

11A-Ant1-5785



11A-Ant1-5825



11N20SISO-Ant1-5745



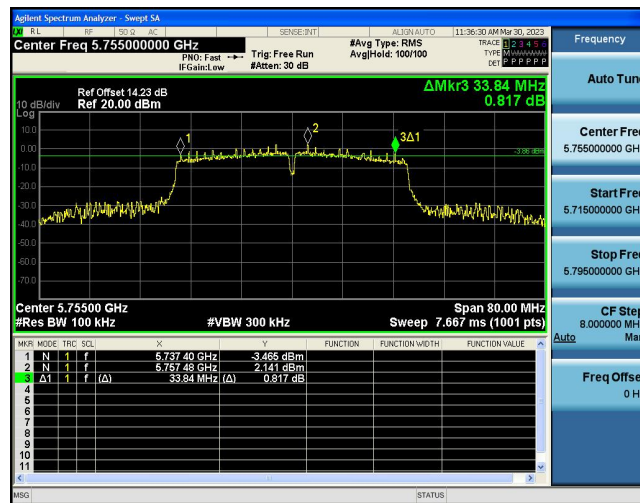
11N20SISO-Ant1-5785



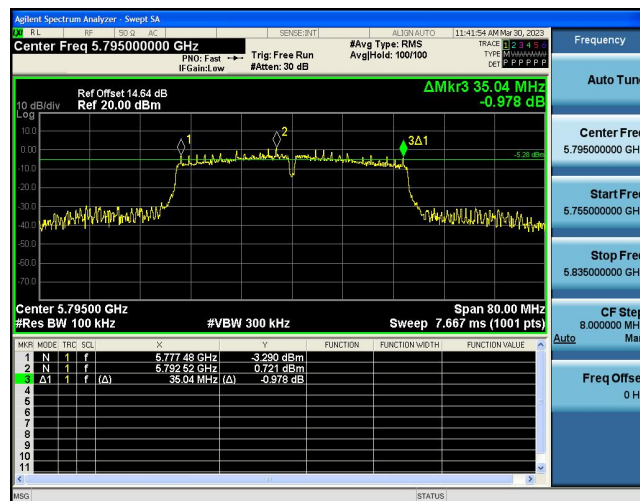
11N20SISO-Ant1-5825



11N40SISO-Ant1-5755



11N40SISO-Ant1-5795



4.5 Peak Power Density

4.5.1 Applied procedures / Limit

1. For the band 5.150-5.250 GHz, the peak power spectral density shall not exceed 11 dBm in any 1000KHz band.
2. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.5.2 Test procedure

1. The setting follows Method SA-1 of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01 . For devices operating in the band, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (*i.e.*, 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:
 - a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
 - b) Set $VBW \geq 3$ RBW.
 - c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
 - d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
 - e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

4.5.3 TEST SETUP



4.5.4 Deviation from standard

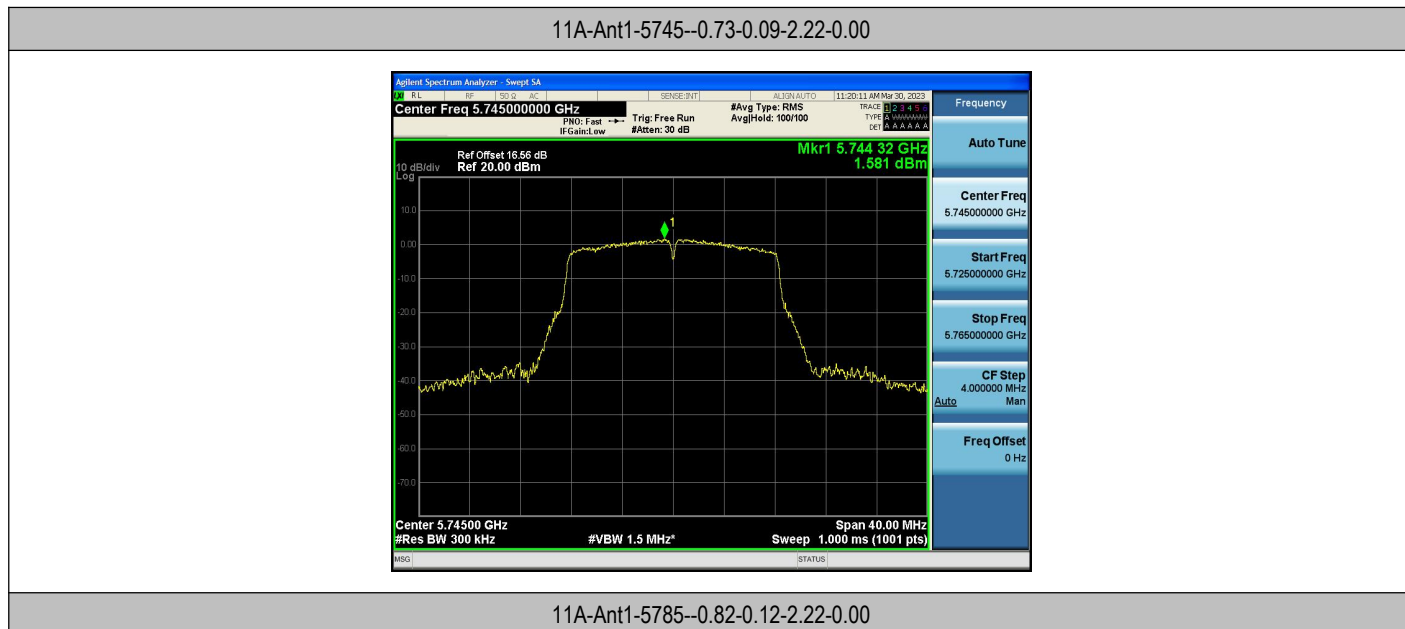
No deviation.



4.5.5 Test results

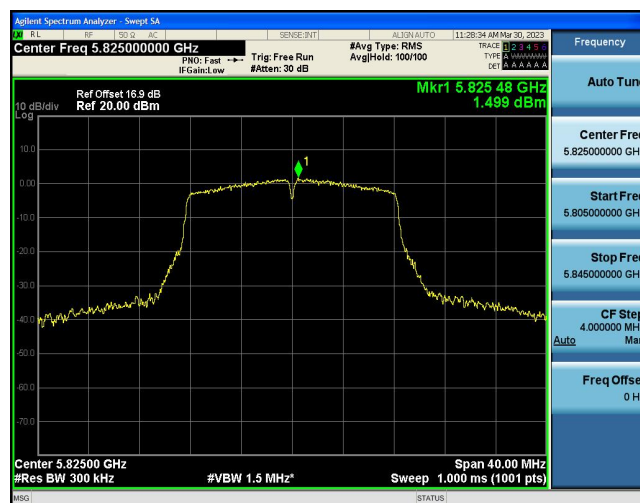
TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5745	1.58	≤30.00	PASS
11A	Ant1	5785	1.52	≤30.00	PASS
11A	Ant1	5825	1.5	≤30.00	PASS
11N20SISO	Ant1	5745	1.69	≤30.00	PASS
11N20SISO	Ant1	5785	1.31	≤30.00	PASS
11N20SISO	Ant1	5825	1.27	≤30.00	PASS
11N40SISO	Ant1	5755	-1.07	≤30.00	PASS
11N40SISO	Ant1	5795	-2.41	≤30.00	PASS

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

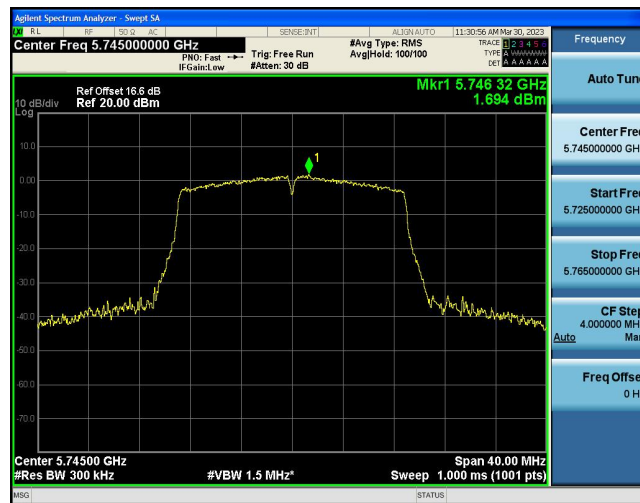




11A-Ant1-5825--0.81-0.09-2.22-0.00



11N20SISO-Ant1-5745--0.66-0.13-2.22-0.00



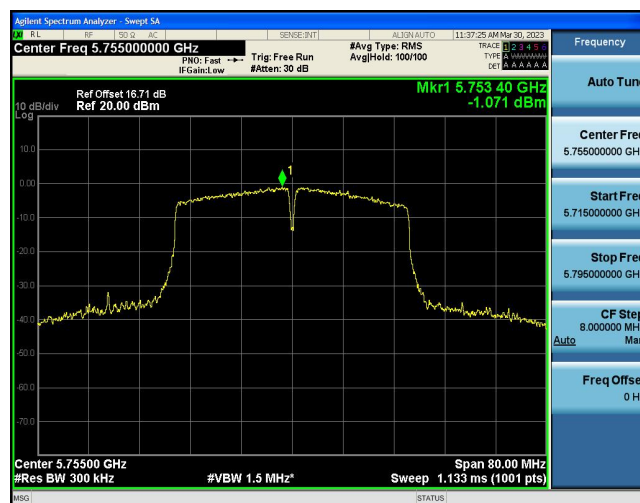
11N20SISO-Ant1-5785--1.01-0.10-2.22-0.00



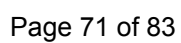
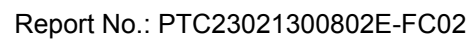
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11N40SISO-Ant1-5755--3.55-0.26-2.22-0.00



11N40SISO-Ant1-5795--4.89-0.26-2.22-0.00





4.6 Maximum Peak Output Power

4.6.1 Applied procedures / Limit

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

FCC Part15 (15.407) , Subpart E

Section	Test Item	Limit	Frequency Range (MHz)	Result
15.407(E) (ii)/(3)	Peak Output Power	1 watt or 30dBm	5725-5850	PASS

4.6.2 Test procedure

KDB 789033 D02v01r01 - Section E) 3) b) Method PM-G

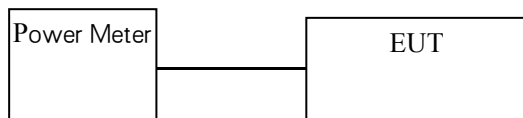
The EUT was directly connected to the spectrum .

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.



4.6.3 Test Setup

Set up:



4.6.4 Deviation from standard

No deviation.



4.6.5 Test results

Test Mode	Antenna	Frequency [MHz]	Set Power	Channel Power [dBm]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Limit [dBm]	Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11A	Ant1	5745	---	14.63	97.90	0.09	14.72	≤30.00	1.62	16.34	---	PASS
11A	Ant1	5785	---	14.07	97.20	0.12	14.19	≤30.00	1.62	15.81	---	PASS
11A	Ant1	5825	---	14.24	97.89	0.09	14.33	≤30.00	1.62	15.95	---	PASS
11N20SISO	Ant1	5745	---	14.53	96.99	0.13	14.66	≤30.00	1.62	16.28	---	PASS
11N20SISO	Ant1	5785	---	14.48	97.74	0.10	14.58	≤30.00	1.62	16.20	---	PASS
11N20SISO	Ant1	5825	---	14.15	97.01	0.13	14.28	≤30.00	1.62	15.90	---	PASS
11N40SISO	Ant1	5755	---	14.76	94.20	0.26	15.02	≤30.00	1.62	16.64	---	PASS
11N40SISO	Ant1	5795	---	13.16	94.20	0.26	13.42	≤30.00	1.62	15.04	---	PASS

Note: The Duty Cycle Factor is compensated in the graph.



4.7 FREQUENCY STABILITY MEASUREMENT

4.7.1 Applied procedures / 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.

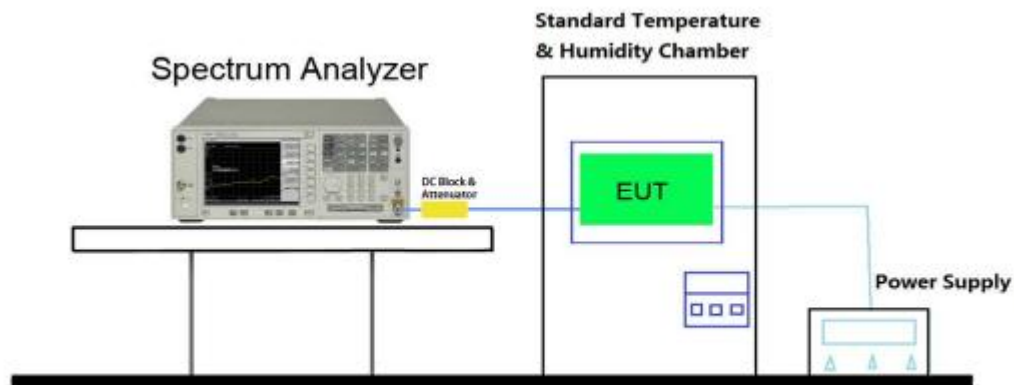
4.7.2 Test procedure

1. The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20oC operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -20°C . After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of $+50^{\circ}\text{C}$ reached.

4.7.3 Deviation from standard

No deviation.

4.7.4 Test setup



4.7.5 Test results

TestMode	Antenna	Frequency[MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5745	NV	NT	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	LV	NT	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	HV	NT	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	NT	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	LV	NT	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	HV	NT	-16000.00	-2.785030	20	PASS
11A	Ant1	5785	NV	NT	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	LV	NT	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	HV	NT	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	NT	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	LV	NT	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	HV	NT	-17000.00	-2.938634	20	PASS
11A	Ant1	5825	NV	NT	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	LV	NT	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	HV	NT	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	NT	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	LV	NT	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	HV	NT	-17000.00	-2.918455	20	PASS
11N40SISO	Ant1	5755	NV	NT	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	LV	NT	-17000.00	-2.953953	20	PASS



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11N40SISO	Ant1	5755	HV	NT	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5795	NV	NT	-17000.00	-2.933563	20	PASS
11N40SISO	Ant1	5795	LV	NT	-17000.00	-2.933563	20	PASS
11N40SISO	Ant1	5795	HV	NT	-18000.00	-3.106126	20	PASS

TestMode	Antenna	Frequency[MHz]	Voltage[Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5745	NV	-30	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	-20	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	-10	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	0	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	10	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	20	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	30	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	40	-16000.00	-2.785030	20	PASS
11A	Ant1	5745	NV	50	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	-30	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	-20	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	-10	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	0	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	10	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	20	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	30	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	40	-16000.00	-2.785030	20	PASS
11N20SISO	Ant1	5745	NV	50	-16000.00	-2.785030	20	PASS
11A	Ant1	5785	NV	-30	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	-20	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	-10	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	0	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	10	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	20	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	30	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	40	-17000.00	-2.938634	20	PASS
11A	Ant1	5785	NV	50	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	-30	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	-20	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	-10	-17000.00	-2.938634	20	PASS



11N20SISO	Ant1	5785	NV	0	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	10	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	20	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	30	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	40	-17000.00	-2.938634	20	PASS
11N20SISO	Ant1	5785	NV	50	-17000.00	-2.938634	20	PASS
11A	Ant1	5825	NV	-30	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	-20	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	-10	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	0	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	10	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	20	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	30	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	40	-17000.00	-2.918455	20	PASS
11A	Ant1	5825	NV	50	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	-30	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	-20	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	-10	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	0	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	10	-18000.00	-3.090129	20	PASS
11N20SISO	Ant1	5825	NV	20	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	30	-18000.00	-3.090129	20	PASS
11N20SISO	Ant1	5825	NV	40	-17000.00	-2.918455	20	PASS
11N20SISO	Ant1	5825	NV	50	-18000.00	-3.090129	20	PASS
11N40SISO	Ant1	5755	NV	-30	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	-20	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	-10	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	0	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	10	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	20	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	30	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	40	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5755	NV	50	-17000.00	-2.953953	20	PASS
11N40SISO	Ant1	5795	NV	-30	-17000.00	-2.933563	20	PASS
11N40SISO	Ant1	5795	NV	-20	-17000.00	-2.933563	20	PASS
11N40SISO	Ant1	5795	NV	-10	-17000.00	-2.933563	20	PASS
11N40SISO	Ant1	5795	NV	0	-17000.00	-2.933563	20	PASS
11N40SISO	Ant1	5795	NV	10	-17000.00	-2.933563	20	PASS



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11N40SISO	Ant1	5795	NV	20	-18000.00	-3.106126	20	PASS
11N40SISO	Ant1	5795	NV	30	-18000.00	-3.106126	20	PASS
11N40SISO	Ant1	5795	NV	40	-18000.00	-3.106126	20	PASS
11N40SISO	Ant1	5795	NV	50	-18000.00	-3.106126	20	PASS



4.8 AUTOMATICALLY DISCONTINUE TRANSMISSION

4.8.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

4.8.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

4.9 ANTENNA REQUIREMENT

4.9.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

4.9.2 EUT ANTENNA

The EUT'S antenna, permanent attached antenna, is Fpcb Antenna. The antenna's gain is 1.62dBi and meets the requirement.

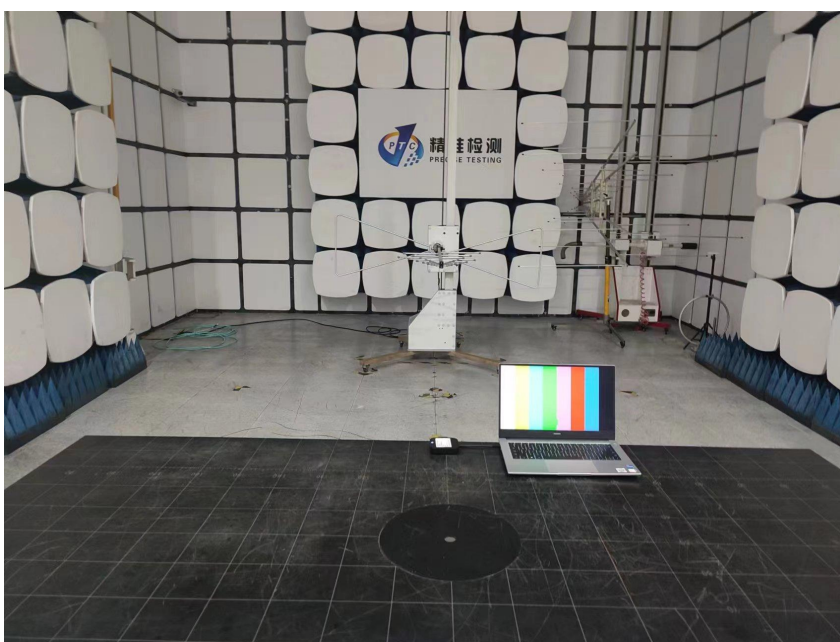
5 Photographs

5.1 Test Setup

Conduction Emissions

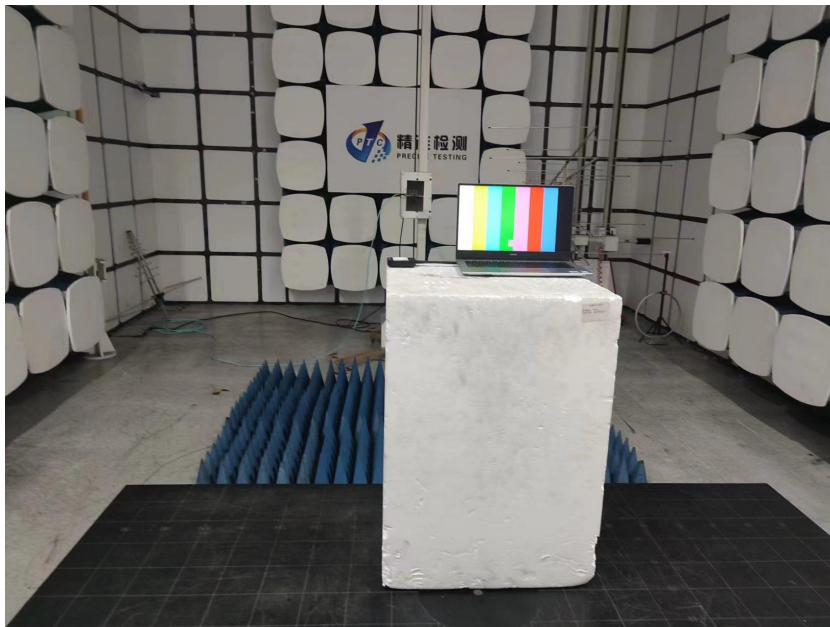


Radiated Spurious Emissions
Test Frequency From 30MHz-1000MHz





Test Frequency above 1G





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5.2 EUT Constructional Details

Reference file "PTC23021300802E-FC01"

****End of report****