FCC Test Report

Product Name	VP1
Model No.	VP1
FCC ID.	Y7OVP1

Applicant	Continental Automotive GmbH
Address	Philipsstrasse 1, Wetzlar, 35576, Germany

Date of Receipt	Oct. 17, 2013
Issued Date	Nov. 21, 2013
Report No.	13A0342R-RFUSP43V01
Report Version	V1.0



The Test Results relate only to the samples tested.

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Test Report Certification

Issued Date: Nov. 21, 2013 Report No.: 13A0342R-RFUSP43V01



Product Name	VP1
Applicant	Continental Automotive GmbH
Address	Philipsstrasse 1, Wetzlar, 35576, Germany
Manufacturer	Continental Automotive Czech Republic s.r.o.
Model No.	VP1
FCC ID.	Y7OVP1
EUT Rated Voltage	DC 12V (Power by Battery)
EUT Test Voltage	DC 12V (Power by Battery)
Trade Name	Continental
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2012
	ANSI C63.4: 2003, ANSI C63.10: 2009, KDB 558074
Test Result	Complied

The Test Results relate only to the samples tested.

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		(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	VP1
Trade Name	Continental
Model No.	VP1
FCC ID.	Y7OVP1
Frequency Range	2402 – 2480MHz
Channel Number	79
Type of Modulation	FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps)
Antenna Type	PCB Antenna
Channel Control	Auto
Antenna Gain	Refer to the table "Antenna List"

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Continental Automotive	N/A	PCB Antenna	0.5 dBi for 2.4 GHz

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

Center Frequency of Each Channel:

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

- 1. The EUT is a VP1 with a built-in Bluetooth transceiver.
- 2. 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.
- 3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 4. 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.

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

1.3. Tested System Details

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

Pro	duct	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
2	IPod nano	Apple	A1199	YM708A72VQ5	N/A
3	Test Fixture	N/A	N/A	N/A	N/A
4	DC 12V Battery	TRANE	12B50PE	N/A	N/A

Signal Cable Type		Signal cable Description	
А	USB Cable	Shielded, 0.5m	
В	RS-232 Cable	Shielded, 1.5m	
С	Power Cable	Shielded, 0.5m	
D	USB Cable	Shielded, 1m	

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute program "Tera Term v4.67" on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start transmits continually.
- (5) Verify that the EUT works properly.

1.6. Test Facility

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

Ambient conditions in the laboratory:

The related certificate for our laboratories about the test site and management system can be downloaded

from QuieTek Corporation's Web Site: <u>http://www.quietek.com/tw/ctg/cts/accreditations.htm</u> The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site: <u>http://www.quietek.com/</u>

Site Description:	File on
	Federal Communications Commission
	FCC Engineering Laboratory
	7435 Oakland Mills Road
	Columbia, MD 21046
	Registration Number: 92195

Site Name:	Quietek Corporation
Site Address:	No.5-22, Ruishukeng,
	Linkou Dist. New Taipei City 24451,
	Taiwan, R.O.C.
	TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
	E-Mail : <u>service@quietek.com</u>

FCC Accreditation Number: TW1014

2. Peak Power Output

2.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Х	Power Meter	Anritsu	ML2495A/6K00003357	May, 2013
Х	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2013

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

2.2. Test Setup



2.3. Limit

The maximum peak power shall be less 1Watt.

2.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

2.5. Uncertainty

 \pm 1.27 dB

2.6. Test Result of Peak Power Output

Product	:	VP1
Test Item	:	Peak Power Output
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402.00	-1.27	1 Watt= 30 dBm	Pass
Channel 39	2441.00	-1.38	1 Watt= 30 dBm	Pass
Channel 78	2480.00	-1.34	1 Watt= 30 dBm	Pass

Product	:	VP1
Test Item	:	Peak Power Output
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402.00	0.29	1 Watt= 30 dBm	Pass
Channel 39	2441.00	0.14	1 Watt= 30 dBm	Pass
Channel 78	2480.00	0.05	1 Watt= 30 dBm	Pass

3. Radiated Emission

3.1. Test Equipment

The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	Х	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2013
	Х	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
	Х	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
	X Pre-Amplifier		Agilent	8447D/2944A09549	Sep., 2013
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2013
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2013
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Х	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

3.2. Test Setup

Below 1GHz



Above 1GHz



3.3. Limits

➤ General Radiated Emission Limits

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

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

Remarks: 1. RF Voltage $(dB\mu V) = 20 \log RF$ 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.

3.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 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 from 1 meter to 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, 2009 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 on the Final Measurement.

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

3.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz

Product	: VP1					
Test Item	: Harmonic Radiated Emission					
Test Site	: No.3 OATS					
Test Mode	: Mode 1:	Transmit - 1Mbp	os (GFSK)(2402MHz))		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$	
Horizontal						
Peak Detector:						
4804.000	3.327	41.726	45.053	-28.947	74.000	
7206.000	10.136	38.330	48.466	-25.534	74.000	
9608.000	13.706	36.715	50.421	-23.579	74.000	
Average						
Detector:						
Vertical						
Peak Detector:						
4804.000	6.638	41.880	48.517	-25.483	74.000	
7206.000	11.005	38.440	49.445	-24.555	74.000	
9608.000	14.103	37.990	52.093	-21.907	74.000	
Average						
Detector:						

3.6. Test Result of Radiated Emission

- 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	: VP1					
Test Item	: Harmonic Radiated Emission					
Test Site	: No.3 OAT	ſS				
Test Mode	: Mode 1: T	ransmit - 1Mbp	os (GFSK)(2441MHz))		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m	
Horizontal						
Peak Detector:						
4882.000	3.001	40.680	43.681	-30.319	74.000	
7323.000	11.846	36.840	48.687	-25.313	74.000	
9764.000	12.563	37.150	49.713	-24.287	74.000	
Average						
Detector:						
Vertical						
Peak Detector:						
4882.000	5.713	43.990	49.704	-24.296	74.000	
7323.000	12.727	37.680	50.408	-23.592	74.000	
9764.000	13.028	36.590	49.618	-24.382	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	: VP1					
Test Item	: Harmonic Radiated Emission					
Test Site	: No.3 OAT	: No.3 OATS				
Test Mode	: Mode 1: T	ransmit - 1Mbp	os (GFSK)(2480MHz))		
Frequency	Correct	Reading	Measurement	Margin	Limit	
	Factor	Level	Level			
MHz	dB	dBµV	dBµV/m	dB	dBµV/m	
Horizontal						
Peak Detector:						
4960.000	2.760	40.630	43.390	-30.610	74.000	
7440.000	12.567	37.250	49.816	-24.184	74.000	
9920.000	13.456	36.440	49.896	-24.104	74.000	
Average						
Detector:						
Vertical						
Peak Detector:						
4960.000	5.557	42.660	48.217	-25.783	74.000	
7440.000	13.426	37.490	50.915	-23.085	74.000	
9920.000	13.958	37.040	50.998	-23.002	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	: VP1						
Test Item	: Harmonic Radiated Emission						
Test Site	: No.3 OA	: No.3 OATS					
Test Mode	: Mode 2:	Transmit - 3Mbp	os (8DPSK)(2402MHz	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$		
Horizontal							
Peak Detector:							
4804.000	3.327	41.880	45.207	-28.793	74.000		
7206.000	10.136	37.890	48.026	-25.974	74.000		
9608.000	13.706	36.010	49.716	-24.284	74.000		
Average							
Detector:							
Vertical							
Peak Detector:							
4804.000	6.638	42.690	49.327	-24.673	74.000		
7206.000	11.005	37.400	48.405	-25.595	74.000		
9608.000	14.103	36.580	50.683	-23.317	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.

: VP1					
: Harmonic Radiated Emission					
: No.3 OATS					
: Mode 2:	Transmit - 3Mbp	s (8DPSK) (2441MH	z)		
	1		,		
Correct	Reading	Measurement	Margin	Limit	
Factor	Level	Level			
dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$	
3.001	41.870	44.871	-29.129	74.000	
11.846	36.320	48.167	-25.833	74.000	
12.563	37.200	49.763	-24.237	74.000	
5.713	42.980	48.694	-25.306	74.000	
12.727	35.900	48.628	-25.372	74.000	
13.028	36.400	49.428	-24.572	74.000	
	 VP1 Harmon No.3 OA Mode 2: Correct Factor dB 3.001 11.846 12.563 5.713 12.727 13.028 	 VP1 Harmonic Radiated Emiss No.3 OATS Mode 2: Transmit - 3Mbp Correct Reading Factor Level dB dBµV 3.001 41.870 11.846 36.320 12.563 37.200 5.713 42.980 12.727 35.900 13.028 36.400 	 VP1 Harmonic Radiated Emission No.3 OATS Mode 2: Transmit - 3Mbps (8DPSK) (2441MH Correct Reading Measurement Factor Level Level dB dBμV dBμV/m 3.001 41.870 44.871 11.846 36.320 48.167 12.563 37.200 49.763 5.713 42.980 48.694 12.727 35.900 48.628 13.028 36.400 49.428 	: VP1 : Harmonic Radiated Emission : No.3 OATS : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz) Correct Reading Measurement Margin Factor Level Level 1 dB dBµV dBµV/m dB 3.001 41.870 44.871 -29.129 11.846 36.320 48.167 -25.833 12.563 37.200 49.763 -24.237 5.713 42.980 48.694 -25.306 12.727 35.900 48.628 -25.372 13.028 36.400 49.428 -24.572	

- 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	: VP1						
Test Item	: Harmon	: Harmonic Radiated Emission					
Test Site	: No.3 OA	ATS					
Test Mode	: Mode 2:	Transmit - 3Mbp	s (8DPSK) (2480MH	[z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	dBµV/m	dB	dBµV/m		
Horizontal							
Peak Detector:							
4960.000	2.760	38.560	41.320	-32.680	74.000		
7440.000	12.567	36.110	48.676	-25.324	74.000		
9920.000	13.456	36.770	50.226	-23.774	74.000		
Average							
Detector:							
Vertical							
Peak Detector:							
4960.000	5.557	39.650	45.207	-28.793	74.000		
7440.000	13.426	37.150	50.575	-23.425	74.000		
9920.000	13.958	36.590	50.548	-23.452	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	: VP1				
Test Item	: General	Radiated Emissio	n		
Test Site	: No.3 OA	ATS			
Test Mode	: Mode 1:	Transmit - 1Mbp	s (GFSK) (2441MHz	z)	
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
115.360	-8.770	41.035	32.265	-11.235	43.500
239.520	-6.851	40.509	33.659	-12.341	46.000
449.040	-2.238	40.484	38.246	-7.754	46.000
559.620	1.664	33.448	35.112	-10.888	46.000
720.640	3.511	34.056	37.567	-8.433	46.000
881.660	6.307	33.522	39.829	-6.171	46.000
961.200	6.450	31.678	38.128	-15.872	54.000
Vertical					
97.900	-1.400	30.321	28.920	-14.580	43.500
239.520	-8.581	39.342	30.762	-15.238	46.000
319.060	-6.897	46.837	39.940	-6.060	46.000
480.080	-4.359	46.541	42.182	-3.818	46.000
720.640	-0.099	31.059	30.960	-15.040	46.000
961.200	7.260	27.670	34.930	-19.070	54.000

- 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.

Product Test Item Test Site Test Mode	: VP1 : General : No.3 O : Mode 2	Radiated Emissic ATS : Transmit - 3Mbp	on os (8DPSK) (2441MH	[z)	
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	$dB\mu V/m$	dB	dBµV/m
Horizontal					
239.520	-6.851	39.342	32.492	-13.508	46.000
365.620	-1.329	41.285	39.956	-6.044	46.000
435.460	-1.920	41.667	39.747	-6.253	46.000
604.240	4.770	27.057	31.827	-14.173	46.000
720.640	3.511	33.363	36.874	-9.126	46.000
881.660	6.307	30.537	36.844	-9.156	46.000
Vertical					
107.600	-0.318	29.399	29.081	-14.419	43.500
274.440	-8.718	35.666	26.948	-19.052	46.000
365.620	-2.179	41.285	39.106	-6.894	46.000
515.000	-1.090	33.551	32.461	-13.539	46.000
720.640	-0.099	33.363	33.264	-12.736	46.000
961.200	7.260	28.634	35.894	-18.106	54.000

- 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.

4. **RF Antenna Conducted Test**

4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note: 1. All equipments are calibrated every one year.

2. The test instruments Marked "X" are used to measure the final test results.

4.2. Test Setup



4.3. 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.

4.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

4.5. Uncertainty

± 150Hz

4.6. Test Result of RF Antenna Conducted Test

Product	:	VP1
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Figure Channel 00:



:	VP1
:	RF Antenna Conducted Test
:	No.3 OATS
:	Mode 1: Transmit - 1Mbps (GFSK)
	:

Figure Channel 39:



Product	:	VP1
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Figure Channel 78:



Product	:	VP1
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Figure Channel 00:



Product	:	VP1
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Figure Channel 39:



Product	:	VP1
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Figure Channel 78:



5. Band Edge

5.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

RF Radiated Measurement:

The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
	X Pre-Amplifier		Agilent	8447D/2944A09549	Sep., 2013
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2013
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2013
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Χ	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note:

1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



5.3. 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)).

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 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: 2009.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

5.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz

5.6. Test Result of Band Edge

Product	:	VP1
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Fundamental Filed Strength

Antenna	Frequency	Correction Factor	Reading Level	Emission Level	Detector
Pole	[MHz]	[dB/m]	[dBµV]	[dBµV/m]	
Horizontal	2402	31.573	63.329	94.903	Peak
Horizontal	2402	31.573	52.027	83.601	Average
Vertical	2402	30.917	64.24	95.157	Peak
Vertical	2402	30.917	52.762	83.679	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBµV/m)	Δ (dB)	Band Edge Field Strength (dBµV/m)	Limit (dBµV/m)	Detector
Horizontal	2373.2	94.903	39.78	55.123	74.000	Peak
Horizontal	2387.7	83.601	43.64	39.961	54.000	Average
Vertical	2373.2	95.157	39.78	55.377	74.000	Peak
Vertical	2387.7	83.679	43.64	40.039	54.000	Average

Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements

per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

 Δ = Conducted Band Edge Delta (Peak or Average)

Agilen	t Spec	trum A	nalyzer -	Swept S	A										
Cen	ter F	R Freq	5 F 2.390	οΩ A 0000	c 00 Gł	Ηz		SEN	NSE:INT	A	vg Type	ALIGNAUTO : Log-Pwr	04:52:42	PM Oct 21, 2013 CE 1 2 3 4 5 6	Frequency
10 di	Bidiv	Re	f Offset	10 dB	р F n	NO: Fast Gain:Low	╺ ,	Atten: 20	dB			Mk	(r3 2.37 -44.	3 2 GHz 86 dBm	Auto Tune
Log 0.00 -10.0 -20.0										Å	1				Center Freq 2.39000000 GHz
-30.0 -40.0 -50.0		el-rectifier#	ter and	*******	and and a state of the state of	3			2		-	and the second	legeneration	and years	Start Freq 2.340000000 GHz
-60.0 -70.0 -80.0															Stop Freq 2.440000000 GHz
Cen #Re:	ter 2 s BW	.390 / 1.0	00 GH: MHz	Z	~	#VI	3W 1.0	0 MHz				#Sweep	Span 1 500 ms (00.0 MHz (1001 pts)	CF Step 10.000000 MHz Auto Man
1 2 3 4 5 6 7 8 9 10 11 12		1 f 1 f 1 f			× 2.401 2.390 2.373	8 GHz 0 GHz 2 GHz	4	<u>5.08 dE</u> 17.70 dE 14.86 dE	3m 3m 3m				FUNCTI		Freq Offset 0 Hz
MSG												STATUS	5		

Peak Detector of conducted Band Edge Delta

Average Detector of conducted Band Edge Delta

Agilent Spect	rum Analyzer - S	wept SA						
Center F	RF 50 Freq 2.3900	Ω AC	SENSE:I	NT Avg Ty	ALIGNAUTO pe: Log-Pwr	04:52:06 PM O TRACE 1	ct21,2013 23456	Frequency
10 dB/div	Ref Offset 1 Ref 10.00	PNO: Fast IFGain:Low 10 dB 1 dBm	, #Atten: 20 dE	n }	Mk	(r3 2.387 7 -59.19	GHz dBm	Auto Tune
-10.0								Center Freq 2.390000000 GHz
-30.0			3,2					Start Freq 2.340000000 GHz
-60.0 -70.0 -80.0								Stop Freq 2.440000000 GHz
Center 2 #Res BW	.39000 GHz 1.0 MHz	#V	BW 10 Hz	SUNCTION 1	Sweep	Span 100 5 7.80 s (10	.0 MHz 01 pts)	CF Step 10.000000 MHz Auto Man
MR8 MoDel 1 N 2 N 3 N 4 5 6 7 7 8 9 10 11 12	RC SCL 1 f 1 f 1 f 	2,402 0 GHz 2,390 0 GHz 2,387 7 GHz	-15.55 dBm -59.23 dBm -59.19 dBm			FUNCTION VA		Freq Offset 0 Hz
MSG					STATUS	3		

Product	:	VP1
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBµV]	Emission Level [dB(uV/m)]	Detector
Horizontal	2480	32.155	64.561	96.717	Peak
Horizontal	2480	32.155	53.029	85.185	Average
Vertical	2480	31.412	63.791	95.203	Peak
Vertical	2480	31.412	52.558	83.97	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBµV/m)	Δ (dB)	Band Edge Field Strength (dBµV/m)	Limit (dBµV/m)	Detector
Horizontal	2485.2	96.717	40.48	56.237	74.000	Peak
Horizontal	2483.5	85.185	43.31	41.875	54.000	Average
Vertical	2485.2	95.203	40.48	54.723	74.000	Peak
Vertical	2483.5	83.97	43.31	40.66	54.000	Average

Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements

per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)

 Δ = Conducted Band Edge Delta (Peak or Average)

Agilent S	pectrum A	nalyzer - Sw	ept SA						0			
LXI RL Cente	r Fred	F 50 Ω		7		SENSE:	NT	Avg Ty	ALIGNAUTO	05:14:56 F TRAC	M Oct 21, 2013 E 1 2 3 4 5 6	Frequency
	Re	of Offset 10	PI IF(NO: Fast 🕞 Gain:Low	J' Trig: Free Run #Atten: 20 dB				Mk	(r3 2.48		Auto Tune
10 dB/d Log 0.00	liv R	ef 10.00 (dBm			1				-45.	63 dBm	Center Fred
-10.0					Ĕ							2.483500000 GHz
-30.0	ang The state and a supply the	-	al and an of the state of the s	(LELU) hadrodamanju			3	and the feel and the		armali der der bierande	harmana	Start Freq 2.433500000 GHz
-60.0												Stop Freq 2.533500000 GHz
Center #Res I	r 2.483 3W 1.0	50 GHz MHz		#VBW	/ 1.0 MI	Hz			#Sweep	Span 1 500 ms (00.0 MHz 1001 pts)	CF Step 10.000000 MHz Auto Man
1 N 2 N 3 N 4 5 6	1 f 1 f 1 f		2.479 2.483 2.485	8 GHz 5 GHz 2 GHz	-5.14 -47.00 -45.63	dBm dBm dBm	FUN			FUNCTIO		Freq Offset 0 Hz
7 8 9 10 11 12												
MSG									STATUS	5		

Peak Detector of conducted Band Edge Delta

Average Detector of conducted Band Edge Delta

Agiler	nt Spe	ctru	m An	alyzer - Sw	ept SA									
IXI R Cer	ter	Fre	RF eq (^{50 Ω} 2.4835(AC 00000 GI	Ηz			Avg	/ Type:	LIGN AUTO Log-Pwr	05:14:24F TRAC	M Oct 21, 2013	Frequency
10 d	B/div		Ref Ref	Offset 10	I dB d B m	NO: Fast (Gain:Low	#Atten: 2	0 dB			Mk	r2 2.48: -58.	3 5 GHz 95 dBm	Auto Tune
Log 0.00 -10.0 -20.0														Center Freq 2.483500000 GHz
-30.0 -40.0 -50.0								2-						Start Freq 2.433500000 GHz
-60.0 -70.0 -80.0														Stop Freq 2.533500000 GHz
Cen #Re	ter: sB)	2.43 N 1	835 .0 [0 GHz ViHz	~	#VB	SW 10 Hz			I FUM	Sweep	Span 1 7.80 s (00.0 MHz 1001 pts)	CF Step 10.000000 MHz Auto Man
1 2 3 4 5 6 7 8 9 10 11 12					2.480 2.483	0 GHz 5 GHz	-15.64 dt -58.95 dt	Bm Bm I I I I I I I I I I I I I I I I I	FUNCTION			FUNCTIO		Freq Offset 0 Hz
MSG											STATUS			

Product	:	VP1
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBµV]	Emission Level [dBµV/m]	Detector
Horizontal	2402	31.573	59.826	91.400	Peak
Horizontal	2402	31.573	47.966	79.540	Average
Vertical	2402	30.917	61.677	92.594	Peak
Vertical	2402	30.917	49.287	80.204	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBµV/m)	Δ (dB)	Band Edge Field Strength (dBµV/m)	Limit (dBµV/m)	Detector
Horizontal	2388.1	91.400	43.58	47.820	74.000	Peak
Horizontal	2387.8	79.540	43.28	36.260	54.000	Average
Vertical	2388.1	92.594	43.58	49.014	74.000	Peak
Vertical	2387.8	80.204	43.28	36.924	54.000	Average

Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)

 Δ = Conducted Band Edge Delta (Peak or Average)

Agilent Spec	trum Analyzer	- Swept SA									
(X) RL Center	RF Freq 2 30	50Ω AC		SEN:	SE:INT	Ava	.≜ Tvpe:	LIGNAUTO	10:04:46 / TRA	MOct 22, 2013	Frequency
Center	rieq 2.55	P IF	NO: Fast 🕞 Gain:Low	Trig: Free #Atten: 20	Run dB		.,,		TYI D		
10 dB/div	Ref Offs Ref 10.	et 10 dB 00 dBm						Mk	r3 2.38 -45.	8 1 GHz 84 dBm	Auto Tune
-10.00											Center Freq 2.390000000 GHz
-30.0 -40.0 -50.0	Herberger gerander	Bunder Antoin Antoin	and a second second second	3	2		يو اور اور و	چەرمەرمىيىتىكى مەرمەرىمى مەرمەرمىيىتىكى مەرمەرىمىيى	outorizon	an the states and	Start Freq 2.340000000 GHz
-60.0 -70.0 -80.0											Stop Freq 2.44000000 GHz
Center 2 #Res BV	2.39000 GH V 1.0 MHz	łz	#VBW	/ 1.0 MHz				#Sweep	Span 1 500 ms (00.0 MHz 1001 pts)	CF Step 10.000000 MHz
MKR MODE 1 N 2 N 3 N 4 5 6 7 8 9	TRC SCL 1 f 1 f 1 f 1 f 1 f 1 f 1 f 1 f 1 f	2.402 2.390 2.388	0 GHz 0 GHz 1 GHz	-2.26 dB -48.47 dB -45.84 dB	m m m m				FUNCTIO		Freq Offset 0 Hz
10 11 12 MSG								STATUS			

Peak Detector of conducted Band Edge Delta

Average Detector of conducted Band Edge Delta

Agilent S	pectrum	Anal	yzer - Swe	pt SA												
Cente	er Fre	RF q 2 .	50 Ω .39000	AC 0000 G	Hz			VSE:IN	NT	Avş	g Type	ALIGNAUTO : Log-Pwr	10:04:1 Tf	1 AM Oct 22, 201	6	Frequency
10 dB/	PN0: Fast Trig: Free Run PRO: Fast Free Run PRO: Fa										Auto Tune					
Log - 0.00 - -10.0 - -20.0 -																Center Freq 2.390000000 GHz
-30.0 -40.0 -50.0							3	8-2-								Start Freq 2.340000000 GHz
-60.0 -70.0 -80.0			ni					¥								Stop Freq 2.440000000 GHz
Cente #Res	r 2.39 BW 1.	000 0 M	GHz Hz		#\	/BW	10 Hz		20010			Sweep	Span 5 7.80 s	100.0 MH s (1001 pts	Z ;)	CF Step 10.000000 MHz Auto Man
1 N 2 N 3 N 4 5 6 7 8 9				× 2.40 2.39 2.38	2 0 GHz 0 0 GHz 7 8 GHz		-15.99 dE -59.30 dE -59.27 dE	3m 3m 3m	FUNC	TION			FUNC			Freq Offset 0 Hz
10 11 12 MSG												STATUS	5			

QuieTek

:	VP1
:	Band Edge
:	No.3 OATS
:	Mode 2: Transmit - 3Mbps (8DPSK)
	:

Fundamental Filed Strength

Antenna	Frequency	Correction Factor	Reading Level	Emission Level	Detector
Pole	[MHz]	[dB/m]	[dBµV]	[dB(uV/m)]	
Horizontal	2480	32.155	61.669	93.825	Peak
Horizontal	2480	32.155	49.319	81.475	Average
Vertical	2480	31.412	60.869	92.281	Peak
Vertical	2480	31.412	48.679	80.091	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBµV/m)	Δ (dB)	Band Edge Field Strength (dBµV/m)	Limit (dBµV/m)	Detector
Horizontal	2484.2	93.825	52.13	41.695	74.000	Peak
Horizontal	2483.5	81.475	49.05	32.425	54.000	Average
Vertical	2484.2	92.281	52.13	40.151	74.000	Peak
Vertical	2483.5	80.091	49.05	31.041	54.000	Average

Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

 Δ = Conducted Band Edge Delta (Peak or Average)

Agilen	t Speci	trum A	nalvzer - S	wept S	A			-							-		
LXI RI		F	F 50	Ω AO	5				SENS	E:INT			ALIGN AUTO	10:22:49	AM Oct 22, 2013		
Cen	ter F	req	2.483	5000	00 GH	z					Avg	Туре	: Log-Pwr	TRA	CE 1 2 3 4 5 6	Frequ	ency
L					PI	NO: Fast	Ţ	Trig: F	reel	Run				TY	PEM WWWWWW		
	IFGain:Low								. 10	ab						<u>م</u> .	to Tune
		R	of Offset	10 dB									Mł	(r3 2.48	4 2 GHz	Au	
10 de	3/div	R	ef 10.00) dBn	n									-54.	48 dBm		
Log									1								
0.00								$- \times$	-							Cen	ter Freq
-10.0								-P			_					2.483500	0000 GHz
-20.0																	
20.0																	
-30.0																St	art Freg
-40.0									++		-					2 / 3350	
-50.0								-	_/	3	_					2.40000	0000 0112
CO 0	marine	L.	Case from the	man	Marthan Marthan	minera	-	al a	Y	www.	an an an an an		and the second second	angeneration and			
-00.0																6	on From
-70.0									-		-					51	opried
-80.0							_		-+		_					2.533500	0000 GHz
Cen	ter 2	.483	50 GHz											Span 1	100.0 MHz		CE Ston
#Re	s BN	<i>i</i> 1.0	MHz			#VE	3W 1	.0 MI	ΗZ				#Sweep	500 ms ((1001 pts)	10.000	0000 MHz
MKBL	MODEL	tect si	1		x			Y		FIII	NCTION	I FUN	ICTION WIDTH	FUNCTI	N VALLIE	Auto	Man
1	N	1 f			2.480	0 GHz		-2.35	dBr	n							
2	N	1 f			2.483	5 GHz		-55.15	dBr	n							
3	N	<u>1 f</u>	·		2.484 :	2 GHz		-54.48	dBr	n						Fre	qOffset
4			+														0 Hz
6																	
7		_										-					
9		-	+														
10																	
11		_															
												1					
MSG													STATUS	5			

Peak Detector of conducted Band Edge Delta

Average Detector of conducted Band Edge Delta

Agilent Spect	rum Analyzer -	Swept SA								
Center F	RF 5	ο Ω AC 500000 GHz		SEN	SE:INT	Avg T	ALIGN AUTO ype: Log-Pwr	10:22:16/ TRA	MOct 22, 2013 CE 1 2 3 4 5 6	Frequency
	PNU: Fast U Ing.: 10 dB Det Official de Mkr2 2.483 5 GHZ									
10 dB/div	Ref Unset Ref 10.0	0 dBm						-66.	99 dBm	
0.00										Center Freq
-10.0				<u> 0</u> 1						2.483500000 GHz
-20.0				\wedge						
-40.0		_					_			Start Freq
-50.0					•					2.433500000 GH2
-60.0					2—					Stop Freg
-80.0										2.533500000 GHz
Center 2	48350 GH	7						Snan 1	00.0 MHz	
#Res BW	1.0 MHz	2	#VBV	V 10 Hz			Swee	p 7.80 s (1001 pts)	CF Step 10.000000 MHz
MKR MODE T	RC SCL	X 2.490.0.0		Y 17.04 dB		UNCTION	FUNCTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> Man
2 N 1	f	2.480 0 0	GHz	-66.99 dB	m					Erog Offect
4			_		_					0 Hz
6 7										
8					_					
10			_		_					
MSG			1				STATU	s		

6. Channel Number

6.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup



6.3. Limit

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

6.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

6.5. Uncertainty

N/A

6.6. Test Result of Channel Number

VP1
Channel Number
No.3 OATS
Mode 1: Transmit - 1Mbps (GFSK)

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

2402-2421MHz

2422-2441MHz

Agilant Spectrum Analyzer - Swept SA		Agilent Spectrum Analyzer - Swept SA
AL 19 50.8 AC SEPRE 017 ALIONAUTO 0521369400c121,2013 Center Freq 2.411500000 GHz Tris Free Bun Tris	Frequency	AL 1F 50.0 AC 55765.011 ALSONATO 0529.07FM 0c121,2013 Center Freq 2.431500000 GHz Trig Free Bun Trig
Contract or Anter: 20 dB Contract or	Auto Tune	Ref Offset 10 dB Mitten: 20 dB MkTen: 20 dB MkTen: 20 dB Auto T 10 dB/div Ref 10.00 dB -5.55 dB Auto T
	Center Freq 2.411500000 GHz	Log 01 Center / 2.431500000
	Start Freq 2.401500000 GHz	-300
400	Stop Freq 2.421600000 GHz	400
Start 2.40150 GHz Stop 2.42150 GHz #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts)	CF Step 2.000000 MHz Auto Man	Start 2.42150 GHz Stop 2.44150 GHz CF 8 #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts)
International line leaf	Freq Offset 0 Hz	Max Max Max Max Max 1 N 1 f 2.422.00 GHz 5.61 dBm Feedbackston Feedbackston Feedbackston Freq OI 3
		9

2442-2461MHz

2462-2480MHz

Avg Type: Log-Pwr	05:30:34PM Oct 21, 2013 TRACE 1 2 3 4 5 6	Frequency	Center Freq 2.471500000	GHz Televise	Avg Type: Log-Pwr	05:52:42PM Oct 21, 2013 18ACE 1 2 3 4 5 6	Frequency
Mk	r2 2.461 00 GHz -4.16 dBm	Auto Tune	Ref Offset 10 dB	IFGain:Low #Atten: 20 d	Mk	r2 2.480 00 GHz -4.43 dBm	Auto Tune
www	www	Center Freq 2.451500000 GHz		www	www		Center Fred 2.471500000 GHz
		Start Freq 2.441500000 GHz	-30.0 -80.0 -50.0			4	Start Fred 2.461500000 GH:
		Stop Freq 2.461500000 GHz	-60.0 -70.0 -80.0				Stop Free 2.481500000 GH:
sweep	Stop 2.46150 GHz 2.47 ms (1001 pts)	CF Step 2.000000 MHz	Start 2.46150 GHz #Res BW 100 kHz	#VBW 100 kHz	Sweep	Stop 2.48150 GHz 2.47 ms (1001 pts)	CF Step 2.000000 MH
FUNCTION FUNCTION WIDTH Bm Bm	FUNCTION VALUE	Auto Man	N f 2.4 2 N f 2.4	2 00 GHz	FUNCTION FUNCTION WIDTH	PUNCTION VALUE	Auto Mar
		0 Hz	4 5 6				0 H:
			7 8 9 10 11 12				
	Arg Type: Log-Awr 20 dB Mk	Avg type:Log-Avr 20 dB MKr2 2:461 00 GHz -4.16 dBm 5 dB Stop 2:46150 GHz tz Stop 2:46150 GHz 5 dbm 100 gHz 2:47 Stop 2:46150 GHz 2:47 Stop 2:46150 GHz 2:47 ms (1001 pts) 6 dbm 100 gHz 2:47 ms (1001 pts)	Avg Type: Log-Avr 20 dB Mkr2 2.461 00 GHz -4. 16 dBm Center Freq 2.45150000 GHz 2.45150000 GHz 2.45150000 GHz 2.4150000 GHz 2.45150000 GHz 2.00000 Mz 2.00000 Mz 2.00000 Mz	Avg type:LogAver boots Mark 2: 2:46100 GHz -4.16 dBm Center Freq 2:45150000 GHz Center Freq 0:00 Center Freq 0:00	Areg type:Logdwr Mark 12 2:4 6 5 Creater Freg 2.47150000 GHz Trig. Free R 30 dB Mkr2 2:461 00 GHz Auto Tune Ref offset 10 dB Trig. Free R 4.16 dBm Center Freg 1 Center Freg 1 Center Freg Trig. Free R 2.45150000 GHz Start Freg 300 0	Arg Type: Log dwr Mag Type: Log dwr	Avg type:LogAver Mvd [] 2 3 4 6 6 (ref) Avg type:LogAver Mvd [] 2 3 4 6 6 (ref) Mvd [] 2 4 6 6 (ref) Mvd [] 2 4 6 6 (ref)

Product	:	VP1
Test Item	:	Channel Number
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

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

2402-2421MHz

2422-2441MHz

Agilent Spectrum Analyzer - Swept SA		Agilent Spectrum Analyzer - Swept SA
AL IF SO @ AC SEP(E:DIT) ALISVAUTO 1032:164M0ct 22, 2013 Center Freq 2.411500000 GHz Trie Free Run Avg Type: Log-Pwr 1982:164M0ct 22, 2013	Frequency	AL NF 50.0 AC StP/SE INT ALS/NAUTO 10.39/02 AMORT22, 2013 Frequency Center Freq 2.431500000 GHz Tder Free Run Avg Type: Log-Pwr Tmax [1:2:3:4:5:6 Frequency
IFGainLow #Atten: 10 dB Mk-2 2 421 00 CH	Auto Tune	IFGainLow SAtten: 10 dB DECEMBER 2 441 DO CHI
Ref Offset 10 dB 42.6 dBm -4.26 dBm -4.26 dBm		Ref Offset 10 dB
¹⁰⁰ ¹⁰⁰ ²⁰⁰	Center Freq 2.411500000 GHz	0 00 1 Center Fre 100 20
100	Start Freq 2.401500000 GHz	300 Start Fre 400 Z421500000 GH
400	Stop Freq 2.421500000 GHz	400 Stop Fre 700 2.441500000 GH
Start 2.40150 GHz Stop 2.42150 GHz #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts)	CF Step 2.000000 MHz	Start 2.42150 GHz Stop 2.44150 GHz CF Ste #Res BW 100 kHz \$\$Weep 2.47 ms (1001 pts) 2.000000 MHz
Vinz Model TRE 50 X V Punction Punction Punction value 1 N f 2.402.00.GHz -3.88 dBm Punction value 2 N f 2.402.00.GHz -4.26 dBm	Eren Offent	Implementation X Y Partition Full tion width Full tion wi
4 5 6	0 Hz	4 0H 6 0H
7		7
MISG STATUS		12

2442-2461MHz

2462-2480MHz

Agilant Spectrum Analyzer - Swept SA		Agilent Spectrum Analyzer - Swept SA
AL IF SOB AC SERVE DIT AUXIMUTO 10.4121 AM CC 22,201 Center Freq 2.451500000 GHz Avg Type: Log-Pwr TRACE 12.3.45 Tric: Free Run	Frequency	AL IF SD # AC SEPSE INT AUSNAUTO 10:44:24:AR0ct22,2013 Frequency Center Freq 2.471500000 GHz Avg Type: Log-Pwr TMACE [1:2:4:56 Frequency
Price Fast Price Fast Antien: 10 dB Mkr2 2.461 00 GH 10 dB/dr Pri 10 00 Bm3.21 dBm3.21 dBm	Auto Tune	Precision Concerning Aftern: 10 dB configuration President Concerning Aftern: 10 dB configuration President Concerning Aftern: 10 dB Mkr2 2.480 00 GHz Auto Tunk 10 dB/dk Ref 10 00 dBm - 3.88 dBm
	Center Freq 2.451500000 GHz	Cog 2
200	Start Freq 2.441500000 GHz	000 300 300 300 300 300 300 300 300 300
40.0	Stop Freq 2.461500000 GHz	400 Stop Free 2.48150000 GHz
Start 2.44150 GHz Stop 2.46150 GH: #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts	CF Step 2.000000 MHz	Start 2.46150 GHz Stop 2.48150 GHz CF Step #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts)
Image: Sec action 1 N Image: Sec action 100x100x10010 100x100x10010 N I P 2.442.00 GHz -7.65 dBm 3 1 100x100x10010 100x100	Freq Offset 0 Hz	International and the state And the state
7		7
MSG STATUS		MSG STATUS

7. Channel Separation

7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note: 1. All equipments are calibrated every one year.

2. The test instruments mark by "X" are used to measure the final test results.

7.2. Test Setup



7.3. 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.

7.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

7.5. Uncertainty

± 150Hz

7.6. Test Result of Channel Separation

Product	:	VP1
Test Item	:	Channel Separation
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

	Fraguanay	Measurement	Limit	Limit of (2/3)*20dB	
Channel No.	(MHz)	Level	(1-11-2)	Don druidth (1-11-)	Result
		(kHz)	(кпz)	Bandwidun (KFIZ)	
00	2402	1000	>25 kHz	753.3	Pass
39	2441	1000	>25 kHz	753.3	Pass
78	2480	1000	>25 kHz	753.3	Pass

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

_														
Agilen	t Spe	ctrur	n Ana	alyzer - Swej	pt SA									
LXI RI	L		RF	50 Ω	AC		SE	NSE:INT			ALIGN AUTO	04:57:43	PM Oct 21, 2013	Frequency
Cen	ter	Fre	q 2	2.40200	0000 GH	z	THEFT		Avg T	Type	: Log-Pwr	TRA	CE 1 2 3 4 5 6	Frequency
					PN	lO:Wide ⊂ Sainul auu	₽ Ing:Fre #Atten:2	e Kun ∩dB				1	DET P N N N N N	
					IFC	sain:Low	#Atten: 2	040						Auto Tune
			Ref	Offset 10	dB						Mkr	22.403	00 GHz	Auto Tune
10 di	B/div	1	Ref	10.00 d	Bm							-5.	25 dBm	
Log								<u></u> ∦1	2					
0.00							~		1 .					Center Freq
-10.0							+	$\left \gamma \right \neq f$						2.402000000 GHz
-20.0														
20.0								1	$ \chi$					
-30.0										$\langle \rangle$				Start Freq
-40.0									-					2 39700000 CHz
-50.0							/ ×		_	v	\			2.037000000 0112
60.0			-	man and and and and and and and and and a	ميليد مار مدرسول	an marken of					Wederrych	and the second	- un her on when at	
-00.0														Stop From
-70.0										-				StopFrey
-80.0									-					2.407000000 GHz
Cen	ter :	2.40)20	00 GHz								Span	10.00 MHz	CE Sten
#Re	s Bl	W 1	00	kHz		#VB	W 100 kHz				#Sweep	500 ms	(1001 pts)	1.000000 MHz
MKB	MIDE	TRC	SCI		X		Y	FLIN	ICTION 1	ELIN	CTION WIDTH	FINCT		Auto Man
1	N	1	f		2,402.00	0 GHz	-4.68 d	Bm						
2	N	1	f		2.403 00	0 GHz	-5.25 d	Bm						
3														Freq Offset
4														0 Hz
6														
7														
8		_												
10														
11														
12														
MSG											STATUS	5		

Channel 00 2402MHz



_																					
Agiler	nt Spe	ctru	m An	alyzei	r - Swe	ept Si	A														
l,XI R	L		RF		50 Ω	AC					S	ENSE:	INT			ALIGN AUTO	05:12:5	51 PM	Oct 21, 2013		Frequency
Cen	nter	Fre	eq	2.44	1100	00	00 G	iHz	Z]	_		Avg	Туре	: Log-Pwr	т	RACE	123456		Frequency
								PNO): Wide	• 🖵	Trig: Fro	e Ru	un S					DET	PNNNN		
								FGa	in:Lov	v	#Atten.	20 00	<u> </u>								
			Dof	Offe	of 10	ᄱ										Mkr	2 2.44	2 ()0 GHz		Autorune
10 d	B/div	,	Re	f 10	.00 c	iBn	n										-4	4.7	2 dBm		
Lõg			1			<u> </u>						1		2							
0.00			_			<u> </u>		+				⊕'		● <u>²</u>				_			Center Fred
10.0											ſ	Ť٦	~	1							0.444000000 CU-
-10.0											}		$\langle f \rangle$								2.441000000 GHZ
-20.0						-						+						-			
-30.0			_									_		1							
40.0															1						Start Freq
-40.0										1	\checkmark				~~	1					2.436000000 GHz
-50.0						-			الرو	mt		+		-		Mari		-			
-60.0	ماهنيها	(Vinder)	renters	nother a	-narrande	ween	, il nutration	-	he lakes P			_				and the second s	and the second	share	monore	li-	
70.0																					Stop Freq
-70.0																					2 44600000 GHz
-80.0						-						+		-				-			2.44000000000112
Cen	iter	2.44	410	00 0	GHz												Spar	<mark>ו 1</mark> 0	.00 MHz		CF Step
#Re	s Bl	N 1	00	kHz					#V	'ΒW	100 kH	z				#Sweep	500 m	s (1	001 pts)		1.000000 MHz
MKB	MODE	TRC	l sci				x				Y		FUN	TION	I FUN	ICTION WIDTH	FLING	TION	VALUE	A	uto Man
1	Ν	1	f				2.441	00	GHz		-4.66 (IBm								-	
2	N	1	f				2.442	00	GHz		-4.72 (IBm									
3																					Freq Offset
4																					0 Hz
ő																					
7																					
8																					
10																					
11																					
12														_							
MSG																STATUS	3				
																SIAIO					

Channel 39 2441MHz

Channel 78 2480 MHz

Agiler	nt Spe	ctrur	n Ana	alyzer - S	Swept	SA														
w∥ Cer	L nter	Fre	RF Pq 2	50 2.480	⊡Ω 000	AC 000	GH	lz		S Trias Fr	ENSE:IN	IT	Avg	Туре	ALIGNAUTO : Log-Pwr	05:19	TRACE	Oct 21, 2013 1 2 3 4 5 6	F	requency
10 d	B/div	,	Ref Ref	Offset 7	10 dl	B Sm	PN IFC	IO: Wid Gain:Lo	le (w	#Atten::	20 dB	•			Mkr	1 2.47	79 0 -5.54	^{P NNNNN} 0 GHz 4 dBm		Auto Tune
Log 0.00 -10.0 -20.0											2								2.4	Center Freq 80000000 GHz
-30.0 -40.0 -50.0				eron tobe dama		w. tree	-w						Inderes	With the second	and all of the second second			ha da natir an ad la cal	2.4	Start Freq 75000000 GHz
-60.0 -70.0 -80.0																			2.4	Stop Freq 85000000 GHz
Cen #Re	nter : s B1	2.48 N 1	300 00 501	00 GH kHz	Z	×		#\	vbw	100 kH	z	FUNC	TION	FUN	#Sweep	Spar 500 m	n 10. 1s (10	.00 MHz 001 pts) /4LUE	Auto	CF Step 1.000000 MHz Man
1 2 3 4 5 6 7 8 9 10 11 11	N N		f			2.4	79 00	0 GHz 0 GHz		-5.54 (-5.49 (dBm dBm									Freq Offset 0 Hz
MSG															STATU	S				

Product	:	VP1
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.	(MHz)	Level	(1-11-)	Danderridth (hII-)	Result
	(MITZ)	(kHz)	(KHZ)	Bandwidth (KHZ)	
00	2402	1000	>25 kHz	940.0	Pass
39	2441	1000	>25 kHz	940.0	Pass
78	2480	1000	>25 kHz	940.0	Pass

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

Channel 00 2402MHz

Agilent Sp	ectrum A	nalyzer - Swe	ept SA								
(X/ RL Centei	r Freq	^{ε 50 Ω}	AC 10000 GH	łz			Avg Typ	ALIGNAUTO e: Log-Pwr	10:10:38 A TRAC	MOct 22, 2013	Frequency
10 dB/di	Re iv R e	ef Offset 10 ef 10.00 c	dB iBm	10: Wide ⊆ Gain:Low	#Atten: 20) dB		Mkı	2 2.403 -3.	00 GHz 97 dBm	Auto Tune
-10.0						1 ^	2				Center Freq 2.402000000 GHz
-30.0 — -40.0 — -50.0 —				~~~				m.			Start Freq 2.397000000 GHz
-60.0	-J*(<u>1999</u> -9	4								<u>u#-/}************************************</u>	Stop Freq 2.407000000 GHz
Center #Res B	* 2.402 3W 100	000 GHz) kHz	×	#VB	W 100 kHz	FIL		#Sweep	Span 1 500 ms (0.00 MHz 1001 pts)	CF Step 1.000000 MHz <u>Auto</u> Man
1 N 2 N 3 4 5 6 7 8 9 10			2.402 0 2.403 0	0 GHz 0 GHz	-3.90 dE -3.97 dE	3m 3m 					Freq Offset 0 Hz
11 12 MSG								STATU	5		



Agilent	t Spec	ctrun	n Ana	alyzer	- Swe	pt S	l																	
LXI RL	L	_	RF		50 Ω	AC					-	SE	NSE:IN	T	Δ.,	a Typ	ALIGN A	UTO	10:20	49 A	MOct 22	,2013		Frequency
Cen	ter	Fre	ed ₹	2.44	100	00	00 6	PNC	Z): Wid	le 🕞	J Tri	ig: Fre	e Run	ı	Av	g i ypi	5. LUG-1	- WI		TYP	EMWA			
								IFGa	ain:Lo	w	#A	tten: 1	0 dB							DE	TPNN	NNN		
			Ref	Offse	et 10	dB											r	<u> Vikr</u>	2 2.44	12	00 G	Hz		AutoTune
10 dE Log	B/div		Ret	10.0	00 d	IBN	1						4		T		-		-	·+. (50 u	DIII		
0.00								_				(₽-		• <u>^</u>									Center Free
-10.0												and the	\mathcal{M}	~~~w	<u> </u>	<u> </u>								2.441000000 GH
-20.0								_																
-30.0																							ľ	
-40 N																								Start Free
50.0									5	ym	1					<u> </u>	$h \wedge$	۱.						2.436000000 GH;
-00.0								ď	\sum									1						
-6U.U	all second	Under		-	wind	who we	in Province		- X										maring	www.uhu	marcul	war		Stop Free
-70.0																								2 44600000 GH
-80.0								+							<u> </u>					_				2.440000000 011
Cent	ter 3	2 44	10	00 G	H7								-		-				Sna	n 1	0 00 1	MHZ	╟	
#Res	s BV	N 1	00	kHz					#\	VBW	100) kHz					#Swe	eep	500 m	s (1001	pts)	1	CF Step
MKBLN	MODE	TBC	SEL				×					Y		FIIN	TION	EIR	JETION W	/INTH	FLIN	, min	N VALLIE	. /	A	Auto Mar
1	N	1	f				2.441	00	GHz		-4	1.15 dl	Bm	TON	arron		teriort w			ene	ITWAEDE		IF	
2	Ν	1	f				2.442	2 00	GHz		-	1.08 dl	Bm			-						_		Ere # Offee
4																								Frequise
5		_														-						_		0 H2
7																								
8		_														-						_		
10																								
11			_													-						-		
MSC																		TATI						
Mag																	a	in allos	'					

Channel 39 2441MHz

Channel 78 2480 MHz

Agilent Spect	rum Analyzer - Swi	ept SA							
w∥ ⊪∟ Center F	RF 50 Ω	AC	SENS	BE:INT	Avg Type	ALIGNAUTO : Log-Pwr	10:29:57 A TRAC	MOct 22, 2013 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 10 Ref 10.00 (PNO: Wide IFGain:Lov IdB dBm	e 🎧 Thg. Free w #Atten: 10	dB		Mkr	1 2.479 -4.	00 GHz 04 dBm	Auto Tune
Log 0.00 -10.0 -20.0		('	1	2					Center Freq 2.480000000 GHz
-30.0 -40.0 -50.0					M	1			Start Freq 2.475000000 GHz
-60.0 -70.0 -80.0	and and the start					Joseph Land Line	and many second and a second second	high-and-and	Stop Freq 2.485000000 GHz
Center 2. #Res BW	480000 GHz 100 kHz	#V	/BW 100 kHz	FUNC	TION FUN	#Sweep	Span 1 500 ms (0.00 MHz 1001 pts) NVALUE	CF Step 1.000000 MHz <u>Auto</u> Man
1 N 2 N 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 -		2.479 00 GHz 2.480 00 GHz	-4.04 dB -4.11 dB	m m 					Freq Offset 0 Hz
MSG						STATUS	3		

8. Dwell Time

8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

8.2. Test Setup



8.3. Limit

The dwell time shall be the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

8.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

8.5. Uncertainty

± 25msec

8.6. **Test Result of Dwell Time**

Product	:	VP1
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	2.950	14	50	0.83	0.330	0.4	Pass
2441	2.950	14	50	0.83	0.330	0.4	Pass
2480	2.950	13	50	0.77	0.307	0.4	Pass

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

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

CH 00 Time Interval between hops

CH 00 Transmission Time Center Freq 2.40200000 GHz Freq Avg Type: Log-Pwr Freque Avg Type: Log-Pwr nter Freq 2.402000000 GHz PN0: Fast C Trig: Free Run #Atten: 20 dB Trig: Free Run #Atten: 20 dB Auto Tu Mkr3 5.730 ms -15.05 dBm Auto Tur Ref 0.00 dBn Ref 0.00 dB 10 di 1 Center Fre Center Free 2.40 Start Freq 2.402000000 GHz Start Free and the helican Stop Free Stop Free 2.40 CF Step 1.000000 MHr Ma CF Step 1.000000 MH Ma enter 2.402000000 G es BW 1.0 MHz Span 0 Hz Sweep 10.00 ms (1001 pts) #VBW 1.0 MHz 1 2 NN 1.980 ms 4.930 ms 5.730 ms -15.09 dBm -14.31 dBm -15.05 dBm ł Freq Offse Freq Offse 0 H 01 Span 0 Hz Sweep 50.00 ms (1001 pts) Center 2.402000000 GHz Res BW 1.0 MHz #VBW 1.0 MHz

CH39 Time Interval between hops

CH 39Transmission Time

Agilant Spectrum Analyzer - Swept SA			Agilent Spectrum Analyzer - Swept Sk	
Center Freq 2.441000000 GHz	AUGNAUTO 05:11:06PM Oct 21, 2013 Avg Type: Log-Pwr 18ACE 1 2 3 4 5 6 TVPE/VALUE	Frequency	AL IF S0 p AC SEFERENT AUGNAUTO 05:11:45PM Oct 21, 2013 Center Freq 2.441000000 GHz Trip: Free Run Avg Type: Leg-Pwr TMACE 12 3 4 5 6	quency
IFGain:Low #Atten: 20 dB	DET PNNNN	Auto Tune	PNO: Fast IFGen: 20 dB tet // NNNN	Auto Tune
10 dB/div Ref 0.00 dBm			10 dB/div Ref 0.00 dBm -14.41 dBm	
Log		Center Freq		enter Freq
-10.0		2.441000000 GHz	-20.0 2.4410	00000 GHz
-20.0		Ctart Eron	-400	Ctart Eron
-30.0		2.441000000 GHz	24410	000000 GHz
-			- 200 Walkhy Chylater	
		Stop Freq 2.441000000 GHz	24410	Stop Freq
-50.0				
soo w w w w w w		CF Step 1.000000 MHz	Res BW 1.0 MHz #VBW 1.0 MHz Sweep 10.00 ms (1001 pts)	CF Step
-70.0		<u>Auto</u> Man	MODE HILL Y Explicition Function value Auto 1 N 1 t 40.00 µs -14.41 dBm	Man
80.0		Freq Offset	2 N 1 t 2.990 ms -14.44 dBm 3 N 1 t 3.790 ms -14.41 dBm Fi	req Offset
		0 Hz	6	0 Hz
-90.0			7	
Center 2.441000000 GHz	Span 0 Hz		10	
Res BW 1.0 MHz #VBW 1.0 MHz	Sweep 50.00 ms (1001 pts)		12	



CH 78 Time Interval between hops

CH 78 Transmission Time

Agilent Spectrum Analyzer - Swept SA									Agilent	Spectrum	Analyzer - 5	iwept SA							
Center Freq 2.480000000	GHz	SEVISE	INT]	Avg Type	Log-Pwr	05:18:109 1944 TY	PM Oct 21, 2013	Frequency	Cent	er Fred	q 2.4800	000000 GHz	East C.	Trig: Free Ru	AV	aLIGNAUTO g Type: Log-Pwr	05:18:49PM O TRACE 1 TYPE V	23456	Frequency
10 dB/div Ref 0.00 dBm	IFGain:Low	#Atten: 20 di	8			D	et) ^p NNNNN	Auto Tune	10 dB	/div F	tef 0.00	dBm	n:Low	#Atten: 20 dB			Mkr3 5.49 -15.29	90 ms dBm	Auto Tune
-10.0								Center Freq 2.48000000 GHz	+10.0 +20.0					\$ ²	♦ ³				Center Free 2.480000000 GH
-20.0								Start Freq 2.48000000 GHz	-40.0 - -50.0 -		Manakor			-			-nt-mile		Start Free 2.480000000 GH
40.0								Stop Freq 2.48000000 GHz	-70.0 -80.0 -90.0						-				Stop Free 2.480000000 GH
60.0 2 7 7 1	• • •		Ļ	•	n #	v		CF Step 1.000000 MHz Auto Man	Cente Res E	er 2.480 BW 1.0	0000000 MHz	GHz	#VBW	1.0 MHz	FUNCTION	Sweep 1	Spa 0.00 ms (10 5000000	an 0 Hz 101 pts) 2004	CF Ste 1.000000 MH Auto Ma
80.0								Freq Offset 0 Hz	2 1	N 1 N 1 N 1	t	1.740 4.690 5.490	ms ms ms	-15.30 dBm -15.67 dBm -15.29 dBm					Freq Offse 0 H
-90.0 Center 2.480000000 GHz	#V/BW 1	O MHZ			Swaap 5	6 00 mc	Span 0 Hz		7 8 9 10 11										
uso	**				STATUS	0.00 1115	ioo i pis)		MSG	- China China						STATUS			

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	:	VP1
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	2.940	13	50	0.76	0.306	0.4	Pass
2441	2.940	14	50	0.82	0.329	0.4	Pass
2480	2.940	13	50	0.76	0.306	0.4	Pass

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

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

CH 00 Time Interval between hops

enter Freq 2.402000000 GHz Fit and the fit Avg Type: Log Frequency nter Freq 2.40200 Avg Type: Log-Pw Frequency 0000 GHz PNO: Fast C Trig: Free Ru #Atten: 20 dB DET P NNN Auto Tu Auto Tu Mkr3 6.260 ms -13.80 dBm Ref 0.00 dB 10 Center Fre Center Fre Start Fre Start Fre Stop Fre Stop Fre 00 G 0000 G enter 2.402000000 GHz es BW 1.0 MHz Span 0 Hz Sweep 10.00 ms (1001 pts) CF Step CF Step 00000 MH Mar #VBW 1.0 MHz Ma 13.81 dB 14.16 dB 13.80 dB 1 N 2 N 3 N 2.510 ms 5.450 ms 6.260 ms Freq Offse 0 H Freq Offse 0 ਮ Span 0 Hz Sweep 50.00 ms (1001 pts) enter 2.402000 s BW 1.0 MHz #VBW 1.0 MHz

CH39 Time Interval between hops

CH 39Transmission Time

CH 00 Transmission Time

Agilant Spectrum Analyzer - Swept SA			Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz Tele Freq Pure 1940 Tele Freq Pure 1940	MOct 22, 2013	Frequency	Center Freq 2.441000000 GHz Tris Freq Pure Augusto 1019/394Moct 22,2013 Frequency Tris Freq Pure
10 dB/div Ref 0.00 dBm	tt [₽] NNNNN	Auto Tune	e Processor Auto Tun Ficantor America de Contraction de Contracti
100 Hered		Center Freq 2.441000000 GHz	Log 1 2 3 Center Fre 2 300 2 4 3 2 4 3
.200		Start Freq 2.441000000 GHz	4.00 Start Fre 9 4.00 2.441000000 GH
400		Stop Freq 2.441000000 GHz	
400		CF Step 1.000000 MHz Auto Man	P Center 2.44 1000000 GHz
-100 H H H H H H H H H H H H H		Freq Offset 0 Hz	1 N I 2 210 ms -13.99 dBm 2 N I I 6.450 ms -14.35 dBm 2 N I I 6.450 ms -13.39 dBm 3 N I I 6.260 ms -13.39 dBm 4 A I 6.260 ms -13.39 dBm 4 I I I I I 5 I I I I I I
000 Center 2.441000000 GHz S	Span 0 Hz		
Res BW 1.0 MHz #VBW 1.0 MHz Sweep 50.00 ms (MSG status	,1001 pts)		MSG STATUS

CH 78 Time Interval between hops

CH 78 Transmission Time

Agilent Spectrum Analyzer - Swept SA				Agilent Spectrum Analyzer - Swept SA	
Center Freq 2.480000000 GHz	Avg Type: Log-Pwr	10:26:19 AMORT 22, 2013 TRACE 1 2 3 4 5 6	Frequency	AL RF 50.9 AC SEVERAL AUXANNO 10:27:19AMOCt 22, 2013 Center Freq 2.480000000 GHz Avg Type: Log-Pwr Bkx2 [1:2:3:4:5 Free	quency
PNO: Fast C Ing, Free Par IFGainLow #Atten: 10 dB		DET P NNNNN	Auto Tune	PROF Fast Thigh Free num Sector Name une Mkr3 6.640 ms Mkr3 6.640 ms 10 dB/div Ref 0.00 dBm -13.92 dBm	Auto Tune
		م اسما اسما ا	Center Freq 2.48000000 GHz		enter Freq J00000 GHz
-20.0			Start Freq 2.48000000 GHz	req 400 642 642 642 642 642 642 642 642 643 644	Start Freq
40.0			Stop Freq 2.48000000 GHz	700 100 <td>Stop Freq 200000 GHz</td>	Stop Freq 200000 GHz
-60.0			CF Step 1.000000 MHz	tep Center 2.480000000 GHz Span 0 Hz Mitz Res BW 1.0 MHz #VBW 1.0 MHz Sweep 10.00 ms (1001 pts) 1.0	CF Step
	N 14 N	- 14 - 14	Freq Offset 0 Hz	Main Unix (MDE) Dial 2 PARCHON Fanchon Fanchon	req Offset 0 Hz
40.0 Center 2.480000000 GHz		Span 0 Hz		6	
Res BW 1.0 MHz #VBW 1.0 MHz	Sweep 5	0.00 ms (1001 pts)	L	12	

Note:

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

9. Occupied Bandwidth

9.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2013
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2013

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

9.2. Test Setup



9.3. Limits

N/A

9.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

9.5. Uncertainty

± 150Hz

9.6. Test Result of Occupied Bandwidth

Product	:	VP1
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1130		NA

Figure Channel 00:

Agilent Spect	rum Analyze	r - Swept SA								
Center F	RF Freq 2.40	50Ω AC)2000000 G	Hz		BE:INT	Avg Type	ALIGNAUTO : Log-Pwr	04:51:30 F TRAC	M Oct 21, 2013 E 1 2 3 4 5 6	Frequency
10 dB/diu	Ref Offs	et 10 dB	Atten: 20	#Atten: 20 dB			2 2.401 -25.3	Auto Tune		
				2 ²	1					Center Freq 2.402000000 GHz
-30.0 -40.0 -50.0									-24.96 dBm	Start Freq 2.397000000 GHz
-60.0 -70.0 -80.0									www.www.	Stop Freq 2.407000000 GHz
Center 2. #Res BW	.402000 (100 kHz	GHz ×	#VBV	V 100 kHz	FUNC	TION FUN	Sweep	Span 1 1.27 ms (0.00 MHz 1001 pts) NVALUE	CF Step 1.000000 MHz <u>Auto</u> Man
1 N / 2 N / 3 N / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 10 / 10 / 10 / 10 / 10 / 10	1 f 1 f 1 f	2.401 2.401 2.402	99 GHz 42 GHz 55 GHz	-4.96 dB -25.37 dB -25.17 dB	m m m 					Freq Offset 0 Hz
11 12 MSG							STATUS	3		

Product	:	VP1
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(2441MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2441	1130		NA

Figure Channel 39:

Anilant Coosts	um Analimer Sur	ant SA							
Agrient Spectr	rum Analyzer - Swo	ept SA	CENC				05:07:56.0	Mo-+31 3013	
Center F	reg 2 44100				Ava Type	: Loa-Pwr	TRAC	E123456	Frequency
Center	169 2.44 100	PNO: Wide	Trig: Free R	lun			TYF		
		IFGain:Low	#Atten: 20 d	D					
	Ref Offset 10	dB				Mkr	2 2.440	42 GHz	Auto Tunc
10 dB/div	Ref 10.00 (dBm					-24.0	or dBm	
0.00									O antan Enan
10.00				ι I					Center Freq
-10.0			▲2 [′]	3					2.441000000 GHz
-20.0			y	\rightarrow				-24.26 dBm	
-30.0				\rightarrow					Start Fred
-40.0				- 7					2 43600000 CHz
-50.0			\bigwedge^{\bullet}		<u>\</u>				2.43000000 GHZ
-60.0 m m	mm	mmmmm	v		man	mmm	mmm	man man	
70.0									Stop Freq
-70.0									2.446000000 GHz
-80.0									
Center 2	441000 GHz	1	- 1 1				Span 1	0.00 MHz	
#Res BW	100 kHz	#VE	3W 100 kHz			Sweep	1.27 ms (1001 pts)	
		<u> </u>	0	FUNCT		-	FUNCTIO		Auto Man
1 N 1		2.440 99 GHz	-4.26 dBm				TONCHO	N VALUE	
2 N 1	f	2.440 42 GHz	-24.67 dBm	1					
3 N 1		2.441 55 GHZ	-24.80 dBm	1					Freq Offset
5									0 Hz
6									
8									
9									
11									
12				1					
MSG						STATUS	3		

:	VP1
:	Occupied Bandwidth Data
:	No.3 OATS
:	Mode 1: Transmit - 1Mbps (GFSK)(2480MHz)
	:

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
78	2480	1130		NA

Figure Channel 78:

Agile	nt Spe	ctru	m An	alyzer - Swe	pt SA									
lxi R	L		RF	50 Ω	AC	_	SEI	NSE:INT		ALIG	OTUAN	05:13:51	PM Oct 21, 2013	Frequency
Cer	nter	Fre	ed j	2.48000	0000 GH	lz	Trig: Free	Bun	Avg	Type: Lo	g-Pwr	TRA T	(PE M M M M M M M	Trequency
					Pr IF(iU: Wide 🕞 Gain:Low	#Atten: 2	0 dB				I	PNNNN	
			D.4	05-140	-10						Mkr	2 2.479	42 GHz	Auto Tune
10 d	B/div	,	Ref	f 10.00 d	iBm							-24	.64 dBm	
Log								1						0
10.00							- C	h						Center Freq
-10.0							▲2 [′]	3						2.48000000 GHZ
-20.0			-				7						-24.43 dBm	
-30.0							+/-							Start Freq
-40.0							\swarrow	<u> </u>	-					2.475000000 GHz
-50.0			_			- Jan	·		1					
-60.0	y.s.	w. Nr	~~		man	har			- ~	mon	ᢞᡎᠰᡘᢈᠰᢋ	Mun mar	wankymen	
-70.0														Stop Freq
-80.0														2.485000000 GHz
Cer	nter	2.4	800	00 GHz						_		Span	10.00 MHz	CF Step
#Re	s B	W 1	00	KHZ		#VBV	V 100 KHZ			Sv	veep	1.27 ms	(1001 pts)	1.000000 MHz
MKB	MODE	TRC	SCL		×		Y	FUN	ICTION	FUNCTION	N WIDTH	FUNCT	ON VALUE	<u>Auto</u> Man
1	<u>N</u>	1	f f		2.479 9	9 GHz	-4.43 di	3m 3m						
3	Ň	1	ŕ		2.480 5	5 GHz	-24.52 dE	3m						Freq Offset
4														0 Hz
6														
7														
9														
10														
12														
MSG											STATU	S		

Product	:	VP1
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	1410		NA

Figure Channel 00:

Agilen	it Spe	ctrun	n Ana	ılyzer - Sw	ept S/	٨												
IXI R	L	Ere	RF	50 Ω 2 40200	AC		17		SEr	VSE:INT		Ava T	/ vpe:	LIGNAUTO	10:03:3 TF	6 AM Oct 22, 20	13	Frequency
Cer		FIC	,ч z	.40200	0000	PN IFC	IZ 10: Wide Gain:Low	ŗ₽	Trig: Free #Atten: 20	eRun)dB		TYPE M WAAWAA DET P N N N N						
10 d	B/div	,	Ref Ref	Offset 10 10.00)dB dBn	า								Mkr	2 2.40 -24	1 29 GH I.65 dBr	z n	Auto Tune
Log 0.00 -10.0 -20.0									 ♦ ²	1	3					-23.64 dE	in .	Center Freq 2.402000000 GHz
-30.0 -40.0 -50.0				A		Andler	\sim	~~]		~	$\sim \langle$	~~~					Start Freq 2.397000000 GHz
-60.0 -70.0 -80.0																		Stop Freq 2.407000000 GHz
Cen #Re	ter : s B\	2.40 N 1	020 00	00 GHz kHz			#V	вw	100 kHz					Sweep	Span 1.27 ms	10.00 MH (1001 pts	iz S)	CF Step 1.000000 MHz
MKB 1 2 3 4	N N N N	1 1 1	f f f			× 2.401 99 2.401 29 2.402 70	9 GHz 9 GHz 0 GHz		-3.64 dE -24.65 dE -24.78 dE	3m 3m 3m	FUNC		FUN	CTION WIDTH	FUNC	TION VALUE		Auto Man Freq Offset
5 6 7 8 9 10 11																		
MSG														STATUS	3			

Product	:	VP1
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2441	1410		NA

Figure Channel 39:

Agiler	nt Sne	ctrur	n An	alvzer - Swe	ont SA									
LXI R	L		RF	50 Ω	AC		SE	NSE:INT		ALIGN AU	UTO	10:11:33 /	MOct 22, 2013	
Cen	nter	Fre	a	2.44100	0000 GH	-Iz			Avg 1	Type: Log-F	Pwr	TRAC	E123456	Frequency
					PI	NO: Wide	Trig: Fre	e Run				TY		
					IF	Gain:Low	#Atten: 2	UdB						
			Ref	Offset 10	dB					Ν	<u>Mkr</u>	2 2.440	29 GHz	Auto Tune
10 d	B/div	,	Ref	f 10.00 c	iBm							-24.	65 dBm	
Log								1						
0.00							~	X						Center Freq
-10.0			-					m.						2.441000000 GHz
-20.0							 2	+	·				-23.90 dBm	
-30.0								1 Y						
40.0														Start Freq
-40.0						M	and a	· · · ·	m					2.436000000 GHz
-50.0	-					nt.			1	~				
-60.0	w	m	m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~				V. mour	www	m	Whommon	
-70.0														Stop Freq
														2.446000000 GHz
-00.0														
Cen	ter	2 4/	110	00 GHz			1					Snan 1	0 00 MHZ	
#Re	s B	N 1	00	kHz		#VE	3W 100 kHz			Swe	ep	1.27 ms (1001 pts)	CF Step
								-			- 1-			Auto Man
MKE	MODE	180	SCL		2 4 4 1 1	5 CHz	7 00 d	FUN	CTION	FUNCTION W	/IDTH	FUNCTIC	IN VALUE	<u>Auto</u> Mari
2	N	1	f		2.441 1	9 GHz	-24.65 d	Bm						
3	N	1	f		2.441 7	0 GHz	-24.88 d	Bm						Freq Offset
4														0 Hz
6														
7														
8														
10														
11														
			1	I										
MSG										s	STATUS			

VP1
Occupied Bandwidth Data
No.3 OATS
Mode 2: Transmit - 3Mbps (8DPSK)(2480MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
78	2480	1410		NA

Figure Channel 78:

Agilen	it Spec	ctrum	n Ana	alyzer - I	Swep	t SA																		
LXI RI	L		RF	50	ΩC	AC					SEN	SE:IN	Т			ALIGN AU	то	10:21	:44 A	MOct 22	,2013		F	
Cen	ter	Fre	q^2	2.480	000	0000	GH	z]	_	_		Av	а Туре	e: Log-Pi	wr		TRAC	E 1 2 3	456		Frequer	ncy
							PN IFG	O: Wid iain:Lo	le 🖵 W	Trig: #Atte	Free en: 10	Run dB							DE	TPNN	NNN			_
10 di	B/div		Ref Ref	Offset 10.0	10 c 0 di	IB 3m										Μ	lkr:	2 2.47 -2	79 3.9	′9 29 GHz 3.91 dBm			Auto	Tune
Log 0.00											_(1											Cente	er Fred
-10.0					_					. 2	~~~	\sim											2.4800000	00 GHz
-20.0										- ¢ ²			\rightarrow^3						_	-23.7	4 dBm			
-30.0										1			\uparrow						_				Sta	rt Freq
-40.0								5	\sim	ส่			``	w									2.4750000	00 GHz
-60.0						- mot	$\sim r'$	2/							V	1								
-70.0		~~~	w	Loom	m	~											~~~	www.v	~~~^	munor	Low		Sto	p Freq
-80.0	<u> </u>		_		-						_								_		_		2.4850000	00 GHz
Cen #Re:	ter 2 s BV	2.48 N 1	00 00	00 G⊦ kHz	łz			#\	vвw	100	kHz					Swee	эр	Spa 1.27 m	n 1 Is ('	0.00 F 1001	VIHz pts)		C I 1.0000	F Step 00 MHz
MKR	MODE	TRC	SCL			×	70.00			Y 27	74		FUN	CTION	FUN	ICTION WID	DTH	FUN	ictio	N VALUE		Αι	uto	Man
2	N	1	f			2.4	79 29			-23.9	01 dB	m										F		050-04
4	14		_			2.4	00 70	0112		-24.3	/4 UD												Freq	0 Hz
6			_																			┡		
8			_									_			1									
10												_			1									
12																								
MSG																ST	ATUS							

10. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs