9. FREQUENCY STABILITY MEASUREMENT

9.1.Limit

Manufacturers 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 in the user's manual.

9.2.Test Procedure

Use the test method described in ANSI C63.10 clause 6.8:

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
   EUT have transmitted absence of modulation signal and fixed channelise. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings. fc is declaring of channel frequency. Then the frequency error formula is $(fc-f)/f \times 10^{-6}$ppm. The test extreme voltage is to change the primary supply voltage from 3.1V to 3.5V.
2. Extreme temperature is 0℃~60℃.

9.3.Test Result

EUT: Tablet PC		
M/N: 8188X		
Test date: 2024-06-28	Pressure: 103.1±1.0 kpa	Humidity: 51.5±3.0%
Tested by: lili	Test site: RF site	Temperature:22.5±0.6 ℃

Frequency Stability vs.Voltage:

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	25℃	CH36	5179.9100	5180	-17.37
		CH40	5199.9050	5200	-18.27
		CH48	5239.9065	5240	-17.84
		CH52	5259.8995	5260	-19.11
		CH60	5299.8990	5300	-19.06
		CH64	5319.8980	5320	-19.17
		CH100	5499.9000	5500	-18.18
		CH120	5599.8965	5600	-18.48
		CH144	5719.8935	5720	-18.62
		CH149	5744.8930	5745	-18.62
		CH157	5784.8910	5785	-18.84
		CH165	5824.8895	5825	-18.97

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC4.24V	25℃	CH36	5179.9109	5180	-17.20
		CH40	5199.9059	5200	-18.10
		CH48	5239.9076	5240	-17.63
		CH52	5259.8998	5260	-19.05
		CH60	5299.8992	5300	-19.02
		CH64	5319.8984	5320	-19.10
		CH100	5499.9006	5500	-18.07
		CH120	5599.8964	5600	-18.50
		CH144	5719.8936	5720	-18.60
		CH149	5744.8932	5745	-18.59
		CH157	5784.8911	5785	-18.82
		CH165	5824.8897	5825	-18.94

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC3.47V	25℃	CH36	5179.9112	5180	-17.14
		CH40	5199.9063	5200	-18.02
		CH48	5239.9078	5240	-17.60
		CH52	5259.9000	5260	-19.01
		CH60	5299.8996	5300	-18.94
		CH64	5319.8989	5320	-19.00
		CH100	5499.9010	5500	-18.00
		CH120	5599.8966	5600	-18.46
		CH144	5719.8942	5720	-18.50
		CH149	5744.8938	5745	-18.49
		CH157	5784.8919	5785	-18.69
		CH165	5824.8898	5825	-18.92

Frequency Stability vs. Temperature:

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	0℃	CH36	5179.9116	5180	-17.07
		CH40	5199.9066	5200	-17.96
		CH48	5239.9082	5240	-17.52
		CH52	5259.9006	5260	-18.90
		CH60	5299.8997	5300	-18.92
		CH64	5319.8991	5320	-18.97
		CH100	5499.9015	5500	-17.91
		CH120	5599.8969	5600	-18.41
		CH144	5719.8944	5720	-18.46
		CH149	5744.8940	5745	-18.45
		CH157	5784.8923	5785	-18.62
		CH165	5824.8901	5825	-18.87

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	10℃	CH36	5179.9119	5180	-17.01
		CH40	5199.9071	5200	-17.87
		CH48	5239.9086	5240	-17.44
		CH52	5259.9010	5260	-18.82
		CH60	5299.8999	5300	-18.89
		CH64	5319.8997	5320	-18.85
		CH100	5499.9021	5500	-17.80
		CH120	5599.8973	5600	-18.34
		CH144	5719.8949	5720	-18.37
		CH149	5744.8944	5745	-18.38
		CH157	5784.8928	5785	-18.53
		CH165	5824.8909	5825	-18.73

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	20℃	CH36	5179.9122	5180	-16.95
		CH40	5199.9074	5200	-17.81
		CH48	5239.9089	5240	-17.39
		CH52	5259.9012	5260	-18.78
		CH60	5299.9000	5300	-18.87
		CH64	5319.8999	5320	-18.82
		CH100	5499.9022	5500	-17.78
		CH120	5599.8973	5600	-18.34
		CH144	5719.8952	5720	-18.32
		CH149	5744.8949	5745	-18.29
		CH157	5784.8932	5785	-18.46
		CH165	5824.8912	5825	-18.68

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	30℃	CH36	5179.9126	5180	-16.87
		CH40	5199.9078	5200	-17.73
		CH48	5239.9091	5240	-17.35
		CH52	5259.9016	5260	-18.71
		CH60	5299.9006	5300	-18.75
		CH64	5319.9001	5320	-18.78
		CH100	5499.9023	5500	-17.76
		CH120	5599.8977	5600	-18.27
		CH144	5719.8956	5720	-18.25
		CH149	5744.8957	5745	-18.15
		CH157	5784.8937	5785	-18.38
		CH165	5824.8916	5825	-18.61

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	40℃	CH36	5179.9128	5180	-16.83
		CH40	5199.9080	5200	-17.69
		CH48	5239.9096	5240	-17.25
		CH52	5259.9018	5260	-18.67
		CH60	5299.9012	5300	-18.64
		CH64	5319.9005	5320	-18.70
		CH100	5499.9026	5500	-17.71
		CH120	5599.8979	5600	-18.23
		CH144	5719.8963	5720	-18.13
		CH149	5744.8960	5745	-18.10
		CH157	5784.8942	5785	-18.29
		CH165	5824.8920	5825	-18.54

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	50℃	CH36	5179.9131	5180	-16.78
		CH40	5199.9085	5200	-17.60
		CH48	5239.9097	5240	-17.23
		CH52	5259.9022	5260	-18.59
		CH60	5299.9016	5300	-18.57
		CH64	5319.9013	5320	-18.55
		CH100	5499.9029	5500	-17.65
		CH120	5599.8984	5600	-18.14
		CH144	5719.8966	5720	-18.08
		CH149	5744.8967	5745	-17.98
		CH157	5784.8944	5785	-18.25
		CH165	5824.8925	5825	-18.45

Test Voltage	Temperature	CH	Reading (MHz)	Target Frequency (MHz)	Result (ppm)
DC 3.85V	60℃	CH36	5179.9138	5180	-16.64
		CH40	5199.9089	5200	-17.52
		CH48	5239.9099	5240	-17.19
		CH52	5259.9024	5260	-18.56
		CH60	5299.9010	5300	-18.68
		CH64	5319.9016	5320	-18.50
		CH100	5499.9033	5500	-17.58
		CH120	5599.8987	5600	-18.09
		CH144	5719.8970	5720	-18.01
		CH149	5744.8969	5745	-17.95
		CH157	5784.8947	5785	-18.20
		CH165	5824.8928	5825	-18.40

10. ANTENNA REQUIREMENT

10.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. Antenna Connected Construction

The antennas used for this product are PIFA Antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 0.58dBi.

11. DEVIATION TO TEST SPECIFICATIONS

[NONE]

THE END