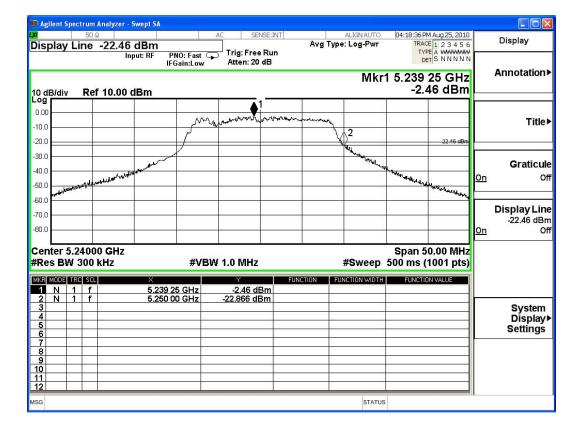


Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps)-Channel 48

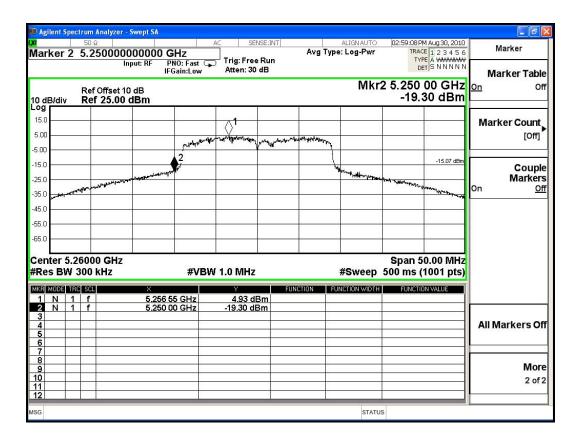
Test Frequency	Measurement Level	Limit	Result
(MHz)	(ΔdB)	(dB)	
5250	20.406	>20	PASS





Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps)-Channel 52

Test Frequency	Measurement Level	Limit	Result
(MHz)	(ΔdB)	(dB)	
5250	24.23	>20	PASS





Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps) -Channel 64

Fundamental Filed Strength

Antenna	Frequency	Reading Level	Level Correction Factor Emission Le		Detector
Pole	[MHz]	[dB(uV)]	[uV) $[dB/m]$ $[dB(uV/m)]$		
Horizontal	5320	35.635	78.44	114.074	Peak
Horizontal	5320	35.635	65.61	101.244	Average
Vertical	5320	37.552	76.89	114.441	Peak
Vertical	5320	37.552	64.9	102.451	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency	Fundamental	Δ (dB)	Band Edge Field Strength	Requiqment Limit	Detector
	(MHz)	(dBuV/m)		(dBuV/m)	(dBuV/m)	
Horizontal	5350	114.074	45.332	68.742	74.000	Peak
Horizontal	5350	101.244	51.503	49.741	54.000	Average
Vertical	5350	114.441	45.332	69.109	74.000	Peak
Vertical	5350	102.451	51.503	50.948	54.000	Average

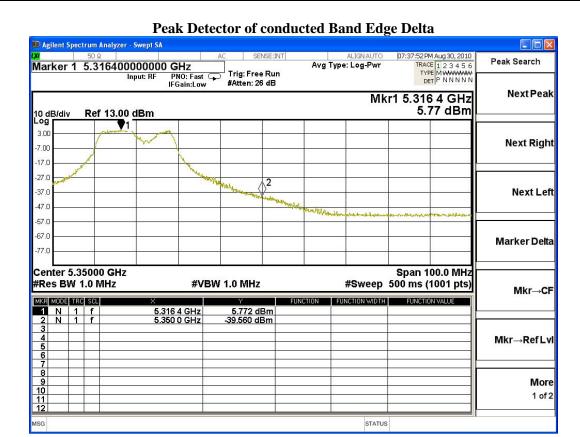
Note:

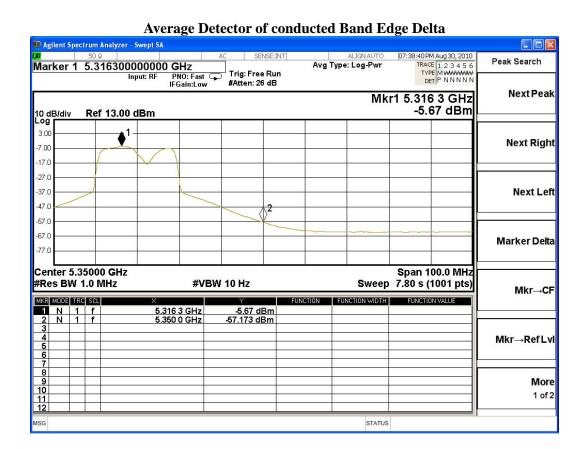
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)









Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps) -Channel 100

Fundamental Filed Strength

Antenna	Frequency	Frequency Reading Level Correction Factor		Emission Level	Detector	
Pole	[MHz]	[dB(uV)]	[dB/m]	[dB(uV/m)]		
Horizontal	5500	36.684	78.51	115.194	Peak	
Horizontal	5500	36.684	66.27	102.954	Average	
Vertical	5500	38.145	78.31	116.455	Peak	
Vertical	5500	38.145	65.23	103.375	Average	

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Requiqment Limit (dBuV/m)	Detector
Horizontal	5460	115.194	48.044	67.15	74.000	Peak
Horizontal	5460	102.954	53.592	49.362	54.000	Average
Vertical	5460	116.455	48.044	68.411	74.000	Peak
Vertical	5460	103.375	53.592	49.783	54.000	Average

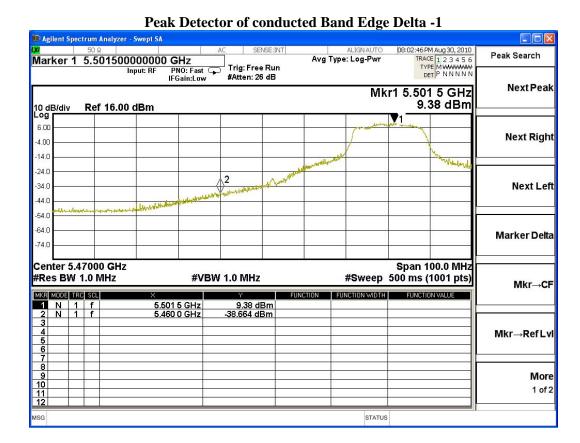
Note:

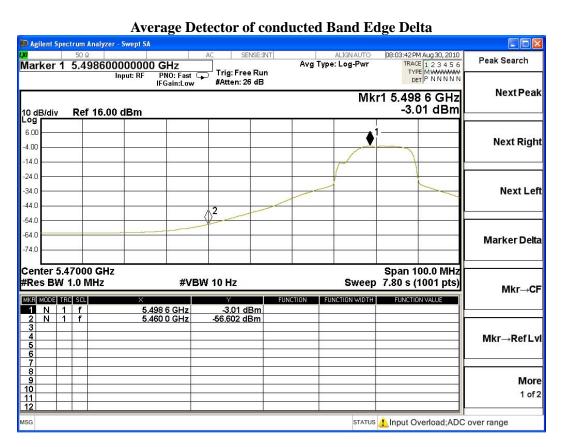
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)









Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps) -Channel 100

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horiz	zontal	5470.000	18.334	-61.720	-43.386	-16.386	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5470.000	19.335	-62.870	-43.535	-16.535	-27.000	Pass



Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps) -Channel 140

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5725.000	18.649	-48.690	-30.041	-3.041	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5725.000	19.372	-58.200	-38.828	-11.828	-27.000	Pass



Test Mode : Mode 3: Transmit (802.11n-40BW 45Mbps) -Channel 38

Fundamental Filed Strength

Antenna	Frequency	Reading Level	Correction Factor	Emission Level	Detector
Pole	[MHz]	[dBuV]	/] [dB/m] [dBuV/m]		
Horizontal	5190	34.907	69.88	104.788	Peak
Horizontal	5190	34.907	55.95	90.858	Average
Vertical	5190	37.077	69.1	106.178	Peak
Vertical	5190	37.077	55.49	92.568	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Requiqment Limit (dBuV/m)	Detector
Horizontal	5148.9	104.788	43.38	61.408	74.000	Peak
Horizontal	5150	90.858	44.887	45.971	54.000	Average
Vertical	5148.9	106.178	43.38	62.798	74.000	Peak
Vertical	5150	92.568	44.887	47.681	54.000	Average

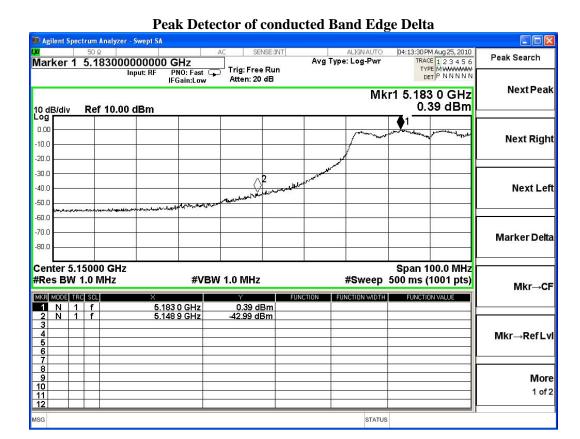
Note:

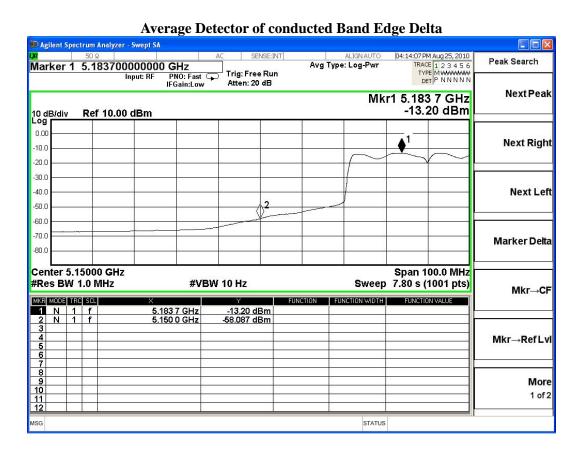
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)



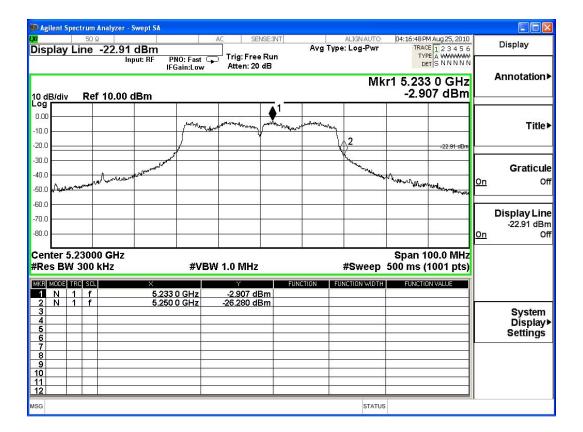






Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps)-Channel 48

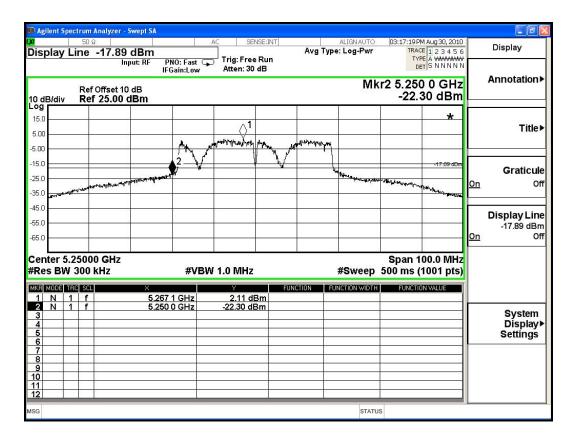
Test Frequency	Measurement Level	Limit	Result
(MHz)	(ΔdB)	(dB)	
5250	23.373	>20	PASS





Test Mode : Mode 2: Transmit (802.11n-20BW 21.6Mbps)-Channel 52

Test Frequency	Measurement Level	Limit	Result
(MHz)	(ΔdB)	(dB)	
5250	20.19	>20	PASS





Test Mode : Mode 3: Transmit (802.11n-40BW 45Mbps) -Channel 62

Fundamental Filed Strength

Antenna	Frequency	Reading Level	Correction Factor	Emission Level	Detector
Pole	[MHz]	[dB(uV)]	[dB/m]	[dB(uV/m)]	
Horizontal	5310	35.655	71.79	107.446	Peak
Horizontal	5310	35.655	58.09	93.745	Average
Vertical	5310	37.553	70.18	107.733	Peak
Vertical	5310	37.553	56.25	93.803	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency	Fundamental	Δ (dB)	Band Edge Field Strength	Requiqment Limit	Detector
	(MHz)	(dBuV/m)		(dBuV/m)	(dBuV/m)	
Horizontal	5352.9	107.446	41.049	66.397	74.000	Peak
Horizontal	5350	93.745	41.114	52.631	54.000	Average
Vertical	5352.9	107.733	41.049	66.684	74.000	Peak
Vertical	5350	93.803	41.114	52.689	54.000	Average

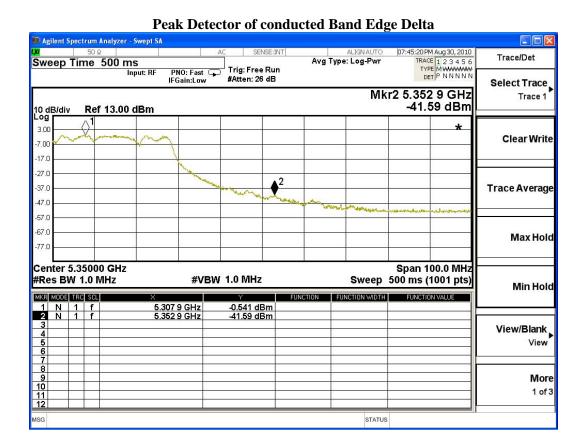
Note:

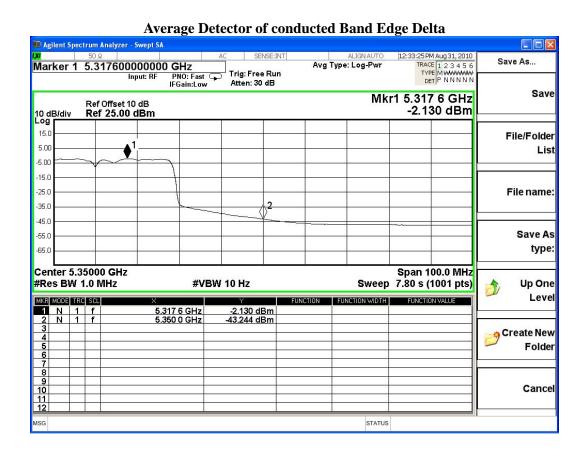
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)









Test Mode : Mode 3: Transmit (802.11n-40BW 45Mbps) -Channel 102

Fundamental Filed Strength

Antenna	Frequency	Reading Level	Correction Factor	Emission Level	Detector
Pole	[MHz]	[dB(uV)]	[dB/m]	[dB(uV/m)]	
Horizontal	5510	34.94	73.5	110.175	Peak
Horizontal	5510	34.94	59.44	96.115	Average
Vertical	5510	38.124	71.75	109.874	Peak
Vertical	5510	38.124	58.13	96.254	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz
Average detector: RBW=1MHz, VBW=30Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Requiqment Limit (dBuV/m)	Detector
Horizontal	5460	110.175	42.4	67.775	74.000	Peak
Horizontal	5460	96.115	46.157	49.958	54.000	Average
Vertical	5460	109.874	42.4	67.474	74.000	Peak
Vertical	5460	96.254	46.157	50.097	54.000	Average

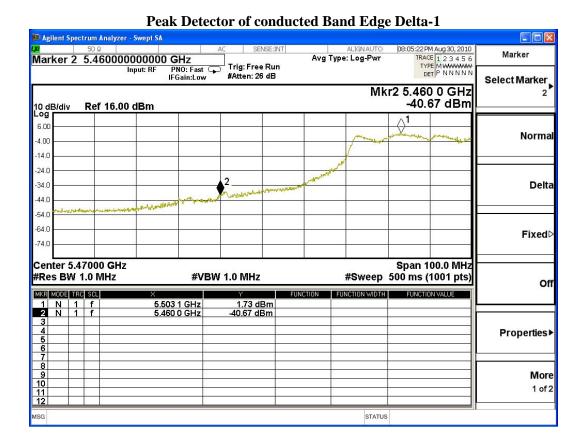
Note:

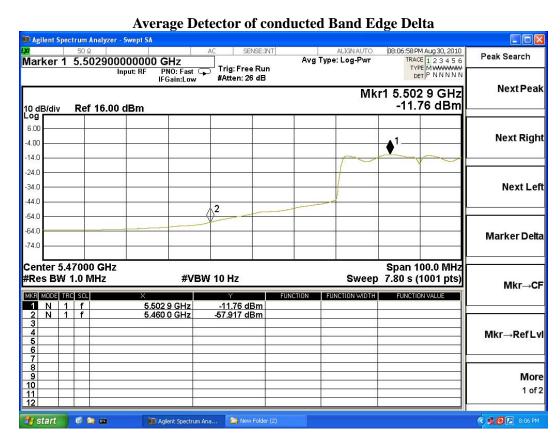
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = $F - \Delta$

F = Fundamental field Strength (Peak or Average)









Test Mode : Mode 3: Transmit (802.11n-40BW 45Mbps) -Channel 102

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5470.000	18.334	-64.260	-45.926	-18.926	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5470.000	19.335	-67.410	-48.075	-21.075	-27.000	Pass



Test Mode : Mode 3: Transmit (802.11n-40BW 45Mbps) -Channel 134

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5725.000	18.649	-50.040	-31.391	-4.391	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5725.000	19.372	-59.740	-40.368	-13.368	-27.000	Pass



8. Frequency Stability

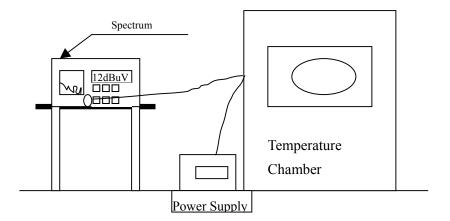
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010

Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

8.2. Test Setup



8.3. Limits

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified

8.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

8.5. Uncertainty

± 150 Hz



8.6. Test Result of Frequency Stability

Product : SpectraGuard Sensor
Test Item : Frequency Stability
Test Site : Temperature Chamber

Test Mode : Carrier Wave (for 802.11a/n-20MHz Channel) (Beginning)

Test C	onditions	Channel	Frequency (MHz)	Spectrum Frequency (MHz)	△F (MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0098	-0.0098
		46	5230.00	5230.0100	-0.0100
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
T (20) 9C	V (120)V	60	5300.00	5300.0100	-0.0100
Tnom (20) °C	Vnom (120)V	62	5310.00	5310.0100	-0.0100
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0100	-0.0100
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
T (50) °C	Vm am (120)V	60	5300.00	5300.0100	-0.0100
Tmax (50) °C	Vnom (120)V	62	5310.00	5310.0096	-0.0096
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0098	-0.0098
		118	5590.00	5590.0100	-0.0100
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095



Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	△F (MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
	Vnom (120)V	48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
Tmin (0) °C		60	5300.00	5300.0100	-0.0100
Tmin (0) °C		62	5310.00	5310.0096	-0.0096
		64	5320.00	5320.0099	-0.0099
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0100	-0.0100
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0100	-0.0100



Product : SpectraGuard Sensor
Test Item : Frequency Stability
Test Site : Temperature Chamber

Test Mode : Carrier Wave (for 802.11n-40MHz Channel) (AFTER 2mins)

Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	△F (MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0095	-0.0095
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0090	-0.0090
Tnom (20) °C	Vnom (120)V	60	5300.00	5300.0100	-0.0100
1 Hom (20) C	V 110111 (120) V	62	5310.00	5310.0100	-0.0100
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0010	-0.0010
		118	5590.00	5590.0150	-0.0150
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
Tmax (50) °C	Vnom (120)V	60	5300.00	5300.0100	-0.0100
1111ax (30) C	VIIOIII (120) V	62	5310.00	5310.0096	-0.0096
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0010	-0.0010
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095



Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	△F (MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
	Vnom (120)V	48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
Tmin (0) °C		60	5300.00	5300.0100	-0.0100
Tillin (0) C		62	5310.00	5310.0096	-0.0096
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0110	-0.0110
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095



Product : SpectraGuard Sensor
Test Item : Frequency Stability
Test Site : Temperature Chamber

Test Mode : Carrier Wave (for 802.11n-40MHz Channel) (AFTER 5mins)

Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	△F (MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
T., (20) %C	V (120)V	60	5300.00	5300.0100	-0.0100
Tnom (20) °C	Vnom (120)V	62	5310.00	5310.0099	-0.0099
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0093	-0.0093
		118	5590.00	5590.0010	-0.0010
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0097	-0.0097
		54	5270.00	5270.0097	-0.0097
T (50) 90	** (100)**	60	5300.00	5300.0100	-0.0100
Tmax (50) °C	Vnom (120)V	62	5310.00	5310.0096	-0.0096
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0100	-0.0100
		134	5670.00	5670.0060	-0.0060
		140	5700.00	5700.0095	-0.0095



Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	△F (MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
	Vnom (120)V	46	5230.00	5230.0100	-0.0100
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
Tmin (0) °C		60	5300.00	5300.0100	-0.0100
Tmin (0) °C		62	5310.00	5310.0096	-0.0096
		64	5320.00	5320.0096	-0.0096
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0150	-0.0150
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095



Product : SpectraGuard Sensor
Test Item : Frequency Stability
Test Site : Temperature Chamber

Test Mode : Carrier Wave (for 802.11n-40MHz Channel) (AFTER 10mins)

Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency	△F
lest Co	Juluiuons	Chamiei	Frequency (WIIIZ)	(MHz)	(MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0000	0.0000
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0097	-0.0097
		54	5270.00	5270.0097	-0.0097
Tnom (20) °C	Vnom (120)V	60	5300.00	5300.0100	-0.0100
1 110111 (20) C	V 110111 (120) V	62	5310.00	5310.0100	-0.0100
		64	5320.00	5320.0093	-0.0093
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0100	-0.0100
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
		48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0085	-0.0085
		54	5270.00	5270.0097	-0.0097
Tmax (50) °C	Vnom (120)V	60	5300.00	5300.0100	-0.0100
1111ax (30) C	V 110111 (120) V	62	5310.00	5310.0096	-0.0096
	_	64	5320.00	5320.0100	-0.0100
	_	100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0100	-0.0100
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0095	-0.0095



Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency	△F
			1 0 0	(MHz)	(MHz)
		36	5180.00	5180.0100	-0.0100
		38	5190.00	5190.0100	-0.0100
		44	5220.00	5220.0100	-0.0100
		46	5230.00	5230.0100	-0.0100
	Vnom (120)V	48	5240.00	5240.0090	-0.0090
		52	5260.00	5260.0094	-0.0094
		54	5270.00	5270.0097	-0.0097
Train (0) 9C		60	5300.00	5300.0100	-0.0100
Tmin (0) °C		62	5310.00	5310.0096	-0.0096
		64	5320.00	5320.0100	-0.0100
		100	5500.00	5500.0100	-0.0100
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0096	-0.0096
		118	5590.00	5590.0100	-0.0100
		134	5670.00	5670.0100	-0.0100
		140	5700.00	5700.0093	-0.0093



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Page: 183 of 183