



reference

KeySight Spectrum Analyzer - Sweep SA

Start Freq 30.000000000 MHz

Ref Offset 1 dB
Ref 10.00 dBm

Mkr1 2.622 8 GHz
-49.230 dBm

Auto Tune

Center Freq
1.515000000 GHz

Start Freq
30.0000000 MHz

Stop Freq
3.000000000 GHz

CF Step
297.0000000 MHz
Auto

Freq Offset
0 Hz

Scale Type

Start 0.030 GHz
#Res BW 100 kHz

#VBW 300 kHz

Sweep 283.9 ms (1001 pts)

reference

KeySight Spectrum Analyzer - Sweep SA

Marker 1 2.599050000000 GHz

Ref Offset 1 dB
Ref 10.00 dBm

Mkr1 2.599 1 GHz
-50.701 dBm

Select Marker
1

Normal

Delta

Fixed

Off

Properties

More
1 of 2

Center Freq
1.515000000 GHz

Start Freq
30.0000000 MHz

Stop Freq
3.000000000 GHz

CF Step
297.0000000 MHz
Auto

Freq Offset
0 Hz

Scale Type

Start 0.030 GHz
#Res BW 100 kHz

#VBW 300 kHz

Sweep 283.9 ms (1001 pts)

30MHz-3G

KeySight Spectrum Analyzer - Sweep SA

Start Freq 3.000000000 GHz

Ref Offset 1 dB
Ref 10.00 dBm

Mkr1 24.164 GHz
-38.862 dBm

Auto Tune

Center Freq
14.000000000 GHz

Start Freq
3.000000000 GHz

Stop Freq
25.000000000 GHz

CF Step
2.200000000 GHz
Auto

Freq Offset
0 Hz

Scale Type

Start 3.00 GHz
#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.103 s (1001 pts)

30MHz-3G

KeySight Spectrum Analyzer - Sweep SA

Start Freq 3.000000000 GHz

Ref Offset 1 dB
Ref 10.00 dBm

Mkr1 24.076 GHz
-39.247 dBm

Auto Tune

Center Freq
14.000000000 GHz

Start Freq
3.000000000 GHz

Stop Freq
25.000000000 GHz

CF Step
2.200000000 GHz
Auto

Freq Offset
0 Hz

Scale Type

Start 3.00 GHz
#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.103 s (1001 pts)

3G-25G

KeySight Spectrum Analyzer - Sweep SA

Start Freq 3.000000000 GHz

Ref Offset 1 dB
Ref 10.00 dBm

Mkr1 24.164 GHz
-38.862 dBm

Auto Tune

Center Freq
14.000000000 GHz

Start Freq
3.000000000 GHz

Stop Freq
25.000000000 GHz

CF Step
2.200000000 GHz
Auto

Freq Offset
0 Hz

Scale Type

Start 3.00 GHz
#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.103 s (1001 pts)

3G-25G

KeySight Spectrum Analyzer - Sweep SA

Start Freq 3.000000000 GHz

Ref Offset 1 dB
Ref 10.00 dBm

Mkr1 24.076 GHz
-39.247 dBm

Auto Tune

Center Freq
14.000000000 GHz

Start Freq
3.000000000 GHz

Stop Freq
25.000000000 GHz

CF Step
2.200000000 GHz
Auto

Freq Offset
0 Hz

Scale Type

Start 3.00 GHz
#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.103 s (1001 pts)

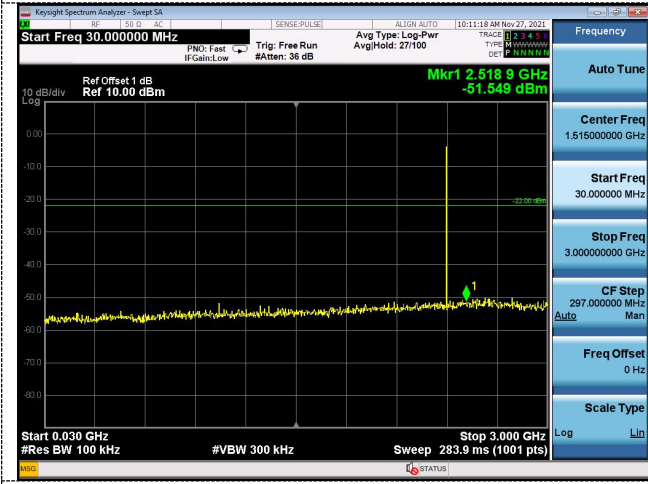
8DPSK (CH00)



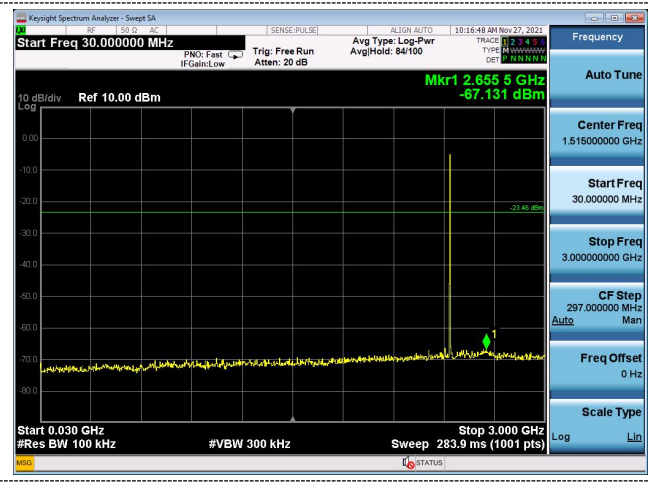
8DPSK (CH39)



reference



reference



30MHz-3G



30MHz-3G



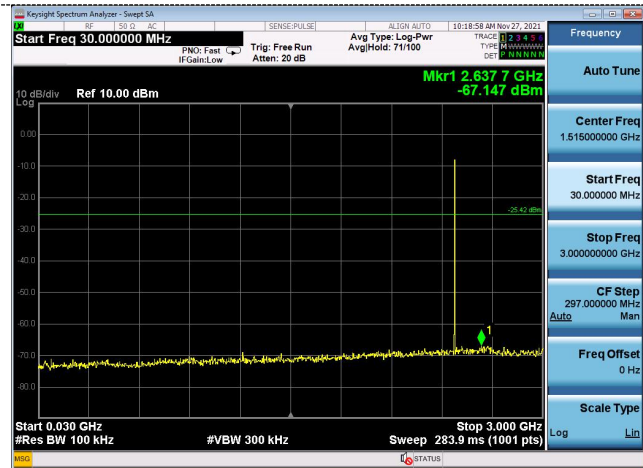
3G-25G

3G-25G

8DPSK (CH78)



reference



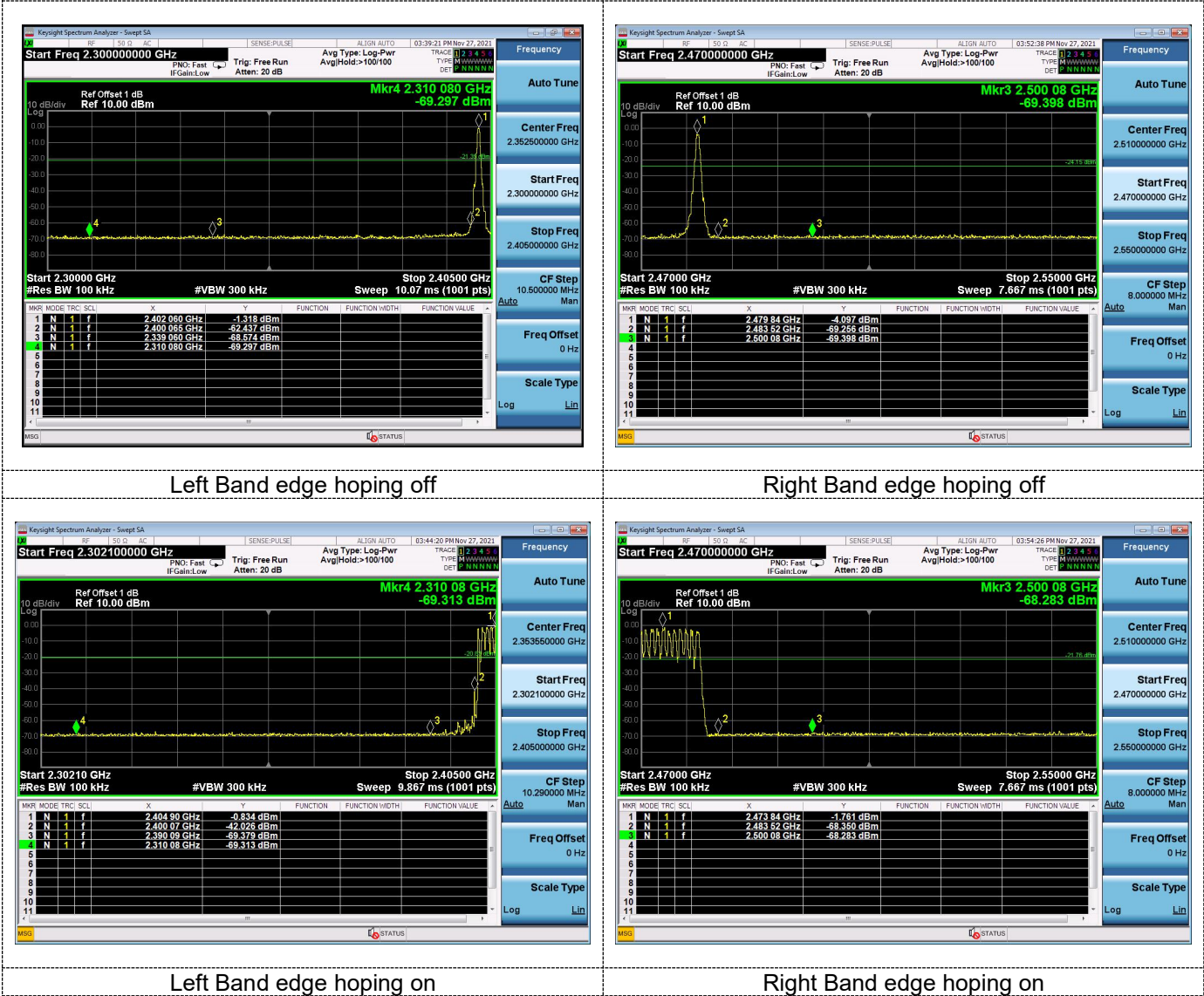
30MHz-3G



3G-25G

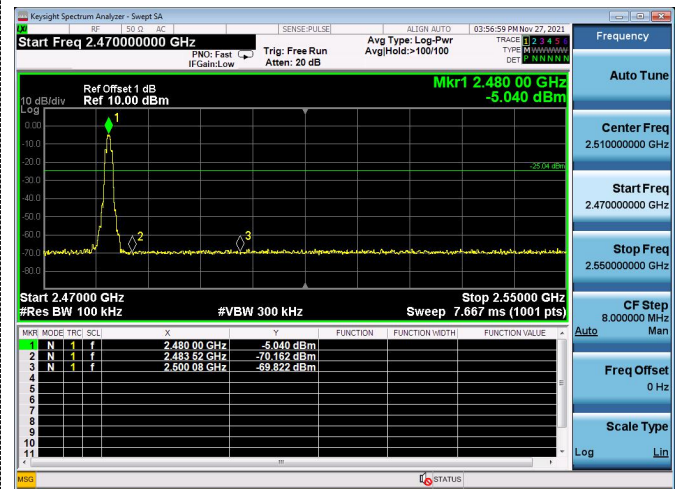
Band-edge Measurements for RF Conducted Emissions:

GFSK

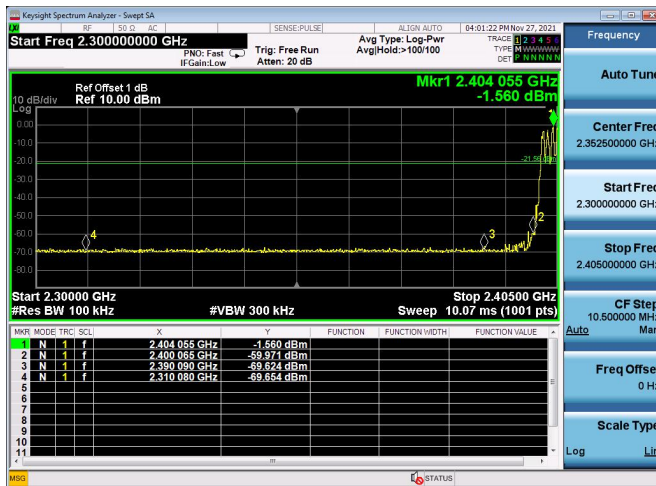


$\pi/4$ DQPSK

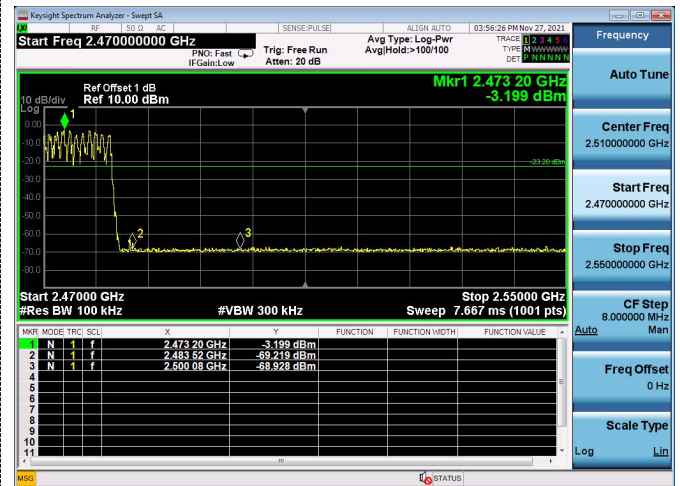
Left Band edge hopping off



Right Band edge hopping off



Left Band edge hopping on

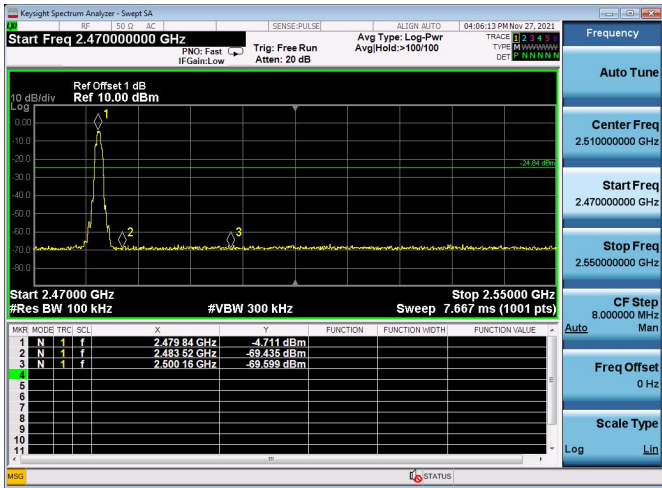


Right Band edge hopping on

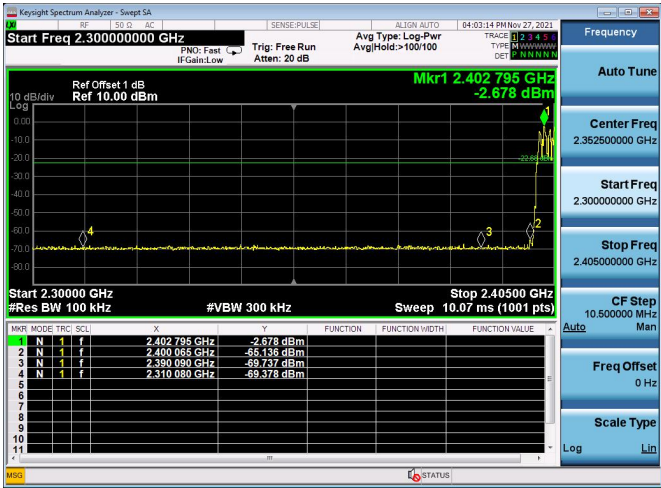
8DPSK



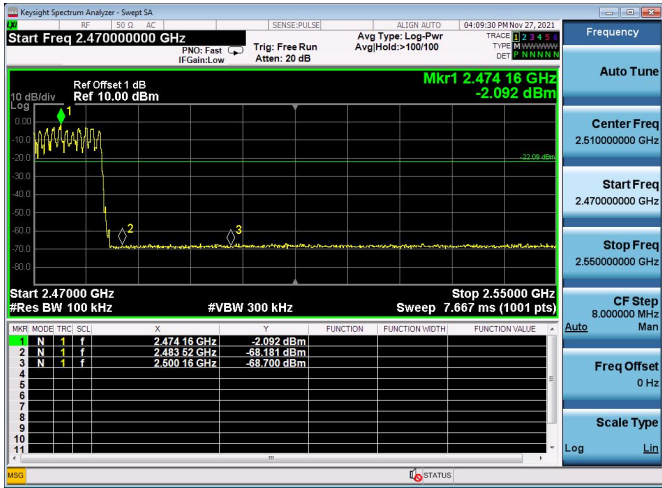
Left Band edge hopping off



Right Band edge hopping off



Left Band edge hopping on



Right Band edge hopping on

4.9 Pseudorandom Frequency Hopping Sequence

TEST APPLICABLE

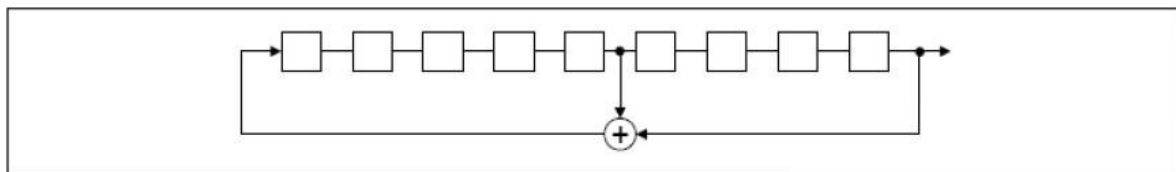
For 47 CFR Part 15C section 15.247 (a) (1) requirement:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hop-ping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hop-ping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

EUT Pseudorandom Frequency Hopping Sequence Requirement

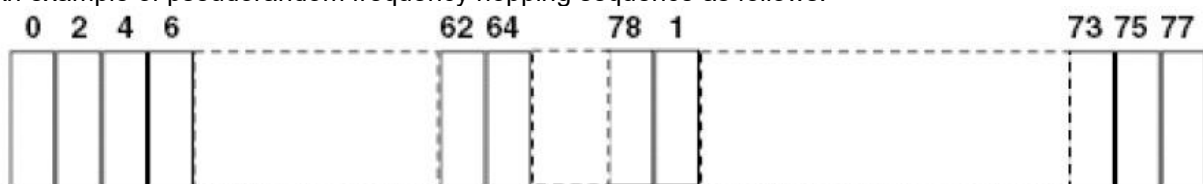
The pseudorandom frequency hopping sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones, for example: the shift register is initialized with nine ones.

- Number of shift register stages:9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of pseudorandom frequency hopping sequence as follows:



Each frequency used equally one the average by each transmitter.

The system receiver have input bandwidths that match the hopping channel bandwidths of their corresponding transmitter and shift frequencies in synchronization with the transmitted signals.

4.10 Antenna Requirement

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 15.247 (c), 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.

Refer to statement below for compliance

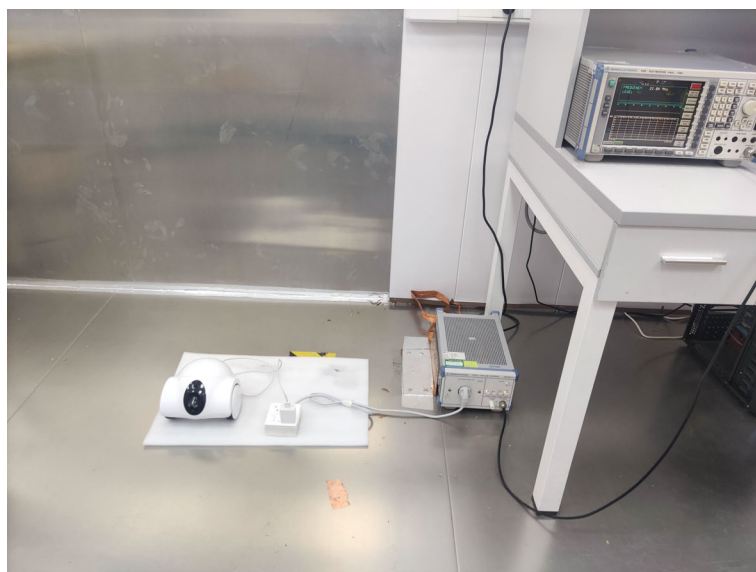
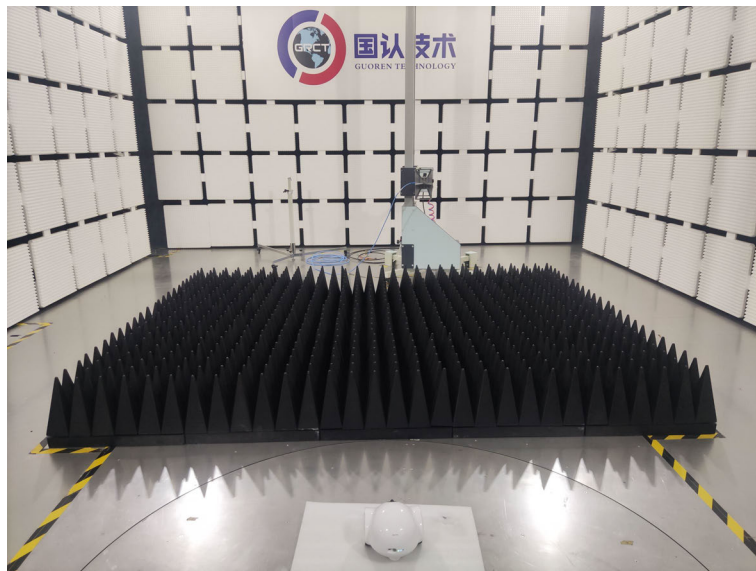
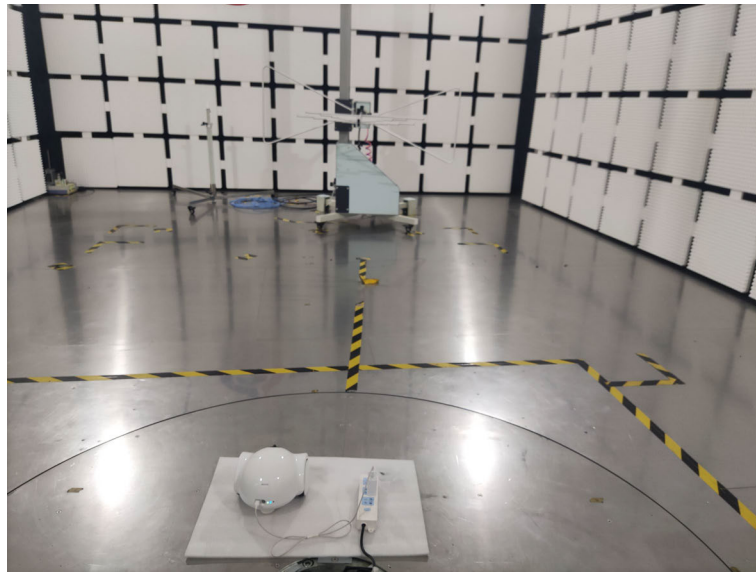
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

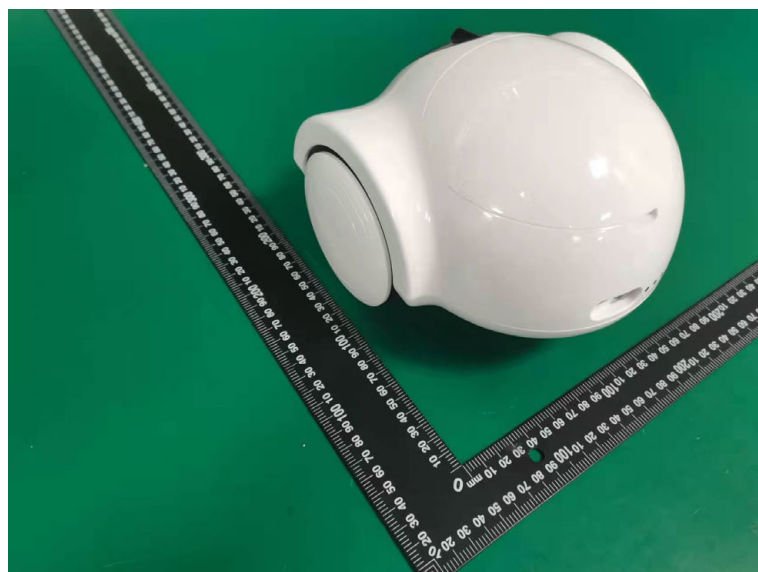
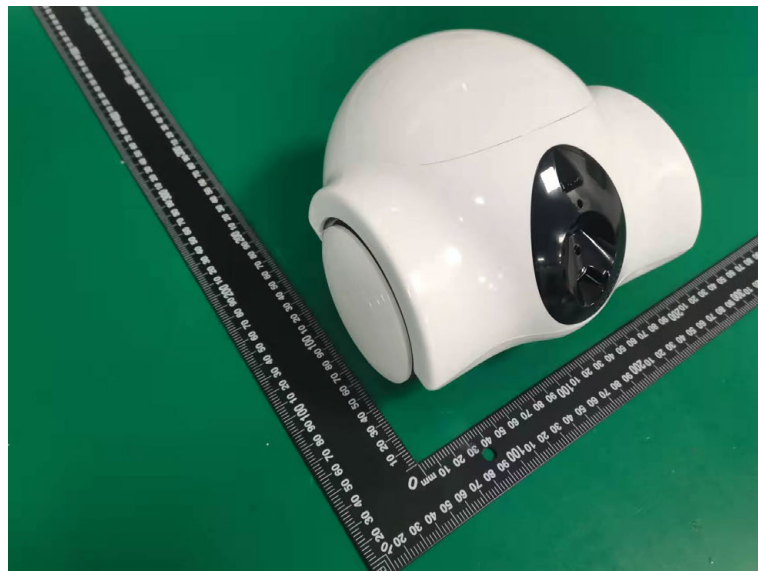
The maximum gain of antenna was 1.5 dBi.

Remark: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, Shenzhen GUOREN Certification Technology Service Co., Ltd. does not assume any responsibility.

5 Test Setup Photos of the EUT

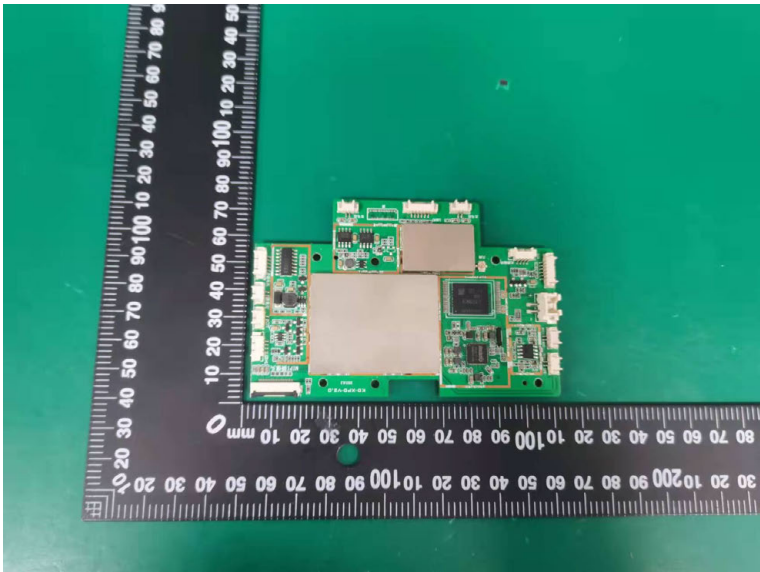
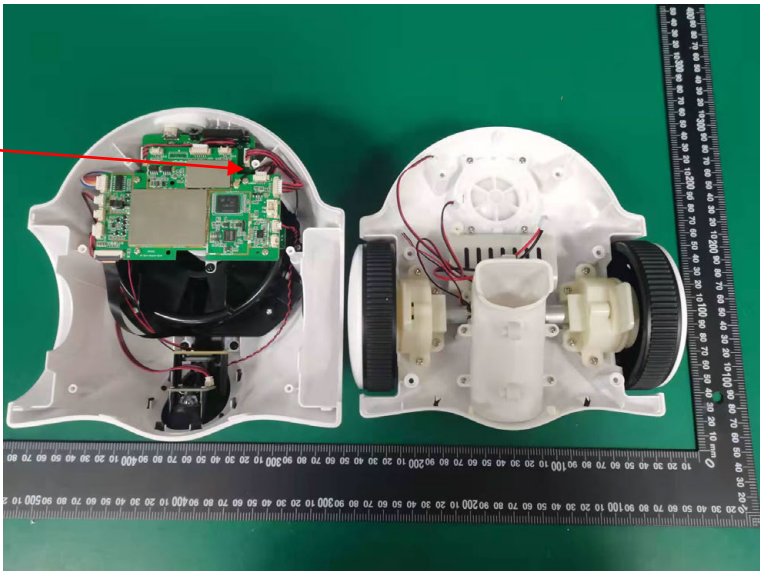


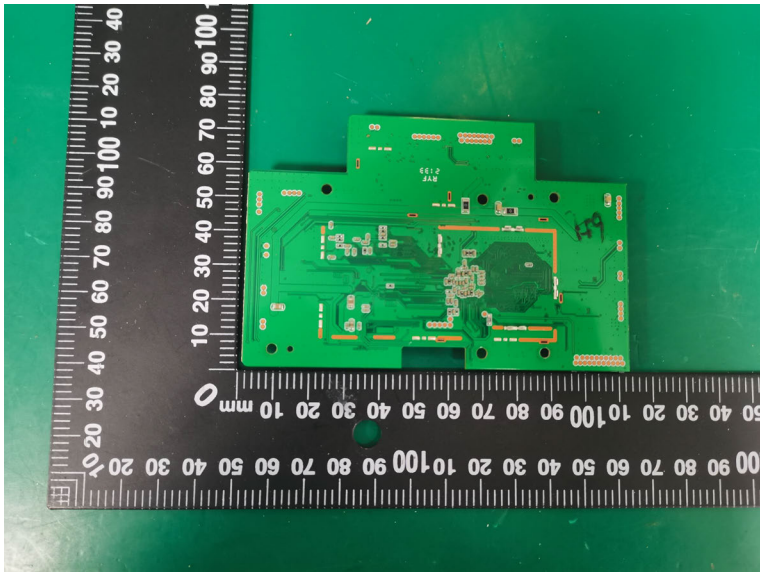
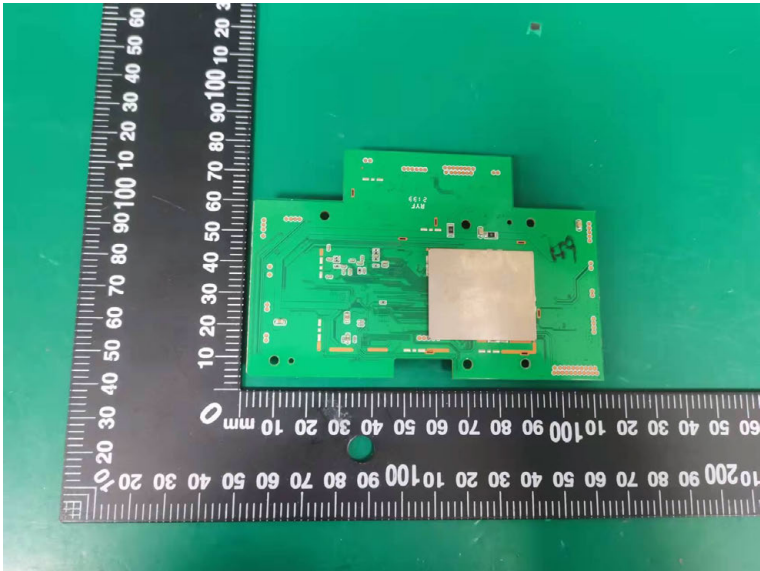
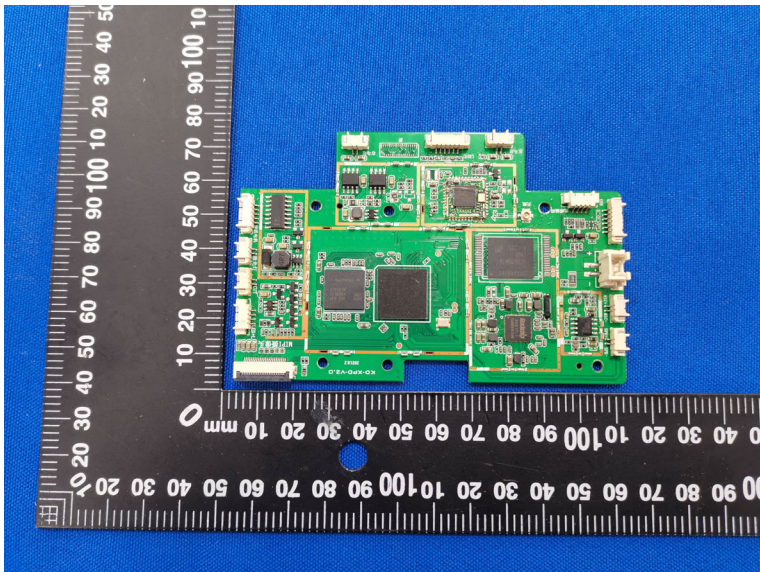
6 Photos of the EUT

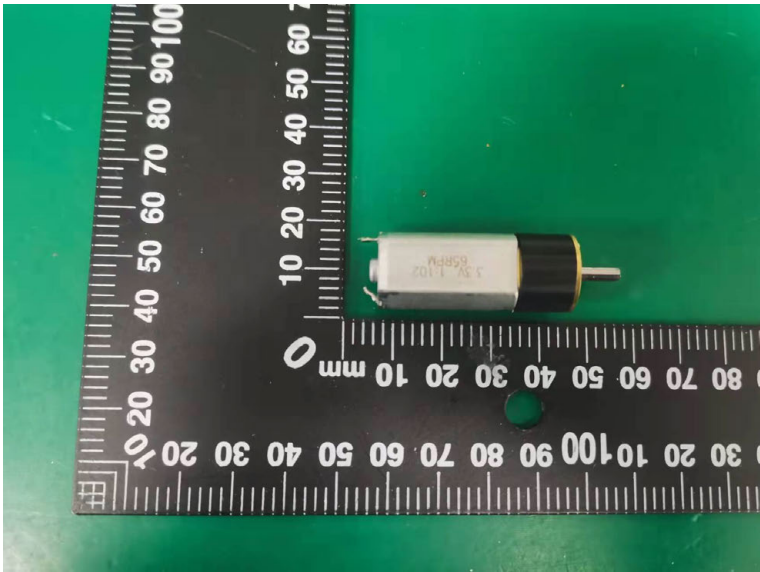
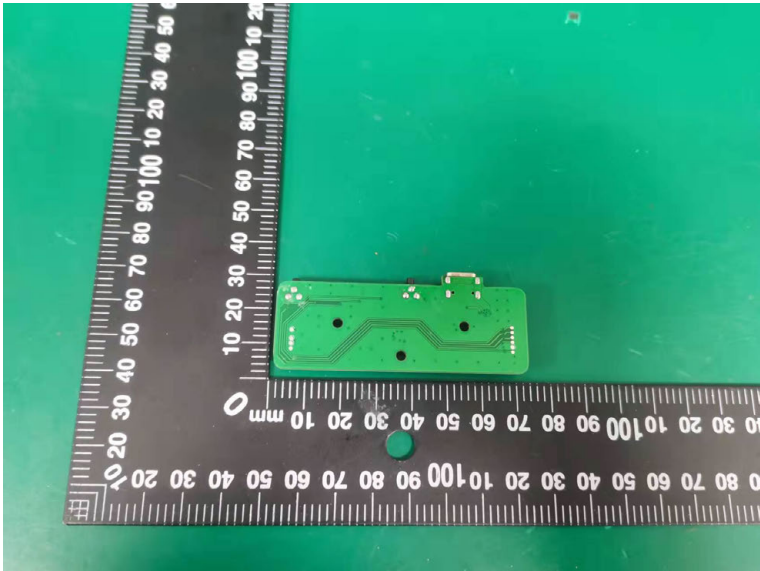
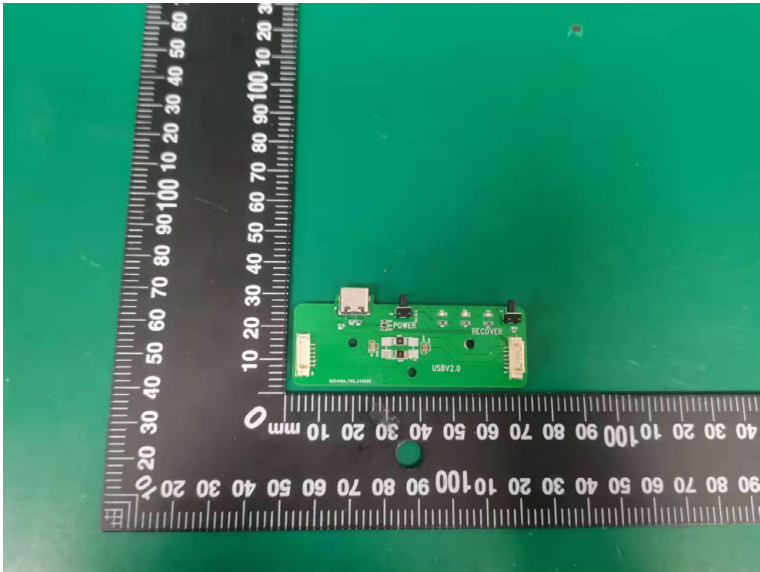


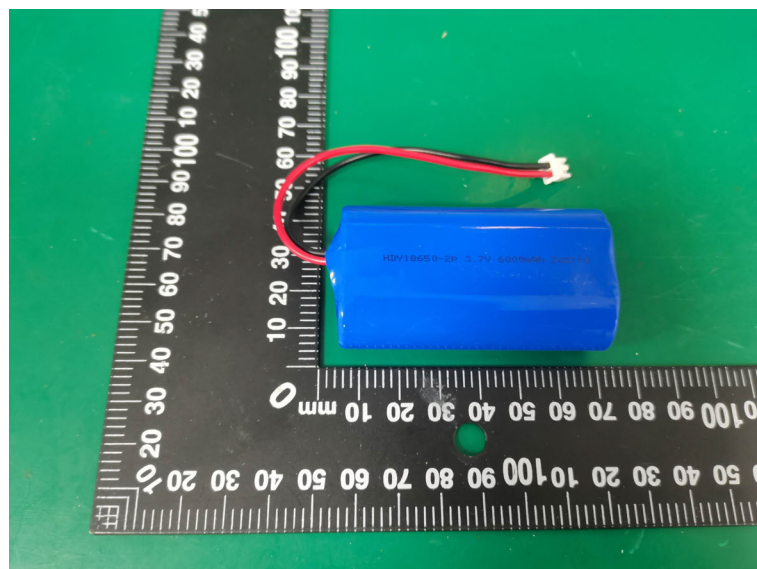
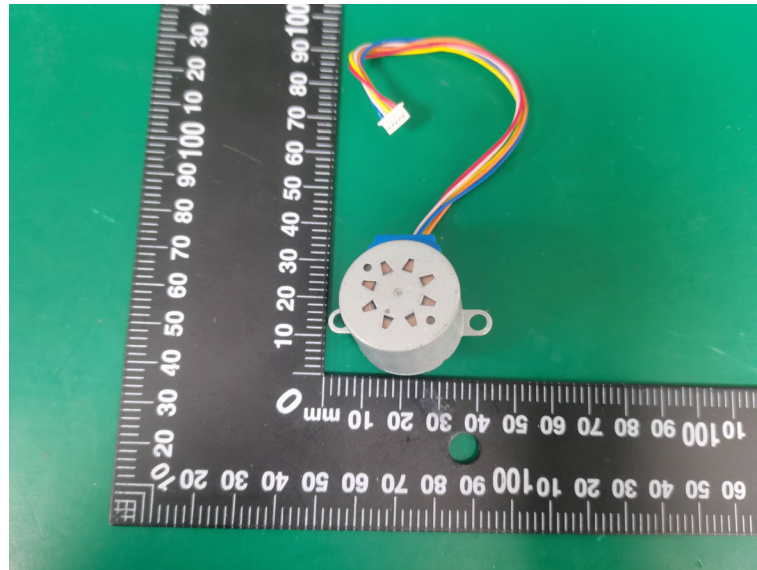


WIFI&BT
Antenna









***** End of Report *****