421500000 GHz	405 Stop Free 2 405 24150000 GH
Start 2.40050 GHz #Res BW 100 kHz #VBW 100 kHz Sweep (#Swp) 2	Stop 2.42150 GHz 2.533 ms (1001 pts)	CF Step 2.100000 MHz Auto Man) Start 2.42150 GHz ≠ #Res BW 100 kHz #VBW 100 kHz Sweep (#Swp) 2.467 ms (1001 pts) 4.000 Ma
International Interna International Internationali		Freq Offset 0 Hz	Link for the second back of
0 -			9 -
I T T T T T T T T T T T T T T T T T T T	s		MSG STATUS

2442-2461MHz

2462-2480MHz

🗱 Keysight Spectrum Analyzer - Swept SA		- 2 💌	📕 🊺 Keysight Spectrum Analyzer - Swept SA 💦 🚽 🖓
RL RF 50 Ω AC SENSE:INT Center Freq 2.451500000 GHz Trig: Free Run Trig: Free Run	ALIGN AUTO 08:16:08 PM Mar 30, 2018 Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 TYPEI MUNICIPAL	Frequency	RL RF 50 Ω AC SENSE:INT ALIGN AUTO 08:17:57 PM Mar 30, 2018 Frequency Center Freq 2.471500000 GHz Trace[1 2 3 4 5 6 Trace[1 2 3 4 5 6 Frequency
PNU: Fast FGain:Low #Atten: 30 dB Ref Offset 0.5 dB 10 dB/div Ref 20.50 dBm	_{وer} » ۸۸۸۸۸ Mkr2 2.461 00 GHz -0.83 dBm	Auto Tune	Ref Offset 0.5 dB SAften: 30 dB Derif NRWN 10 dB/dW Ref Offset 0.5 dB Mkr2 2.480 00 GHz 10 dB/dW Ref Offset 0.6 dB -1.48 dBm
	man mana mana	Center Freq 2.451500000 GHz	105 1 2 2 Center / 2.47150000 950 1 950 2.471500000 2.471500000
-19.5 		Start Freq 2.441500000 GHz	195 Start F 2 -295 - <t< td=""></t<>
49.5		Stop Freq 2.461500000 GHz	495 Stop F 495 245 495 245 495 248150000
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 Stop 2.48150 GHz CF 5 #RES BW 100 kHz \$weep (#\$wp) 2.487 ms (1001 ptz) 2.000000 Construct Interval 2.000000 Auto
1 N 1 f 2.442.00 GHz -0.32 dBm 2 N 1 f 2.461.00 GHz -0.83 dBm 3 4 - - - - 5 -	E	Freq Offset 0 Hz	1 N 1 f 245200 GHz -2.16 dBm 2 N 1 f 245000 GHz -1.48 dBm 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
6 -			
MSG =	STATUS		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

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

8.4. Uncertainty

± 283Hz



8.5. Test Result of Channel Separation

:	Digital Camera
:	Channel Separation
:	No.3 OATS
:	Mode 1: Transmit - 1Mbps (GFSK)
	: : :

Channel No.	Eraguanau	Measurement	Limit	Limit of (2/3)*20dB		
	(MH ₇)	Level	(1-11-7)	Dondwidth (1/1/2)	Result	
	(MHZ)	(kHz)	(кпz)	Ballowidul (KHZ)		
00	2402	1000	>25 kHz	638.0	Pass	
39	2441	1000	>25 kHz	636.0	Pass	
78	2480	1000	>25 kHz	636.0	Pass	

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

incysight op	ectrum An	alyzer - Swep	t SA									
Center F	RF req 2.	50 Ω 402000	AC 0000 GH	Z	SEI	ISE:INT	Avg Ty	ALIGI pe: Lo	n auto g-Pwr	06:53:48 P	M Mar 30, 2018	Frequency
10 dB(div	Ref 0	ffset 0.5	dB Bm	lO:Wide ⊂ _a Sain:Low	#Atten: 3	0 dB			Mkr	2 2.403 2.	00 GHz 99 dBm	Auto Tune
10.5 10.5 0.500		20.00 0	5			1	2					Center Freq 2.402000000 GHz
-19.5 -29.5 -39.5								2				Start Freq 2.397000000 GHz
-49.5 -59.5 -69.5	ershan yara	and before a second of	g. g	and the second					North and a	Malayda or By Long Low Ja	graatserentesseed	Stop Freq 2.407000000 GHz
Center 2. #Res BW	40200 100 k	0 GHz Hz	X	#VBV	V 100 kHz	FI		#Swe	eep 5	Span 1 00.0 ms (0.00 MHz 1001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
MCR MODE II 1 N 1 2 N 1 3 4 5 6 7 8 9 10 11			× 2.402 00 2.403 00	0 GHz 0 GHz	¥ 2.97 dł 2.99 dł	3m 3m		UNCTIO		FUNCTI		Freq Offset 0 Hz

Channel 00 (2402MHz)

🔰 Keysight Sp	ectrum Analyzer	- Swept SA								
Center F	^{RF} ∣5 req 2.441	0 Ω AC 0000000 GH	Hz	SENSE:		ALI Type: L	IGN AUTO _og-Pwr	07:02:55 PI TRAC	Mar 30, 2018	Frequency
10 dB/diu	Ref Offset	0.5 dB	NO: Wide 🕞 Gain:Low	#Atten: 30 dl	3		Mkr	2 2.442 3.4	00 GHz	Auto Tune
10.5 0.500				1	2					Center Freq 2.441000000 GHz
-19.5 -29.5 -39.5						M				Start Freq 2.436000000 GHz
-49.5 -59.5 -69.5	ture. Anglada an thata	nindel Arrow and an and an and a second s	apasant a					Allogenky-sould	in the state of the state	Stop Freq 2.446000000 GHz
Center 2. #Res BW	441000 Gi 100 kHz	Hz	#VBW	100 kHz	FUNCTION	#Sv	weep 5	Span 1)0.0 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	1 f	2.441 0 2.442 0	00 GHz 00 GHz	3.45 dBm 3.46 dBm				- ONC INC	E	Freq Offset 0 Hz
7 8 9 10 11 <				III.						
MSG							STATUS			

Channel 39 (2441MHz)

Channel 78 (2480MHz)





Product	:	Digital Camera
Test Item	:	Channel Separation
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

	Fraguanay	Measurement	Limit	Limit of (2/3)*20dB	
Channel No.	(MH ₇)	Level	$(\mathbf{k}\mathbf{H}_{7})$	Pondwidth (kUz)	Result
	(IVIIIZ)	(kHz)	(KIIZ)	Daliuwiuui (KHZ)	
00	2402	1000	>25 kHz	880.0	Pass
39	2441	1000	>25 kHz	882.0	Pass
78	2480	1000	>25 kHz	880.0	Pass

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

🊺 Key:	sight Sp	ectrum	Analyzer - Sw	ept SA									
Cent	ter F	R Frea	F 50 Ω	AC 0000 GH	Ηz	SI	ENSE:INT	Avg	/ Type	ALIGN AUTO : Log-Pwr	07:42:09 PI TRAC	M Mar 30, 2018	Frequency
		Re	f Offset 0.	P IF 5 dB	NO: Wide Gain:Low	Trig: Fre #Atten:	e Run 30 dB			Mkr	2 2.403		Auto Tune
10 dE Log	3/div	Re	ef 20.50 (dBm							-0.4	46 dBm	
10.5 × 0.500 × -9.50 ×						~~~	L.	2-					Center Freq 2.402000000 GHz
-19.5 -29.5 -39.5					,								Start Freq 2.397000000 GHz
-49.5 -59.5 -69.5	n a share	-	والمراجر لوالي والمراجع	S. In						tu	ngerne kringssone	Mare Mare	Stop Freq 2.407000000 GHz
Cent #Res	ter 2. s BW	.402 100	000 GHz kHz		#VE	SW 100 kH:	z		#\$	Sweep 5	Span 1 00.0 ms (0.00 MHz 1001 pts)	CF Step 1.000000 MHz
MKR N 1 2 3 4 5 6 7 7 8 9 10 11		RC SC 1 f 1 f		× 2.402 0 2.403 0	00 GHz	-0.46 c	IBM IBM IBM I I I I I I I I I I I I I I	FUNCTION	FUN		FUNCTIO	DN VALUE	Freq Offset 0 Hz
MSG										STATUS			

Channel 00 (2402MHz)

🊺 Keysight Sp	ectrum Analyzer -	- Swept SA						
Center F	^{RF} 5 req 2.441	0 Ω AC 000000 GHz	SENSE:I	Avg Type	ALIGN AUTO : Log-Pwr	07:57:08 PM TRAC	Mar 30, 2018	Frequency
10 dB/div	Ref Offset Ref 20.5	PNO: Wide IFGain:Lov 0.5 dB	w #Atten: 30 dE	3	Mkr	2 2.442 -0.2	00 GHz 28 dBm	Auto Tune
10.5 0.500 -9.50			1 marta	2				Center Freq 2.441000000 GHz
-19.5 -29.5 -39.5			~~~~		~~~~			Start Freq 2.436000000 GHz
-49.5 -59.5						restration and providence	ก่อยารักรมู่ในรากอาหารทั่	Stop Freq 2.446000000 GHz
Center 2. #Res BW	441000 GI 100 kHz	Hz #V	/BW 100 kHz	#	Sweep 5	Span 1 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		2.441 00 GHz 2.442 00 GHz	-0.23 dBm -0.28 dBm			Policine		Freq Offset 0 Hz
7 8 9 10 11			III					
MSG					STATUS			ι <u>.</u>

Channel 39 (2441MHz)

Channel 78 (2480MHz)



9. Dwell Time

9.1. Test Setup



9.2. Limit

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

9.3. Test Procedure

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

9.4. Uncertainty

 \pm 25msec



9.5. Test Result of Dwell Time

Product	:	Digital Camera
Test Item	:	Dwell Time
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (Channel 00,39,78 –DH5)

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.887	13	50	0.75	0.300	0.4	Pass
2441	2.888	13	50	0.75	0.300	0.4	Pass
2480	2.887	13	50	0.75	0.300	0.4	Pass

Duty cycle =((Time slot length(ms)*Hopping of Number) / Sweep time (ms)

Dwell time = (Duty cycle /79) * (79*0.4)

Dwell time in AFH mode / 20 channels with hopping rate 800 hops /sec.

CH 00 Time Interval between hops

CH 00 Transmission Time

🊺 Keys	ight Sp	ectrum	Analyz	er - Swe	pt SA																		💓 K	leysight	Spectrun	m Ana	alyzer - Sv	wept SA															×
Cent	er F	req	۶ 2.40	50 Ω)200	AC 0000) GH	Z O: Fac		Tric	SEI	NSE:INT	r	Avg	ј Туре	ALIGN /	NUTO Pwr	06:5	8:57 PM TRAC TYP	M Mar 30, E 1 2 3 E WWW	, 2018 4 5 6	Fr	requency	Cer	nter	Freq	RF 2. 4	50 s 4020	Ω AC 10000	0 GH	z		Tria: Vi	ENSE:IN	Т	Avg 1	A Type:	LIGN AUTI	06	TRAC	4 Mar 30, 20 E 1 2 3 4 PE WWWW	018 5 6	Frequency	
10 dB	ldiv	Re Re	f Offs f 20.	et 0.5 .50 d	dB Bm	IFC	iain:Lo	w	Att	ien: 30) dB							DE	et P N N	INNN]	Auto Tune	10 0	dB/div	Re v R	ef O	ffset 0 20.50	.5 dB	IFC	Gain:Lov	v	Atten:	30 dB					Mk	(r3 6. 3.	633 n 13 dB	ns	Auto Tu	ne
10.6 -																					2.40	Center Freq 2000000 GHz	10.6 0.500						Ŷ	1	¢2					3-						Center Fr 2.402000000 G	eq Hz
0.500 - -9.50 -																					2.40	Start Freq 2000000 GHz	-19.5 -29.5 -39.5	6 5 6														+		TRIG		Start Fr 2.402000000 G	eq Hz
-19.5 -																			-		2.40	Stop Free 2000000 GHz	-49.6 -59.6 -69.6	6 6 6					4	caenguty4	и					-1004-1	bjano,	+				Stop Fr 2.402000000 G	eq Hz
-39.5																		_			Auto	CF Step 1.000000 MHz Man	Cer Res	nter s BW	2.402 1.0	2000 MH:	0000 z	GHz	(#V	вw	1.0 MH	z	FUNC	TION	S	weep	10.00	S) ms (pan 0 1001 p	Hz ts)	CF Ste 1.000000 M Auto M	ep íHz Ian
-49.5		10		4	Υń		N	-49		Ÿ	- Mr		νų I	PM		Νų	Ÿ		W.	- 14-		Freq Offsel 0 Ha	1 2 3 4 5	NNN	1 t 1 t	t t			2.8 3.7 6.6	87 ms 46 ms 33 ms		3.16 3.31 3.13	dBm dBm dBm									Freq Offs 0	set Hz
-69.5 -	er 2.4	402	0000	00 G	Hz													s	pan (0 Hz	2		6 7 8 9 10							_			-					ŧ					
Res I	3W 1	1.0 N	1Hz				#\	/BW	1.0	MHz					Swee	ep 5	0.00	ms (1001	pts))		•		• •															-			
MSG																STATUS							MSG														STA	US					

CH39 Time Interval between hops

CH 39Transmission Time

🐹 Keysight Spectrum Analyzer - Swept SA		👝 🕼 🗰 🗰 Keysight Spectrum Analyzer - Swept SA		
Center Freq 2.441000000 GHz Aug Type: Log-7 Avg Type: Log-7 Avg Type: Log-7	Pwr TRACE 1 2 3 4 5 6	equency Center Freq 2.441000000 (GHz SENSE:INT ALIGN Avg Type: Log	AUTO 07:05:51 PM Mar 30, 2018 -Pwr TRACE 1 2 3 4 5 6 TYPE WARANT Frequency
PN0:Fast Ing. video IFGaint.ov Atten: 30 dB		Auto Tune Ref Offset 0.5 dB	PN0: Fast Ting: video IFGein:Low Atten: 30 dB	Mkr3 7.463 ms 3.62 dBm
	Cer 2.44100	enter Freq 10.5	\uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow	3 Center Freq 2.441000000 GHz
	SI 2.44100	-5:00 Start Freq -19.5 -29.5 -39.5 		Start Freq 2.441000000 GHz
-195	2.44100	Stop Freq -49.5 -69.5 -69.5 -69.5		איז
	.u 1.00	CF Step 000000 MHz Man 1220 Mare SW 1.0 MHz	#VBW 1.0 MHz Swe	Span 0 Hz ep 10.00 ms (1001 pts) Millin Fulkcion wave
	Fre	1 N 1 t 1 t 1	3.716 ms 3.60 dBm 4.675 ms 3.81 dBm 7.463 ms 3.82 dBm	Freq Offset 0 Hz
005	Span 0 Hz	7 8 9 10 11		
MSG S	STATUS	MSG		STATUS



CH 78 Time Interval between hops

CH 78 Transmission Time

🊺 Key	sight Sp	ectrum	Analyz	zer - Sw	ept SA							_											🖌 🕅 🖌	Keysig	ght Spect	rum Ar	nalyzer	- Swept S	jA .		_													×
Cent	er F	req	2.48	50 Ω 8000	AC	0 GH	IZ NO: Ees	• 🖂	Trig	g: Vide	NSE:INT		Avg	Туре	LIGN A	UTO Pwr	07:3	3:53 PM TRACE TYPE	Mar 30, E 1 2 3 E W WW	2018 4 5 6	6 F	requency	Cei	nte	er Fre	RF Pq 2	.480	50 Ω DOOO(vc 000 G	Hz	et C	Trig:	SENSE:	INT	Avg	Type:	LIGN A	otto Pwr	07:34:0 T	RACE 1 TYPE 1	ar 30, 2018	8 6 ₩	Frequency	
10 dB	/div	Re Re	f Offs	set 0.6	dB IBm	IF	Gain:Lo	w	Att	ten: 30	dB							DET	TPNN	INNN		Auto Tur	e 10 d	dB/d	div	Ref (Offse 20.5	t 0.5 d 50 dB	B m	IFGain:L	ow	Atter	: 30 dB						Mkr3	6.63 4.12	33 ms dBm	N	Auto Tu	ne
10.5																					2.4	Center Fre 80000000 GH	q 10. z 0.50	9 10		_				ľ	0 ²					¢ ³ -		-		-			Center Fr 2.48000000 G	eq Hz
0.500 -9.50																					2.4	Start Fre 80000000 GH	q -19.9 z -29.9 -39.9	.5																+	TRIG LVL		Start Fr 2.48000000 G	eq Hz
-19.5 -29.5																					2.4	Stop Fre 80000000 GF	q -49.9 -69.9 z -69.9	.5 .6 .5						WYCH	w					an a	_भ ाभाष			+			Stop Fr 2.48000000 G	eq Hz
-39.5												-						-			Auto	CF Ste 1.000000 MH Ma	cel z Res	nte s B	er 2.48 SW 1.0	8000 0 MH	0000 Hz	0 GH	z	#	VBW	/ 1.0 M	Hz	ET IN	*TION	S	wee	p 10).00 ms	Spa s (10	an 0 Hz 01 pts		CF Ste 1.000000 M uto M	ep Hz 1an
-49.5		ψ.		4	W		-	۳		h	ht	_	¥	61	_	r -	W	-	4	¥		Freq Offs	t 1 z 4 z 5	NNN		t t t			30	.887 m .746 m .633 m	5 5 5	4.1 4.3 4.1	3 dBm 5 dBm 2 dBm										Freq Offs 0	set Hz
-69.5	or 2	4800	1000	00.0	H7													Sr	nan (1 Hz			6 7 8 9 10																	_				
Res	BW 1	1.0 N	/Hz				#	вw	1.0	MHz				5	Swee	ep 5	0.00 I	ms (1	1001	pts)	j l		11	-	-						-					-		-						
MSG															5	STATUS							MSG														s	TATUS						

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	:	Digital Camera
Test Item	:	Dwell Time
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (Channel 00,39,78 –DH5)

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.888	13	50	0.75	0.300	0.4	Pass
2441	2.888	13	50	0.75	0.300	0.4	Pass
2480	2.888	13	50	0.75	0.300	0.4	Pass

Duty cycle =((Time slot length(ms)*Hopping of Number) / Sweep time (ms)

Dwell time = (Duty cycle /79) * (79*0.4)

Dwell time in AFH mode / 20 channels with hopping rate 800 hops /sec.

CH 00 Time Interval between hops

CH 00 Transmission Time

🗱 Keysight Spectrum Analyzer - Swept SA		- 2 -	Keysight Spectrum Analyzer - Swept SA
Image: RL RF 50 Ω AC SENSE: UNT Center Freq 2.402000000 GHz Avg Type Avg Type	ALIGN AUTO 07:53:26 PM Mar 30, 2018 pe: Log-Pwr TRACE 1 2 3 4 5 6 TYPE UNIT	Frequency	μ R.L R.F 50 Ω AC SENSE:INT ALIGN AUTO 07:53:40 PM Mar 30, 2018 Center Freq 2.402000000 GHz Avg Type: Log-Pwr TRACE [1 2 3 4 5 6] Frequency
PNO: Fast Ing. • roteo IFGainLow Atten: 30 dB Ref Offset 0.5 00 dBm	DETPNNNN	Auto Tune	PROT Fast Offer value Offer value Offer value Offer value Auto Tune Ref Offert 05 dB 0.75 dBm 0.75 dBm Auto Tune Auto Tune
		Center Freq 2.402000000 GHz	Consult Consult <t< td=""></t<>
2:00		Start Freq 2.402000000 GHz	1955 225 235 240200000 GHz
-19.5		Stop Freq 2.402000000 GHz	1 49.5 turn with Stop Freq 2.40200000 GHz 2.40200000 GHz
335		CF Step 1.000000 MHz <u>Auto</u> Man	Center 2.402000000 GHz Span 0 Hz Span 0 Hz CF Step c Res BW 1.0 MHz #VBW 1.0 MHz Sweep 10.00 ms (1001 pts) 1.000000 MHz 1 0000000 GHZ #VBW 1.0 MHz Sweep 10.00 ms (1001 pts) 1.000000 MHz 1 000000 gHZ #VBW 1.0 MHz Function Func
	י דיך ואי ואז קיד 	Freq Offset 0 Hz	1 N 1 1 3.716 ms 0.44 dBm 2 N 1 1.4576 ms 0.29 dBm Freq Offset 1 3 N 1 1.756 Bm Freq Offset 2 4 - 0.75 dBm OHz 5 - - - -
49.5	Span 0 Hz		9 -
Res BW 1.0 MHz #VBW 1.0 MHz	Sweep 50.00 ms (1001 pts)		MSG STATUS

CH39 Time Interval between hops

CH 39Transmission Time

💓 K	eysigh	Spectro	ım An	alyzer -	Swept S	SA .																			K K	(eysig	ght Spectr	rum An	nalyzer - S	wept SA	1															- 4	×
Cer	nter	Fre	RF q 2.	441	0000	AC	GHz		_]	SI	ENSE:	INT		Avg 1	A Type:	LIGN AU	TO WF	07:59:	TYPE	lar 30, 2	156	Fr	equency	Cer	_{RL} nte	er Fre	RF 19 2.	.4410	Ω AC	00 G	Hz	_		S	ENSE:IM	a	Avg	AL1 Type: L	GN AUT	r r	07:59:41 TR	PM Ma	ar 30, 2018 2 3 4 5	6	Frequency	1
10 d	IFGaintLow Atten: 30 dB cer ^p 1 (0 dBidly Ref 20.50 dBm con											PNNN	NNN N		Auto Tune	10 6	dB/d	div	Ref (Offset 0).5 dB	n i	PNO: F FGain:I	ast G		tten: 3	30 dB					N	lkr3 1	7.4(63 ms	5	Auto T	'une									
Lõg 10.6	_																						2.44 ⁻	Center Freq 1000000 GHz	Log 10.9 0.500	6 0				~	-				() ² .		bulbel file	e California (California								Center 0	Freq GHz
0.500 -9.50)									~~•	-					-							2.44	Start Freq 1000000 GHz	-19.6 -29.6 -39.6	5 5																	-	TRIG LVL		Start 2.441000000	Freq GHz
-19.5 -29.5	5																				TRG	, VL	2.44	Stop Freq 1000000 GHz	-49.9 -59.9 -69.9	5 📫 5	an the second						4	hyrifia	η.					\sta	ileran i	4	-			Stop 2.441000000	Freq GHz
-39.5 -49.5	5			N								.,		ļ					<u>v</u>				1 <u>Auto</u>	CF Step 000000 MHz Man	Cer Res	nte s B	er 2.44 SW 1.0	100 MH	00000 Hz	GHz	×	746 -	¢VB\	V 1.0	MH	z	FUNC	TION	SW	veep	10.	00 ms FUNC	Spa (10	n 0 Hz 01 pts)	z A	CF 9 1.000000 uto	Step MHz Man
-59.6	5		╞	-	-		-					-		+						_		_		Freq Offset 0 Hz	2 3 4 5 6	N		t			4 7	.716 m .575 m .463 m	5 5 5		0.04 (iBm iBm							_	_		Freq O	ffset 0 Hz
Cer	nter	2.44	1000 MH	0000 z	GH	z		#V	/BW	1.0	MH	z				s	weer	50	.00 m	Sp	an 0	Hz			7 8 9 10 11																		_				
MSG	ISG STATUS												MSG															STA	TUS						_												



CH 78 Time Interval between hops

[7	8 Tir	ne Iı	nte	rva	l be	twe	en l	hoŗ	ps							CH 7	8 Tr	ansmissi	ion Ti	me			
ght Spec	trum Analyzer -	Swept SA				conce and				00-00-55	0111-20.2010		🚺 Key	sight Sp	pectrum A	Analyzer - Swept SA		cruce-and			00-10-10 0	MM 20, 2010	- 2 -
er Fr	eq 2.480	000000	GHz			icnoc:1NT	Av	g Type:	: Log-Pwr	TRJ	ACE 1 2 3 4 5 6	Frequency	Cent	ter F	req	2.480000000 G	Hz	SENSE: JNI	Avg Typ	e: Log-Pwr	108:10:10 P	CE 1 2 3 4 5 6	Frequency
			PNO: IFGain	Fast 🖵 :Low	Atten:	30 dB				r.	DET P NNNN					1	PNO: Fast FGain:Low	Atten: 30 dB			DI	ET P NNNNN	
div	Ref Offset Ref 20.50	0.5 dB 0 dBm										Auto Tune	10 dE	3/div	Ref Ref	Offset 0.5 dB 20.50 dBm					Mkr3 7. 1.	.463 ms 57 dBm	Auto Tune
												Center Freq 2.480000000 GHz	Log 10.5 0.500 -9.50) ¹ () ²		→3	, Paraular		Center Freq 2.480000000 GHz
												Start Freq 2.480000000 GHz	-19.5 -29.5 -39.5									TRIG LVL	Start Freq 2.480000000 GHz
												Stop Freq 2.480000000 GHz	-49.5 -59.5 -69.5	MAN AN	haw			Antinony.kyru		rika-sa	kai		Stop Freq 2.480000000 GHz
					+	#	#				TRIO _VL	CF Step 1.000000 MHz	Cent Res	ter 2. BW	.4800 1.0 M	00000 GHz Hz	#VE	W 1.0 MHz		Sweep 1	S 0.00 ms (Span 0 Hz 1001 pts)	CF Step 1.000000 MHz
_										4		<u>Auto</u> Man	MAR	100E T	TRC SCL	х		Y	FUNCTION FU	NCTION WIDTH	FUNCTI	ON WALUE	<u>Auto</u> Man
	1 27	-	W	*	*		<u> </u>	*	"	li il	P ¹	Freq Offset	1 2 3 4	N N	1 t 1 t 1 t	3. 4. 7.	716 ms 575 ms 463 ms	1.29 dBm 0.60 dBm 1.57 dBm				=	Freq Offset
												0112	5									E	0112
			+			+	-	-		<u> </u>			7	-	-								
													9	-			_						
er 2.4	80000000	GHz	1.0 MH	17			Sween 4	50 00 me	Span 0 Hz		11												
W 1.0 MHZ #VBW 1.0 MHZ Sweep 50.00 ms (1001 pts)												-						STATIS		,			
		STATUS																		STATUS			

Note:

Keys Cent

10 dB/ Log

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

The EUT was setup to ANSI C63.4, 2014; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

10.4. Uncertainty

± 283Hz



10.5. Test Result of Occupied Bandwidth

Product	:	Digital Camera
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	957		NA
39	2441	954		NA
78	2480	954		NA

Figure Channel 00:

🎉 Keysight Sp	pectrum Ar	nalyzer - Swe	pt SA								
Center F	_R , RF	50 Ω .40200	AC 0000 GH	łz	SE Tria F	NSE:INT	Avg Ty	ALIGN AUTO	06:59:51 P	M Mar 30, 2018	Frequency
10 dB/div	Ref (Offset 0.5 20.50 d	edB IBm	NO: Wide C Gain:Low	#Atten: 3	e Run 30 dB		Mkr2	2 2.401 5 -18.	26 GHz 07 dBm	Auto Tune
10.5 0.500				<u>*</u> 2-	~~~~						Center Freq 2.402000000 GHz
-19.5 -29.5 -39.5									~	-17.83 dBm	Start Freq 2.400500000 GHz
-49.5 -59.5		{								www	Stop Freq 2.403500000 GHz
Center 2 #Res BW	.40200 / 30 kl	10 GHz Iz		#VB	W 100 kHz		Sweep	(#Swp) :	Span 3 3.200 ms (000 MHz 1001 pts)	CF Step 300.000 kHz <u>Auto</u> Man
1 N 2 N 3 N 4 5 6 7 8	1 f 1 f 1 f		2.402 15 2.401 52 2.402 48	3 GHz 6 GHz 3 GHz	<u>2.17 d</u> -18.07 d -18.19 d	Bm Bm Bm				E	Freq Offset 0 Hz
9 10 11 < MSG					III			STATU	IS		



🊺 Ke	ysight	Spectr	rum A	nalyz	er - Sv	vept S	5A					_											
LXI R	L	İ	RF		50 S	2 /	AC				_	SEI	NSE:I	NT			ALIGN AUTO	07	:06:31 P	M Mar 30	,2018	Г	Frequency
Cen	iter	Fre	q 2	2.44	10	000	000	GH	z			in: Ero	. D		Avg	Туре	: Log-Pwr		TRA		3456		Frequency
								PN	IO: Wio	de ⊂∎	⊃ #A	tten: 3	e Ru 0 dE	n 3					D	ET P NI	NNN	Ň	
																	Milant		140.4	200 (ıl.	Auto Tune
			Ref	Offs	et O.	5 d	в										INIKE2	2 2.4	40 3	52 (55 d	>HZ		
10 d	B/div		Ref	20	.50	dB	m												-17.	<u>55 u</u>	ып	It	
10.5														A 1									Contor From
10.5														∇									Center Freq
0.500	-		-			+					-	A~~~~	5	~~									2.441000000 GHz
-9.50			+			+			-	2_	\sim		-		,	~ 3		_				₽	
-19.5										~~					S S	Ц				-17.	33 dBm	11	
-10.0								1	1							7	~						Start Freq
-29.5						+	1	~									~						2.439500000 GHz
-39.5			-	- >	~~~	Ym	~~						-				- Marine	\sim	<u> </u>			╟	
-49.5		مەس	-	5																		It	
50.5	m.																		<u>ل</u>		w		Stop Freq
-59.5																							2.442500000 GHz
-69.5	-		-			+							-									L	
																		_		<u> </u>		łŀ	
Cen	iter :	2.44	10	00 (GHz										_			S	pan 3	.000	MHz	11	CF Step
#Re	s Bl	N 3	0 k	Hz					#	VBM	110) KHZ			Swe	ep (#Swp) ∶	3.200) ms (1001	pts)	١١,	300.000 kHz
MKR	MODE	TRC	SCL				Х					Y		FUNC	TION	FUN	ICTION WIDTH	1	FUNCT	ON VALU	E ^	Ľ	<u>Auto</u> Man
1	Ν	1	f				2.441	153	3 GHz			2.67 di	Bm									lŀ	
2	N	1	f				2.440	532	2 GHz		-1	<u>7.55 dE</u>	Bm								_		Fred Offset
4	N	1	T				2.441	480	GHZ	-	-1	/.00 01	зm								-1		
5																					E		0 H2
6																					_	IĽ	
8																					-1		
9																							
10										-								-			_		
11		-								-			_			-		+					
MEC																	OTAT	10					
MSG																	STAIL	-S					

Figure Channel 39:

Figure Channel 78:





Product	:	Digital Camera
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1320		NA
39	2441	1323		NA
78	2480	1320		NA

Figure Channel 00:

🊺 Ke	ysight S	pectrum	n Analyzer - S	wept SA								- 6 ×
w∥ R Cer	L ter F	Freq	₹ <u>50</u>	2 AC	Hz _	SEI	NSE:INT	Avg Type	ALIGN AUTO e: Log-Pwr	07:54:21 PI TRAC	M Mar 30, 2018	Frequency
10 d	B/div	Re R	ef Offset 0	PI IF I.5 dB I dBm	NO: Wide ∟ Gain:Low	#Atten: 3	0 dB		Mkr2	2.401 3 -21.	34 GHz 70 dBm	Auto Tune
Log 10.5 0.500 -9.50												Center Freq 2.402000000 GHz
-19.5 -29.5 -39.5									↓ <u>↓</u> 3		-21.37 dBm	Start Freq 2.400500000 GHz
-49.5 -59.5 -69.5					<u> </u>							Stop Freq 2.403500000 GHz
Cer #Re	iter 2 s BM	.402 / 30	000 GHz kHz	2 X	#VBV	V 100 kHz		Sweep ((#Swp) 3	Span 3 .200 ms (.000 MHz 1001 pts)	CF Step 300.000 kHz <u>Auto</u> Man
1 2 3 4 5	N N N	1 f 1 f 1 f		2.402 15 2.401 33 2.402 65	0 GHz 4 GHz 4 GHz	-1.37 df -21.70 df -21.58 df	3m 3m 3m				E	Freq Offset
7 8 9 10 11												
I ← 📄						III			STATUS		•	



🊺 Keysi	ght Spec	trum /	Analyzer - Swe	pt SA								
Cente	er Fro	RF eq 2	50 Ω 2.44100	AC 0000 GH	łz	SE	NSE:INT	Avg Typ	ALIGN AUTO	08:00:22 P	M Mar 30, 2018	Frequency
		Ref	Offset 0.5	edB	NO: Wide ⊂ Gain:Low	#Atten: 3	e Run 0 dB		Mkr2	2.440 3 -21.	37 GHz	Auto Tune
10.500 -			20.50 0			~~~~~						Center Freq 2.441000000 GHz
-19.5 = -29.5 = -39.5 =												Start Freq 2.439500000 GHz
-49.5 - -59.5 - -69.5 -		~ ~										Stop Freq 2.442500000 GHz
Cente #Res	er 2.4 BW 3	410 30 k	00 GHz Hz	~	#VB	₩ 100 kHz	EUN	Sweep	(#Swp) 3	Span 3 .200 ms (.000 MHz 1001 pts)	CF Step 300.000 kHz <u>Auto</u> Man
1 N 2 N 3 N 4 5	1 1 1 1	f f f		2.441 15 2.440 33 2.441 66	3 GHz 7 GHz 0 GHz	-1.05 d -21.30 d -21.43 d	Bm Bm Bm					Freq Offset 0 Hz
7 8 9 10 11												
MSG									STATU	5	,	L

Figure Channel 39:

Figure Channel 78:





11. EMI Reduction Method During Compliance Testing

No modification was made during testing.



Attachment 1: EUT Test Photographs



Attachment 2: EUT Detailed Photographs