10. SPURIOUS RF CONDUCTED EMISSION

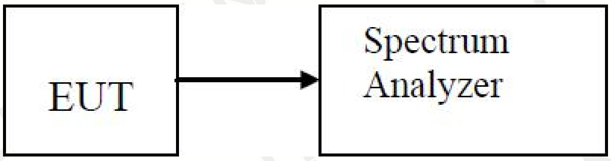
10.1 Test Limit

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.
3. For below 30MHz,For 9KHz-150kHz,150K-10MHz,We use the RBW 1KHz,10KHz, So the limit need to calculated by “10lg(BW1/BW2)“. for example For9KHz-150kHz,RBW 1KHz, The Limit= the highest emission level-20-10log(100/1)= the highest emission level-40.

10.2 Test Procedure

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2013, For 9KHz-150kHz, Set RBW=1kHz and VBW= 3KHz; For 150KHz-10MHz, Set RBW=10kHz and VBW= 30KHz:For 10MHz-25GHz ,Set RBW=100kHz and VBW= 300KHz in order to measure the peak field strength, and mwasure frequeny range from 9KHz to 25GHz.

10.3 Test Setup



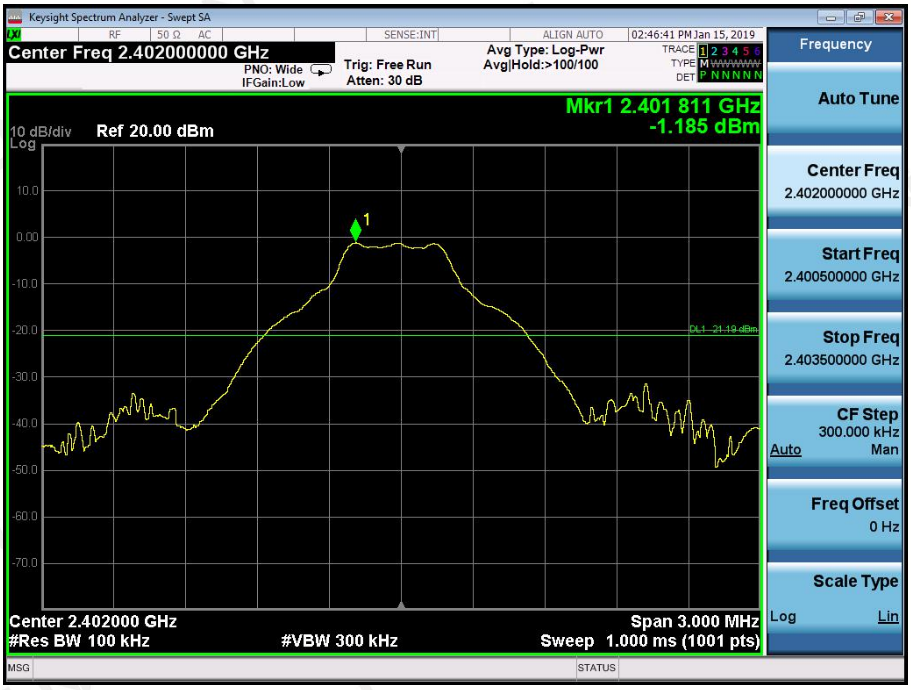
10.4 Test Result

PASS

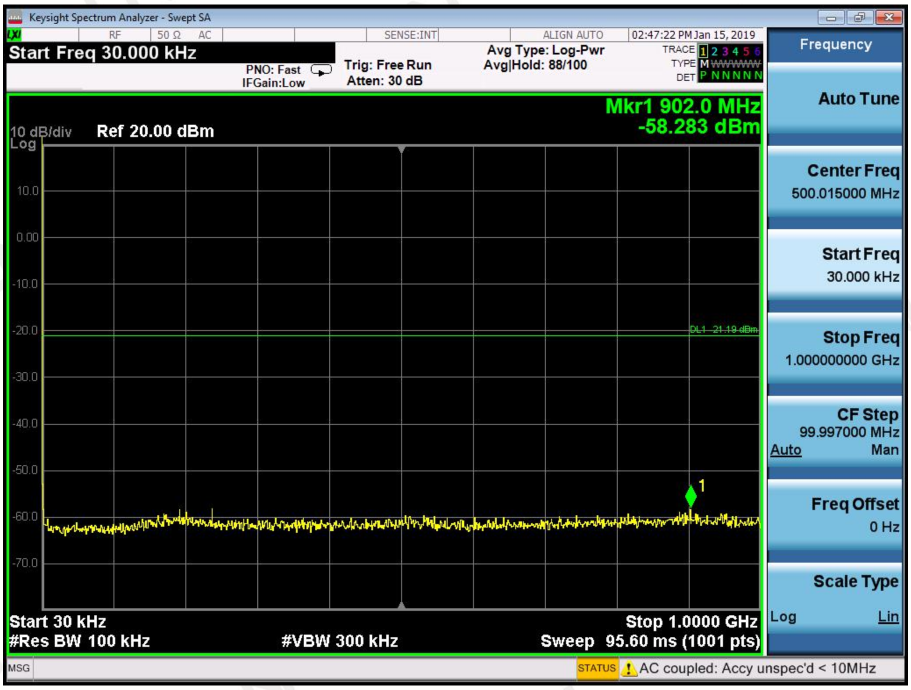
Remark: All modes of GFSK, π/4 DQPSK, 8DPSK were tested, only the worst result of GFSK was reported as below:

GFSK

CH: 2402MHz

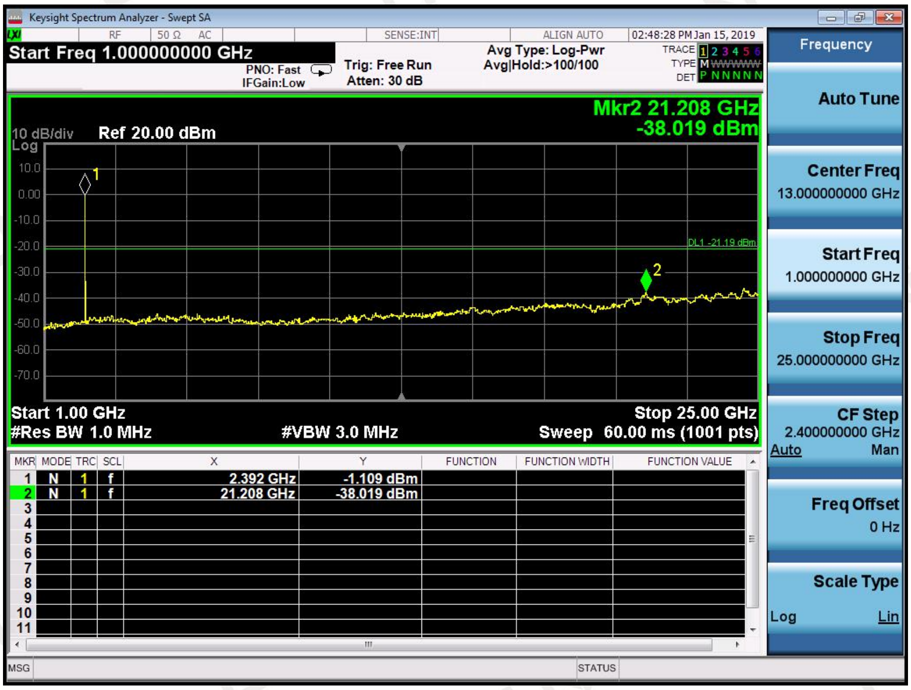

Keysight Spectrum Analyzer - Swept SA
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
DL1 -21.19 dBm
MSG
STATUS
Frequency
Auto Tune
Center Freq
Start Freq
Stop Freq
CF Step
Auto
Man
Freq Offset
Scale Type
Log
Lin

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:46:41 PM Jan 15, 2019
Center Freq 2.402000000 GHz
PNO: Wide IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P NNNNN
Mkr1 2.401 811 GHz
-1.185 dBm
10 dB/div Log Ref 20.00 dBm
Center 2.402000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3.000 MHz
Sweep 1.000 ms (1001 pts)
Center Freq 2.402000000 GHz
Start Freq 2.400500000 GHz
Stop Freq 2.403500000 GHz
CF Step 300.000 kHz
Freq Offset 0 Hz


Keysight Spectrum Analyzer - Swept SA
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
DL1 -21.19 dBm
MSG
STATUS
Frequency
Auto Tune
Center Freq
Start Freq
Stop Freq
CF Step
Auto
Man
Freq Offset
Scale Type
Log
Lin

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:47:22 PM Jan 15, 2019
Start Freq 30.000 kHz
PNO: Fast IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 88/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P NNNNN
Mkr1 902.0 MHz
-58.283 dBm
10 dB/div Log Ref 20.00 dBm
Start 30 kHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 95.60 ms (1001 pts)
Center Freq 500.015000 MHz
Start Freq 30.000 kHz
Stop Freq 1.000000000 GHz
CF Step 99.997000 MHz
Freq Offset 0 Hz
AC coupled: Accy unspec'd < 10MHz

30MHz~1GHz


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
2
DL1 -21.19 dBm
MSG
STATUS
Frequency
Auto Tune

02:48:28 PM Jan 15, 2019

Start Freq 1.000000000 GHz

PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100

Mkr2 21.208 GHz
-38.019 dBm

10 dB/div Ref 20.00 dBm

Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 25.00 GHz
Sweep 60.00 ms (1001 pts)

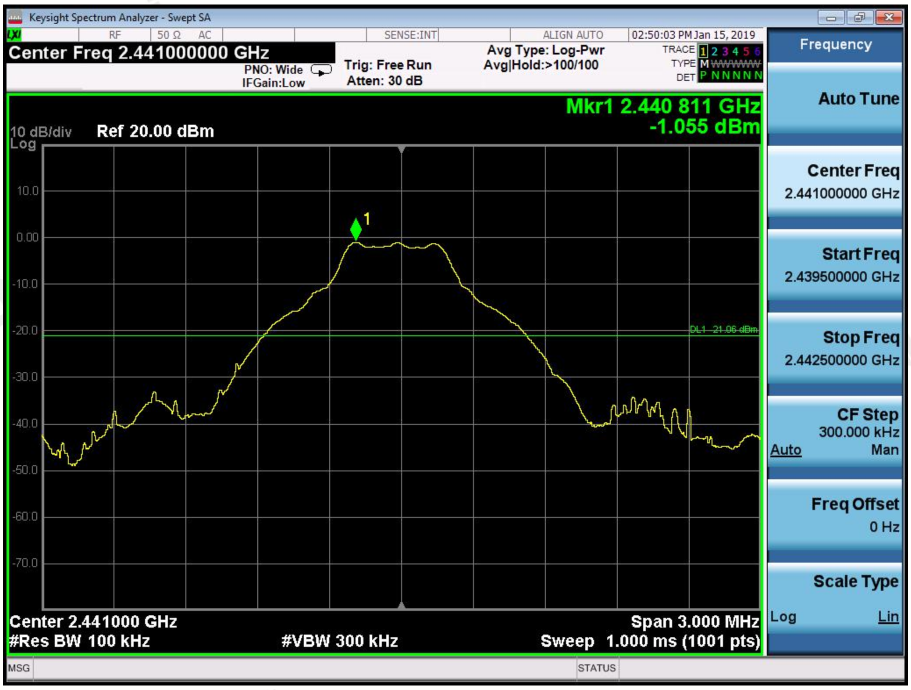
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.392 GHz	-1.109 dBm			
2	N	1	f	21.208 GHz	-38.019 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Center Freq 13.000000000 GHz
Start Freq 1.000000000 GHz
Stop Freq 25.000000000 GHz
CF Step 2.400000000 GHz Auto Man
Freq Offset 0 Hz
Scale Type Log Lin

1GHz~25GHz

GFSK

CH: 2441MHz


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
DL1 -21.06 dBm
MSG
STATUS
Frequency
Auto Tune

02:50:03 PM Jan 15, 2019

Center Freq 2.441000000 GHz

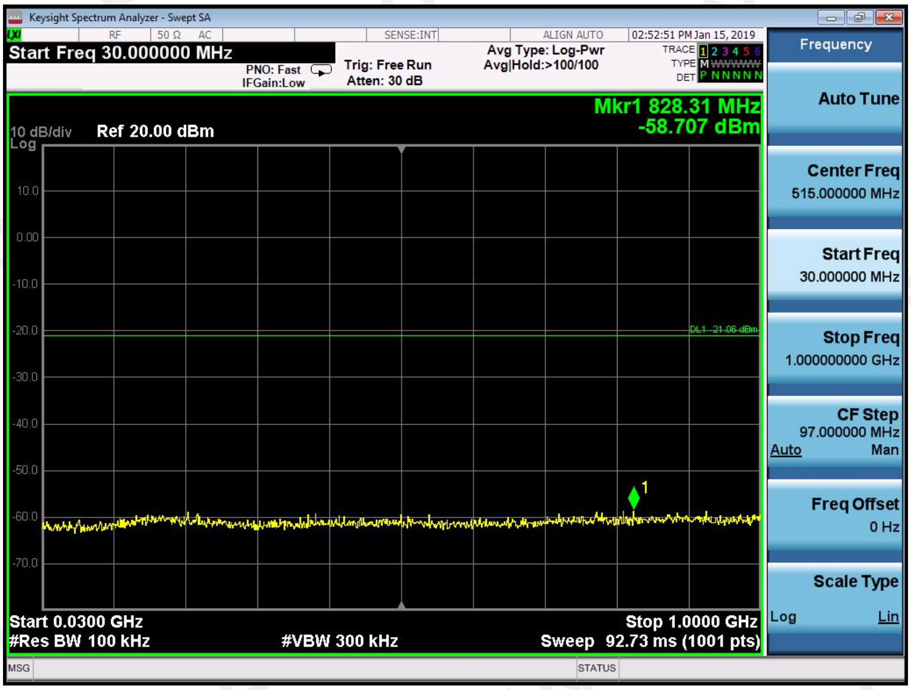
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100

Mkr1 2.440 811 GHz
-1.055 dBm

10 dB/div Ref 20.00 dBm

Center 2.441000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3.000 MHz
Sweep 1.000 ms (1001 pts)

Center Freq 2.441000000 GHz
Start Freq 2.439500000 GHz
Stop Freq 2.442500000 GHz
CF Step 300.000 kHz Auto Man
Freq Offset 0 Hz
Scale Type Log Lin



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:52:51 PM Jan 15, 2019

Start Freq 30.000000 MHz

PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100

Mkr1 828.31 MHz
-58.707 dBm

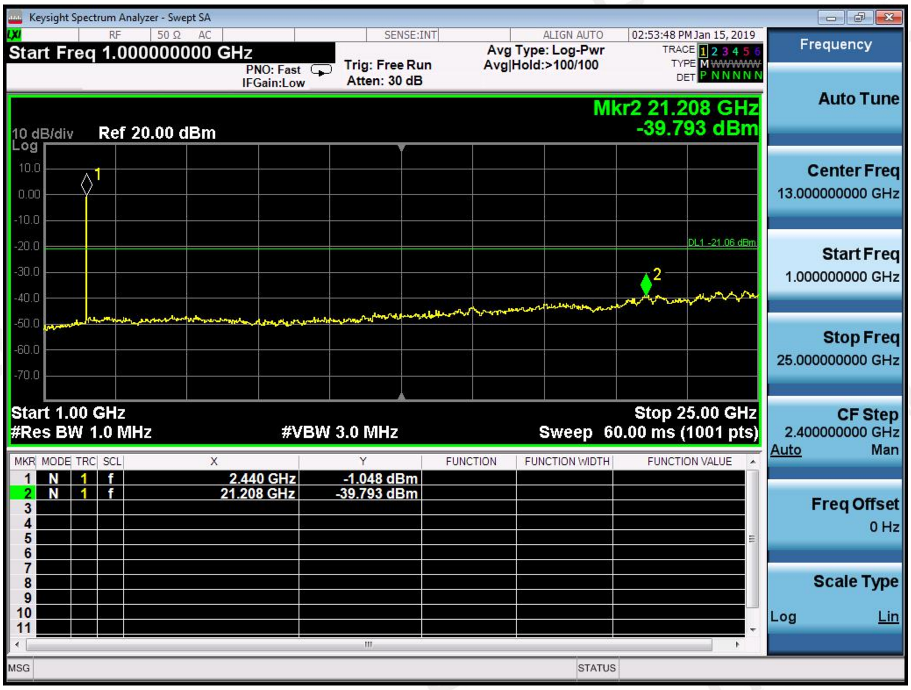
10 dB/div Ref 20.00 dBm

Start 0.0300 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)

Center Freq 515.000000 MHz
Start Freq 30.000000 MHz
Stop Freq 1.000000000 GHz
CF Step 97.000000 MHz
Freq Offset 0 Hz

TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
DL1 -21.06 dBm
1
Frequency
Auto Tune
Auto
Man
Scale Type
Log
Lin
MSG
STATUS

30MHz~1GHz



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:53:48 PM Jan 15, 2019

Start Freq 1.000000000 GHz

PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100

Mkr2 21.208 GHz
-39.793 dBm

10 dB/div Ref 20.00 dBm

Start 1.00 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 25.00 GHz
Sweep 60.00 ms (1001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.440 GHz	-1.048 dBm			
2	N	1	f	21.208 GHz	-39.793 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

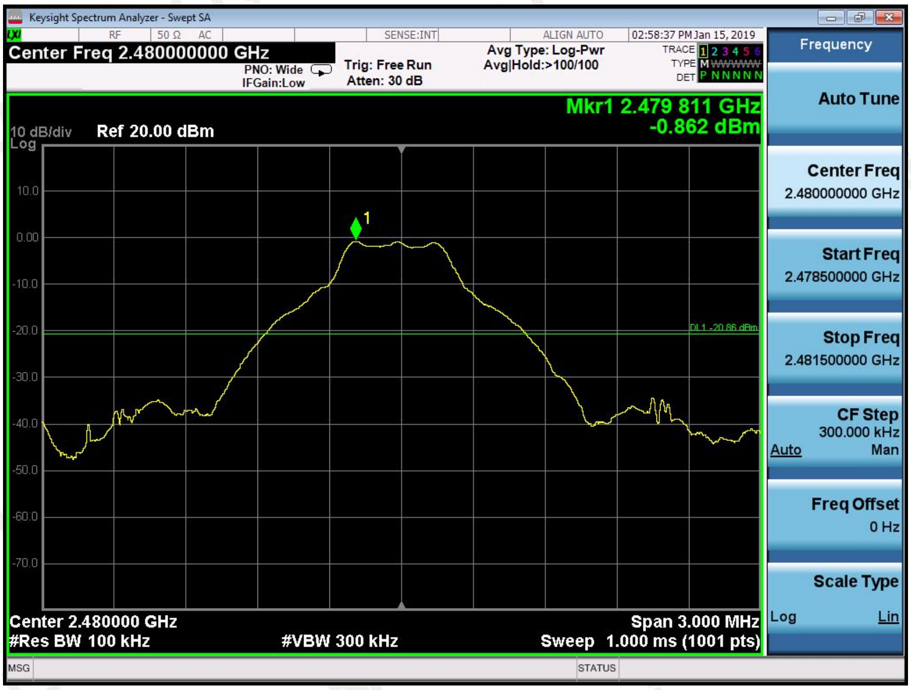
Center Freq 13.000000000 GHz
Start Freq 1.000000000 GHz
Stop Freq 25.000000000 GHz
CF Step 2.400000000 GHz
Freq Offset 0 Hz

TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
DL1 -21.06 dBm
1
2
Frequency
Auto Tune
Auto
Man
Scale Type
Log
Lin
MSG
STATUS

1GHz~25GHz

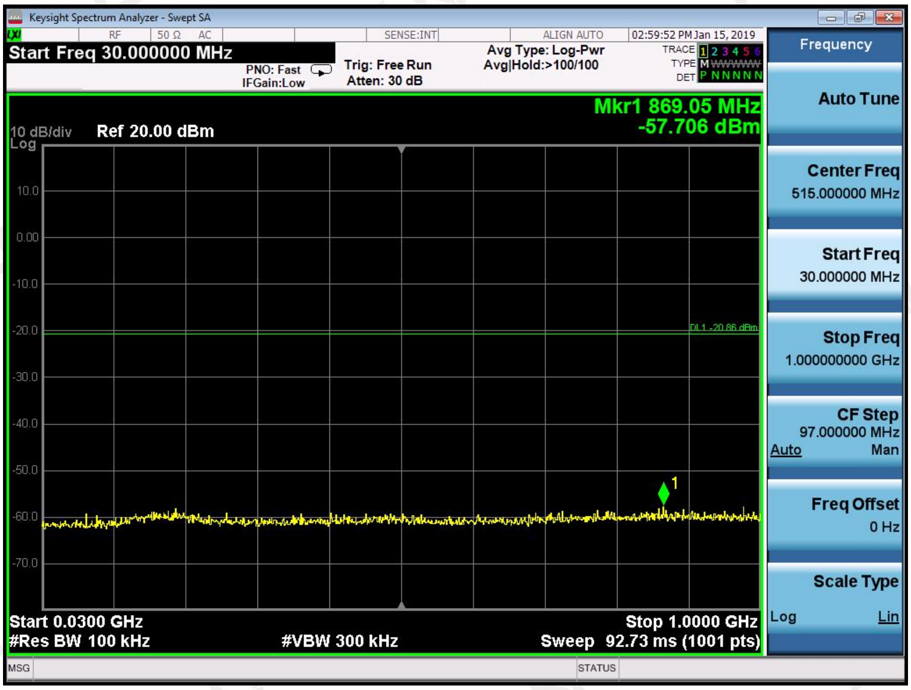
GFSK

CH: 2480MHz



Keysight Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:58:37 PM Jan 15, 2019
Mkr1 2.479 811 GHz
-0.862 dBm
10 dB/div Ref 20.00 dBm
Center 2.480000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3.000 MHz
Sweep 1.000 ms (1001 pts)

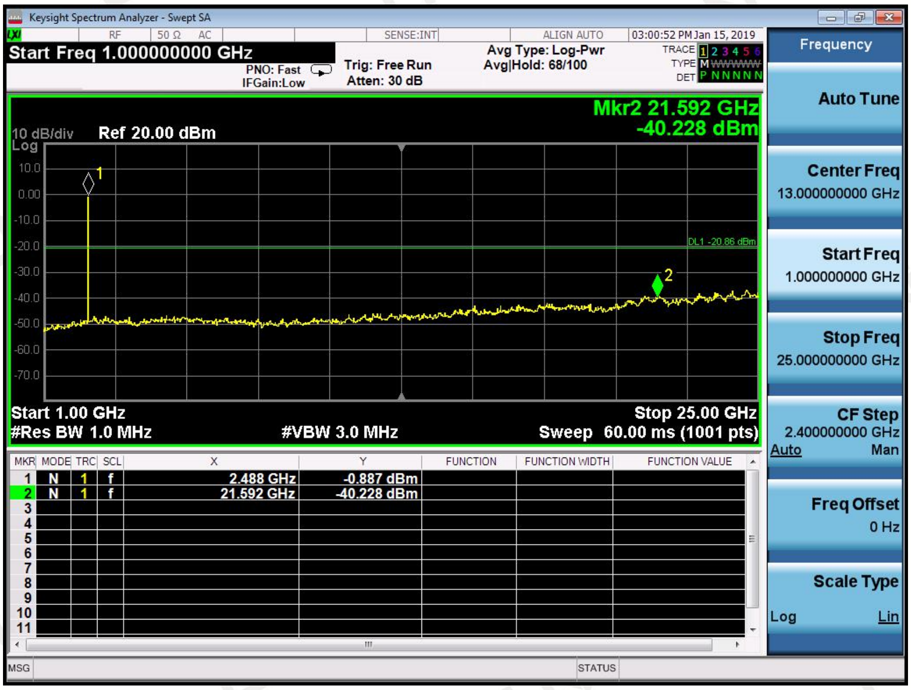
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
DL1 -20.86 dBm
1
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.478500000 GHz
Stop Freq
2.481500000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS



Keysight Spectrum Analyzer - Swept SA
Start Freq 30.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:59:52 PM Jan 15, 2019
Mkr1 869.05 MHz
-57.706 dBm
10 dB/div Ref 20.00 dBm
Start 0.0300 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.73 ms (1001 pts)

RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
DL1 -20.86 dBm
1
Frequency
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

30MHz~1GHz



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 03:00:52 PM Jan 15, 2019

Start Freq 1.000000000 GHz

PNO: Fast

IFGain:Low

Trig: Free Run

Atten: 30 dB

Avg Type: Log-Pwr

Avg|Hold: 68/100

TRACE 1 2 3 4 5 6

TYPE M WWWWW

DET P N N N N N

Mkr2 21.592 GHz

-40.228 dBm

10 dB/div Ref 20.00 dBm

Log

DL1 -20.86 dBm

Start 1.00 GHz

Stop 25.00 GHz

#Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 60.00 ms (1001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.488 GHz	-0.887 dBm			
2	N	1	f	21.592 GHz	-40.228 dBm			
3								
4								
5								
6								
7								
8								
9								
10								
11								

Frequency

Auto Tune

Center Freq 13.000000000 GHz

Start Freq 1.000000000 GHz

Stop Freq 25.000000000 GHz

CF Step 2.400000000 GHz Auto Man

Freq Offset 0 Hz

Scale Type Log Lin

1GHz~25GHz

11. NUMBER OF HOPPING FREQUENCY

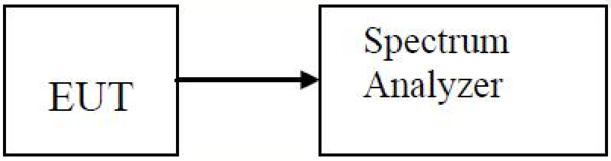
11.1 Test Limit

Frequency hopping systems in the 2400﹣2483.5MHz band shall use at least 15 channels.

11.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator.Set spectrum analyzer start 2400MHz to 2483.5MHz with RBW=1MHz and VBW=3MHz.

11.3 Test Setup

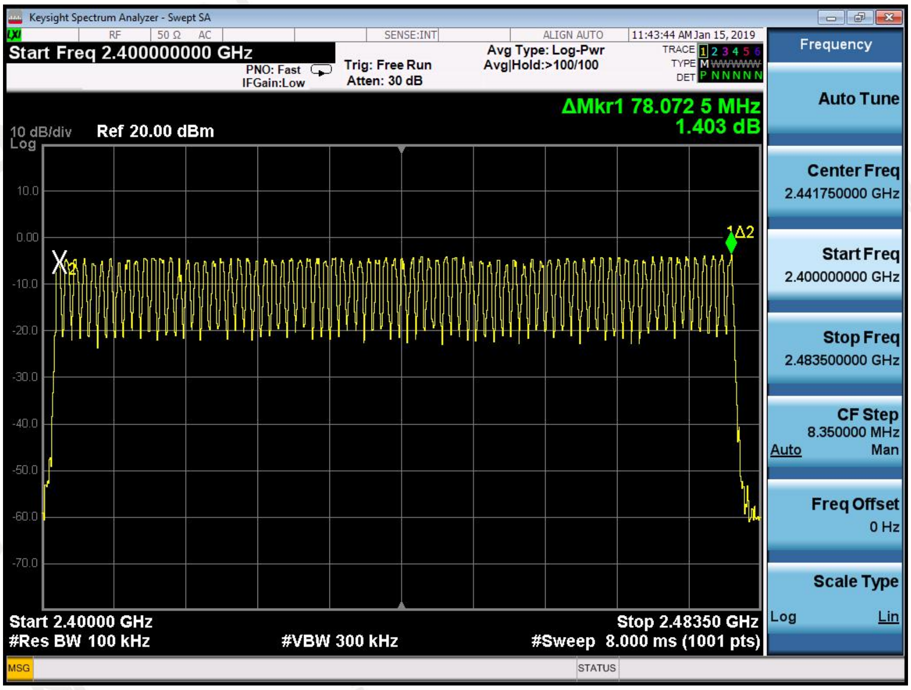

EUT
Spectrum Analyzer

11.4 Test Result

PASS

Modulation	Number of Hopping Channel	Limit	Result
GFSK	79	≥15	Pass
π/4DQPSK	79		
8DPSK	79		

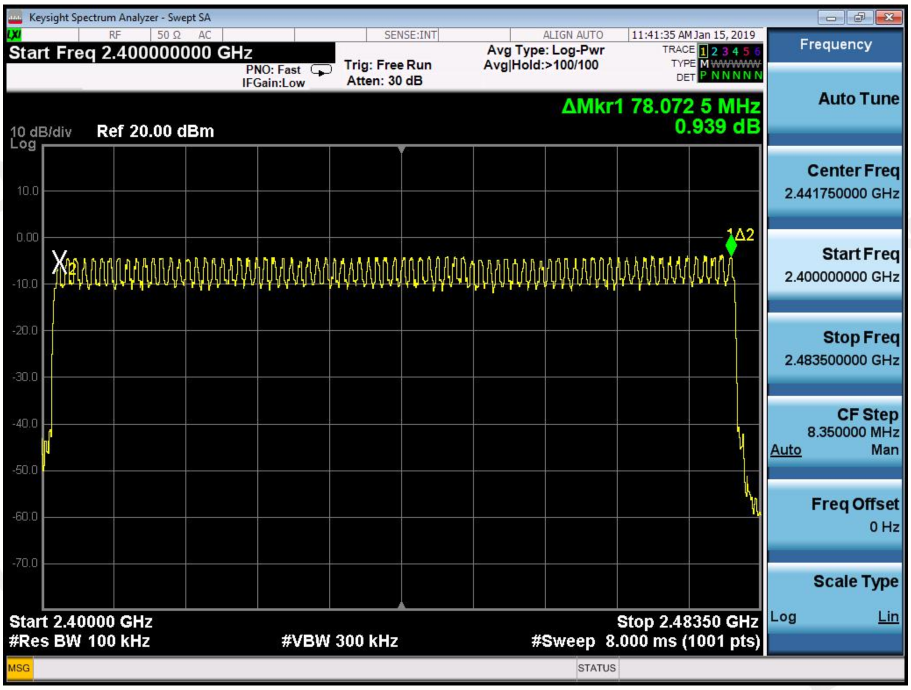
GFSK



Start Freq 2.400000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:43:44 AM Jan 15, 2019
ΔMkr1 78.072 5 MHz
1.403 dB
10 dB/div Ref 20.00 dBm
Start 2.40000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.48350 GHz
#Sweep 8.000 ms (1001 pts)
Center Freq 2.441750000 GHz
Start Freq 2.400000000 GHz
Stop Freq 2.483500000 GHz
CF Step 8.350000 MHz
Freq Offset 0 Hz

Keysight Spectrum Analyzer - Swept SA
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
X2
1Δ2
Frequency
Auto Tune
Auto
Man
Scale Type
Log
Lin
MSG
STATUS

π/4DQPSK



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 11:41:35 AM Jan 15, 2019

Start Freq 2.400000000 GHz

PNO: Fast IFGain:Low

Trig: Free Run Atten: 30 dB

Avg Type: Log-Pwr Avg|Hold:>100/100

TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P NNNNN

ΔMkr1 78.072 5 MHz 0.939 dB

10 dB/div Log Ref 20.00 dBm

Start 2.40000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.48350 GHz #Sweep 8.000 ms (1001 pts)

Center Freq 2.441750000 GHz

Start Freq 2.400000000 GHz

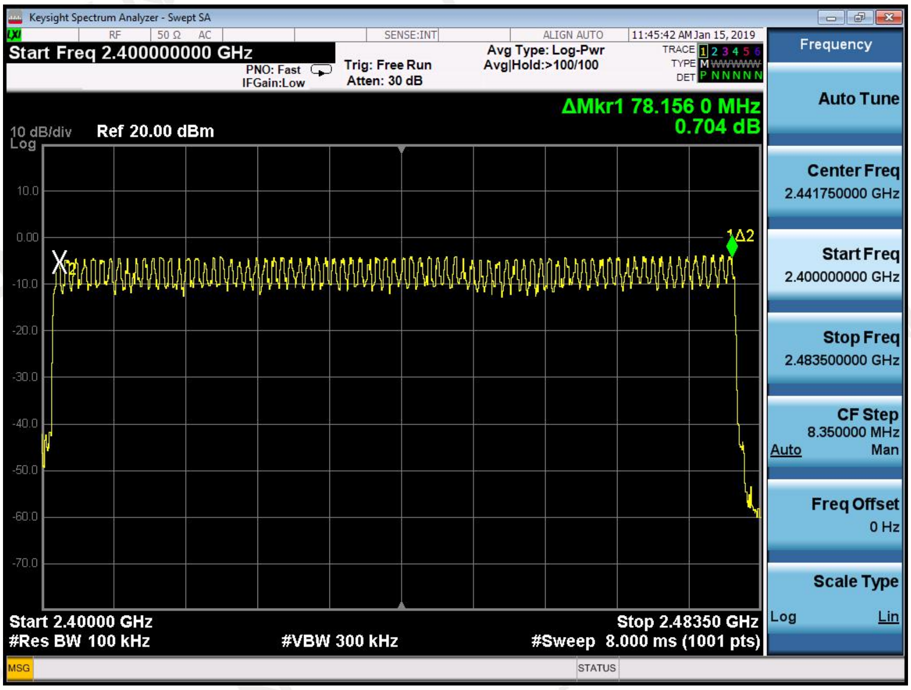
Stop Freq 2.483500000 GHz

CF Step 8.350000 MHz Auto Man

Freq Offset 0 Hz

Scale Type Log Lin

8DPSK



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 11:45:42 AM Jan 15, 2019

Start Freq 2.400000000 GHz

PNO: Fast IFGain:Low

Trig: Free Run Atten: 30 dB

Avg Type: Log-Pwr Avg|Hold:>100/100

TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P NNNNN

ΔMkr1 78.156 0 MHz 0.704 dB

10 dB/div Log Ref 20.00 dBm

Start 2.40000 GHz #Res BW 100 kHz #VBW 300 kHz Stop 2.48350 GHz #Sweep 8.000 ms (1001 pts)

Center Freq 2.441750000 GHz

Start Freq 2.400000000 GHz

Stop Freq 2.483500000 GHz

CF Step 8.350000 MHz Auto Man

Freq Offset 0 Hz

Scale Type Log Lin

12. TIME OF OCCUPANCY(DWELL TIME)

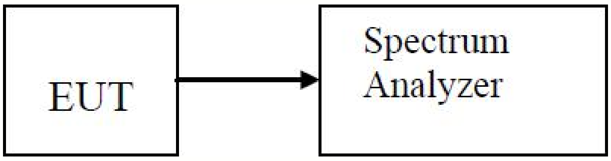
12.1 Test Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a pe-riod of 0.4 seconds multiplied by the number of hopping channels employed.

12.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator.
Set center frequency of spectrum analyzer=operating frequency with RBW=1MHz and VBW=3MHz,Span=0Hz.

12.3 Test Setup

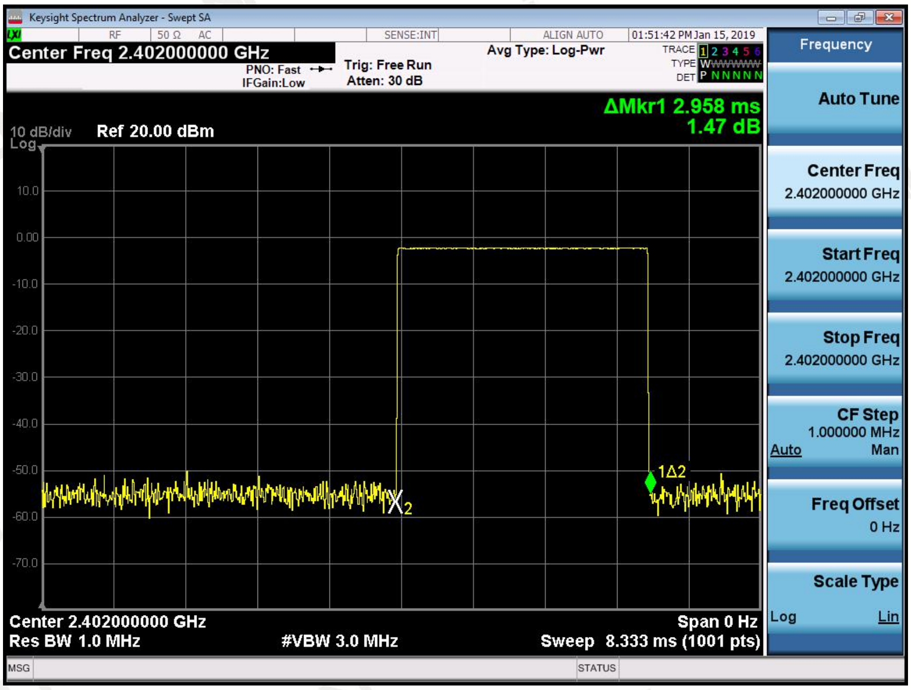


12.4 Test Result

PASS

Type	Modulation	CH	Pulse time(ms)	Dwell Time(ms)	Limit(ms)	Result
Dwell Time	GFSK	Low	2.96	315.73	400	Pass
		Mid	2.94	313.60	400	Pass
		High	2.96	315.73	400	Pass

CH: 2402MHz


Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 01:51:42 PM Jan 15, 2019

Center Freq 2.402000000 GHz

PNO: Fast IFGain:Low

Trig: Free Run

Atten: 30 dB

Avg Type: Log-Pwr

TRACE 1 2 3 4 5 6
TYPE W W W W W W
DET P N N N N N

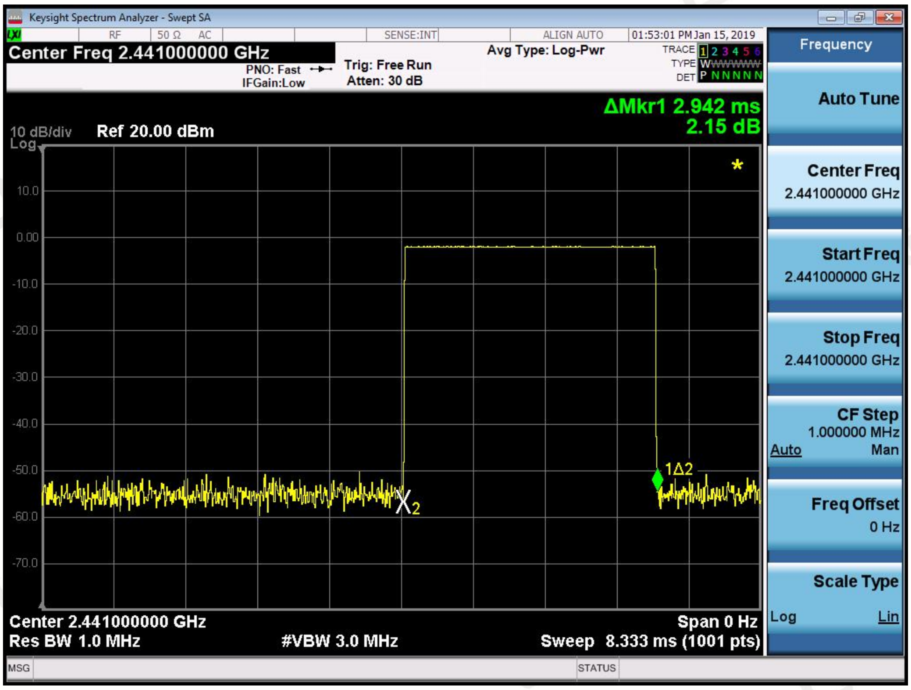
ΔMkr1 2.958 ms
1.47 dB

10 dB/div Log Ref 20.00 dBm

Center 2.402000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 8.333 ms (1001 pts)

Center Freq 2.402000000 GHz
Start Freq 2.402000000 GHz
Stop Freq 2.402000000 GHz
CF Step 1.000000 MHz Auto Man
Freq Offset 0 Hz
Scale Type Log Lin

CH: 2441MHz


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
01:53:01 PM Jan 15, 2019
TRACE 1 2 3 4 5 6
TYPE WWWWWW
DET P N N N N N
10 dB/div
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
*
1Δ2
X2
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

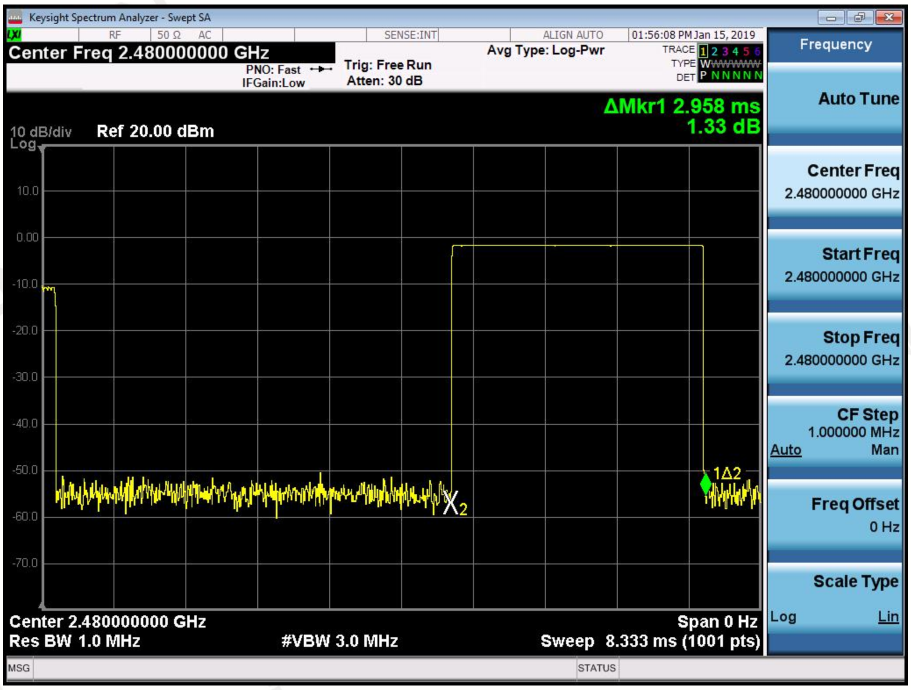
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr

ΔMkr1 2.942 ms
2.15 dB

Ref 20.00 dBm

Center 2.441000000 GHz
Span 0 Hz
Res BW 1.0 MHz
#VBW 3.0 MHz
Sweep 8.333 ms (1001 pts)

CH: 2480MHz


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
01:56:08 PM Jan 15, 2019
TRACE 1 2 3 4 5 6
TYPE WWWWWW
DET P N N N N N
10 dB/div
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1Δ2
X2
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.480000000 GHz
Stop Freq
2.480000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr

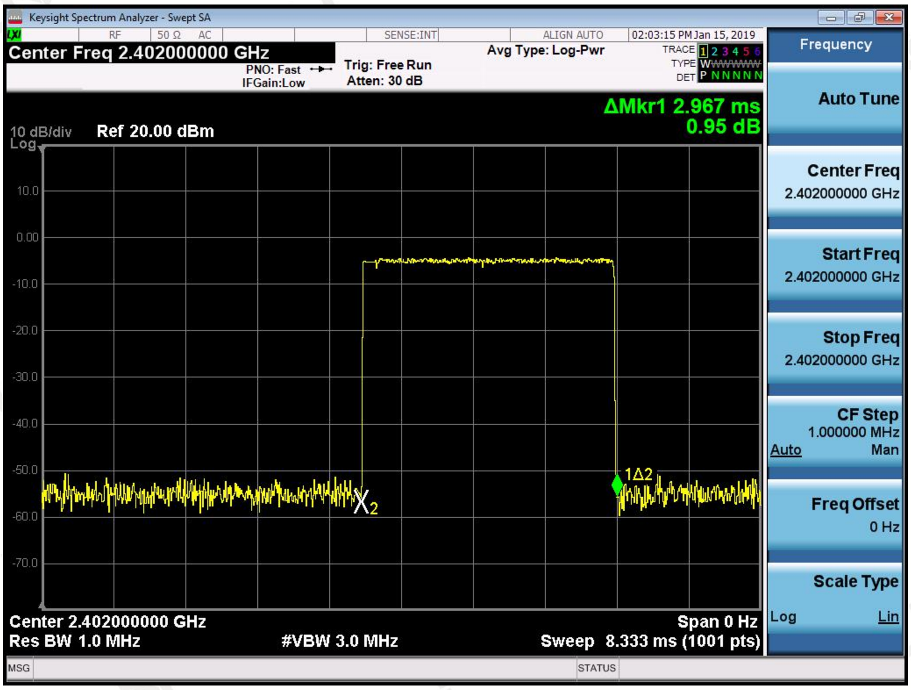
ΔMkr1 2.958 ms
1.33 dB

Ref 20.00 dBm

Center 2.480000000 GHz
Span 0 Hz
Res BW 1.0 MHz
#VBW 3.0 MHz
Sweep 8.333 ms (1001 pts)

Type	Modulation	CH	Pulse time(ms)	Dwell Time(ms)	Limit(ms)	Result
Dwell Time	π/4DQPSK	Low	2.97	316.80	400	Pass
		Mid	2.96	315.73	400	Pass
		High	2.95	314.67	400	Pass

CH: 2402MHz



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:03:15 PM Jan 15, 2019

Center Freq 2.402000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr

ΔMkr1 2.967 ms
0.95 dB

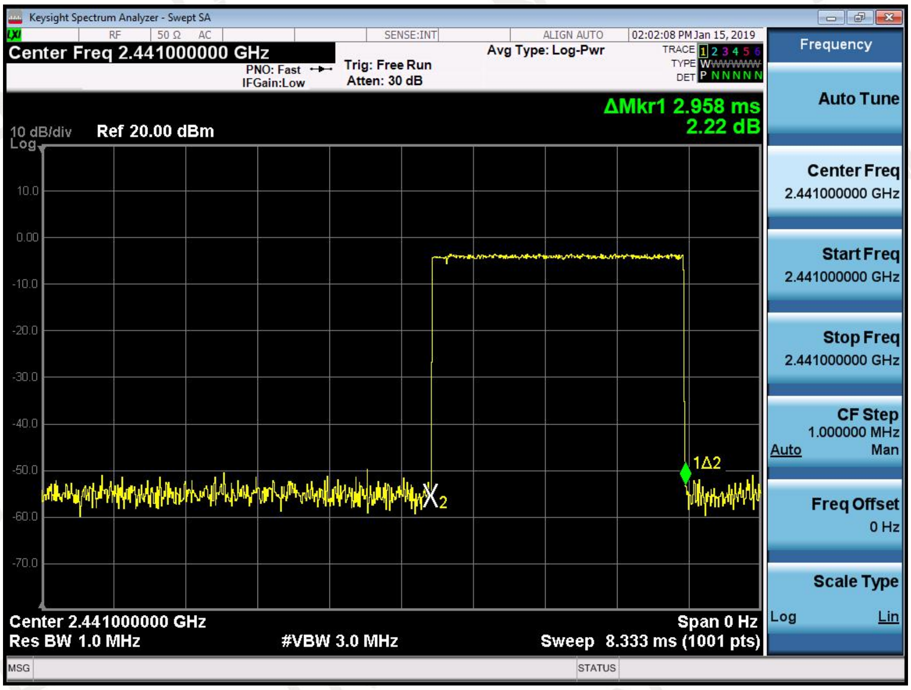
10 dB/div Ref 20.00 dBm

Center 2.402000000 GHz Span 0 Hz
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 8.333 ms (1001 pts)

Center Freq 2.402000000 GHz
Start Freq 2.402000000 GHz
Stop Freq 2.402000000 GHz
CF Step 1.000000 MHz
Freq Offset 0 Hz

TRACE 1 2 3 4 5 6
TYPE WWWWWW
DET P NNNNN
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
X2
1Δ2
Frequency
Auto Tune
Auto Man
Scale Type
Log Lin
MSG
STATUS

CH: 2441MHz



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:02:08 PM Jan 15, 2019

Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr

ΔMkr1 2.958 ms
2.22 dB

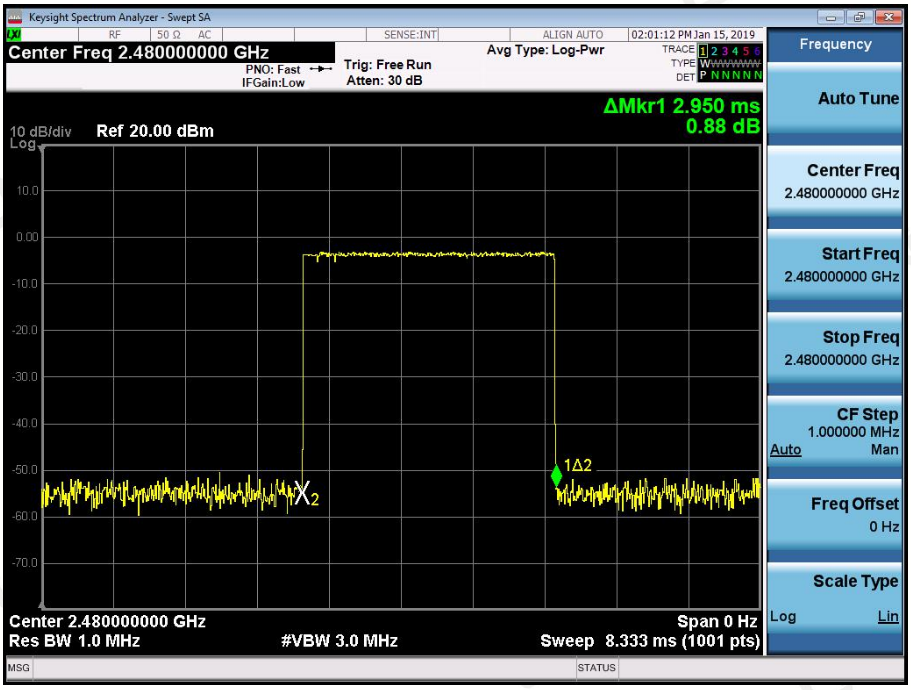
10 dB/div Ref 20.00 dBm

Center 2.441000000 GHz Span 0 Hz
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 8.333 ms (1001 pts)

Center Freq 2.441000000 GHz
Start Freq 2.441000000 GHz
Stop Freq 2.441000000 GHz
CF Step 1.000000 MHz
Freq Offset 0 Hz

TRACE 1 2 3 4 5 6
TYPE WWWWWW
DET P NNNNN
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
X2
1Δ2
Frequency
Auto Tune
Auto Man
Scale Type
Log Lin
MSG
STATUS

CH: 2480MHz


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
TRACE 1 2 3 4 5 6
TYPE W W W W W W
DET P N N N N N
10 dB/div
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1Δ2
X2
MSG
STATUS
Frequency
Auto Tune
Center Freq
Start Freq
Stop Freq
CF Step
Auto
Man
Freq Offset
Scale Type
Log
Lin

02:01:12 PM Jan 15, 2019

Center Freq 2.480000000 GHz

PNO: Fast

IFGain:Low

Trig: Free Run

Atten: 30 dB

Avg Type: Log-Pwr

ΔMkr1 2.950 ms

0.88 dB

Ref 20.00 dBm

Center 2.480000000 GHz

Res BW 1.0 MHz

#VBW 3.0 MHz

Span 0 Hz

Sweep 8.333 ms (1001 pts)

Center Freq 2.480000000 GHz

Start Freq 2.480000000 GHz

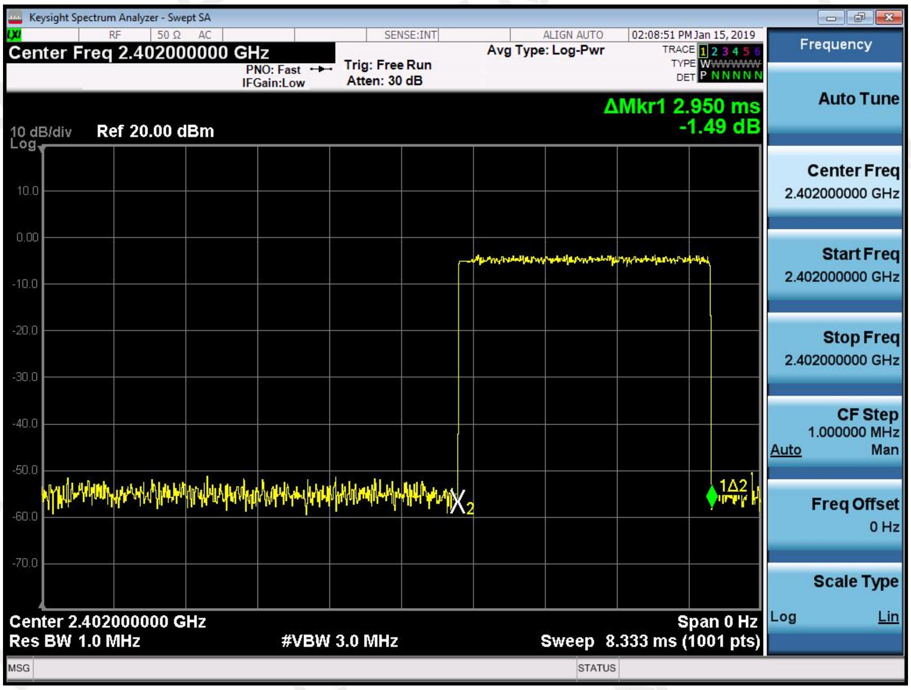
Stop Freq 2.480000000 GHz

CF Step 1.000000 MHz

Freq Offset 0 Hz

Type	Modulation	CH	Pulse time(ms)	Dwell Time(ms)	Limit(ms)	Result
Dwell Time	8DPSK	Low	2.95	314.67	400	Pass
		Mid	2.96	315.73	400	Pass
		High	2.98	317.87	400	Pass

CH: 2402MHz


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
TRACE 1 2 3 4 5 6
TYPE W W W W W W
DET P N N N N N
10 dB/div
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1Δ2
X2
MSG
STATUS
Frequency
Auto Tune
Center Freq
Start Freq
Stop Freq
CF Step
Auto
Man
Freq Offset
Scale Type
Log
Lin

02:08:51 PM Jan 15, 2019

Center Freq 2.402000000 GHz

PNO: Fast

IFGain:Low

Trig: Free Run

Atten: 30 dB

Avg Type: Log-Pwr

ΔMkr1 2.950 ms

-1.49 dB

Ref 20.00 dBm

Center 2.402000000 GHz

Res BW 1.0 MHz

#VBW 3.0 MHz

Span 0 Hz

Sweep 8.333 ms (1001 pts)

Center Freq 2.402000000 GHz

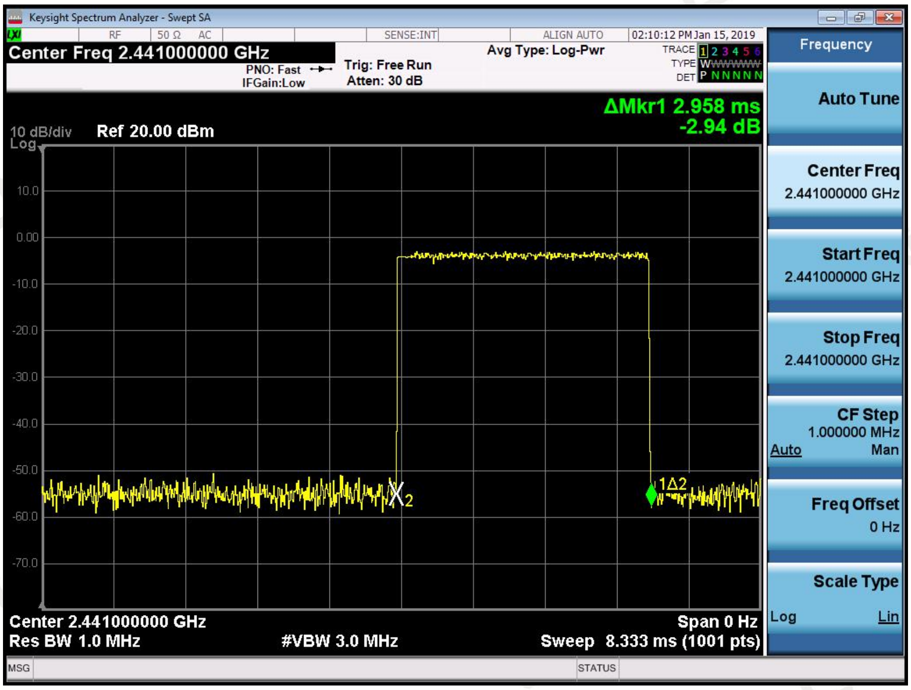
Start Freq 2.402000000 GHz

Stop Freq 2.402000000 GHz

CF Step 1.000000 MHz

Freq Offset 0 Hz

CH: 2441MHz



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:10:12 PM Jan 15, 2019

Center Freq 2.441000000 GHz

PNO: Fast IFGain:Low

Trig: Free Run

Atten: 30 dB

Avg Type: Log-Pwr

TRACE 1 2 3 4 5 6 TYPE W W W W W W DET P N N N N N

ΔMkr1 2.958 ms

-2.94 dB

10 dB/div Log Ref 20.00 dBm

Center 2.441000000 GHz

Res BW 1.0 MHz

#VBW 3.0 MHz

Span 0 Hz

Sweep 8.333 ms (1001 pts)

Frequency

Auto Tune

Center Freq 2.441000000 GHz

Start Freq 2.441000000 GHz

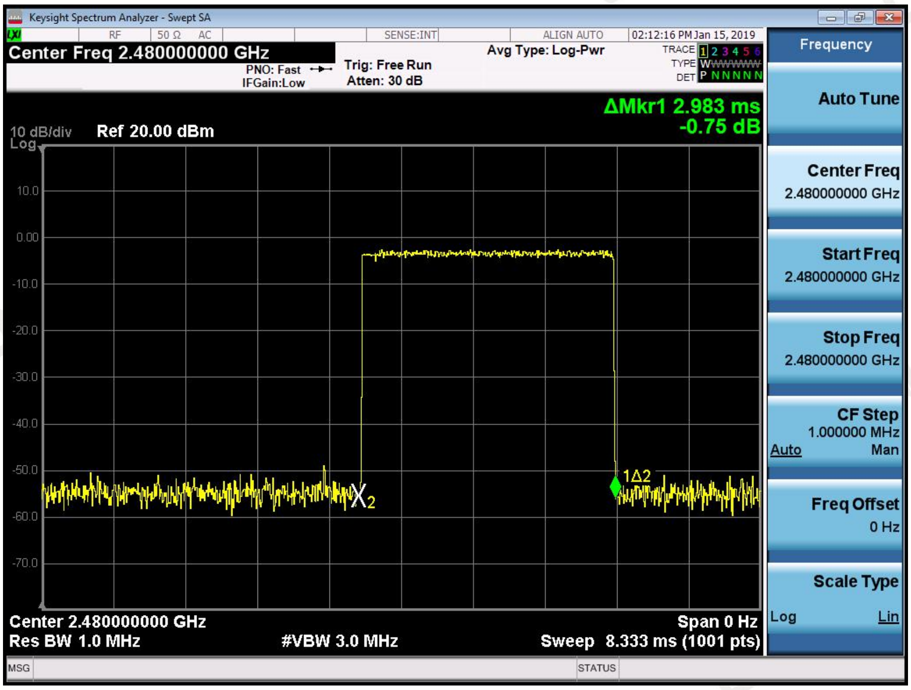
Stop Freq 2.441000000 GHz

CF Step 1.000000 MHz Auto Man

Freq Offset 0 Hz

Scale Type Log Lin

CH: 2480MHz



Keysight Spectrum Analyzer - Swept SA

RF 50 Ω AC SENSE:INT ALIGN AUTO 02:12:16 PM Jan 15, 2019

Center Freq 2.480000000 GHz

PNO: Fast IFGain:Low

Trig: Free Run

Atten: 30 dB

Avg Type: Log-Pwr

TRACE 1 2 3 4 5 6 TYPE W W W W W W DET P N N N N N

ΔMkr1 2.983 ms

-0.75 dB

10 dB/div Log Ref 20.00 dBm

Center 2.480000000 GHz

Res BW 1.0 MHz

#VBW 3.0 MHz

Span 0 Hz

Sweep 8.333 ms (1001 pts)

Frequency

Auto Tune

Center Freq 2.480000000 GHz

Start Freq 2.480000000 GHz

Stop Freq 2.480000000 GHz

CF Step 1.000000 MHz Auto Man

Freq Offset 0 Hz

Scale Type Log Lin

13. PSEUDORANDOM FREQUENCY HPPPING SEQUENCE

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

Frequency hopping systems shall have hopping channel carrier fre-quencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hop-ping channel, whichever is greater. Al-ternatively, frequency hopping systems operating in the 2400﹣2483.5 MHz band may have hopping channel carrier fre-quencies 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 chan-nel frequencies that are selected at the system hopping rate from a pseudo ran-domly ordered list of hopping fre-quencies. Each frequency must be used equally on the average by each trans-mitter. The system receivers shall have input bandwidths that match the hop-ping channel bandwidths of their cor-responding transmitters and shall shift frequencies in synchronization with the transmitted signals.

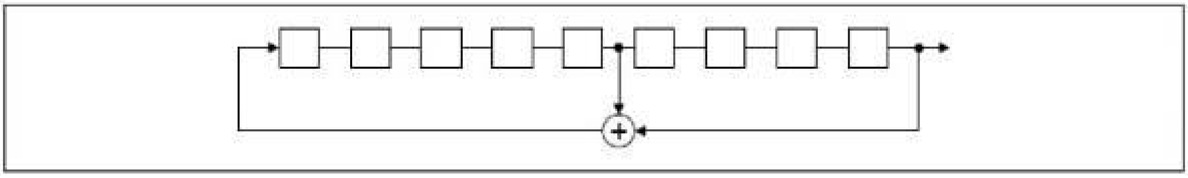
TEUT Pseudorandom Frequency Hopping Sequence Requirement

The pseudorandom frequency hopping sequence may be generated in a nice-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 frist stage.The sequence begins with the frist one of 9 consecutive ones,for example:the shift register is initialized with nine ones.

Number of shift register stages:9

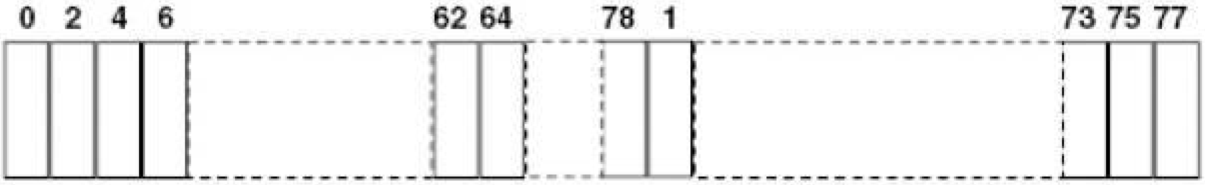
Length of pseudo-random sequence:29-1=511 bits

Longest sequence of zeros:8(non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An explame of pseudorandom frequency hopping sequence as follows:



Each frequency used equally one the average by each transmitter.

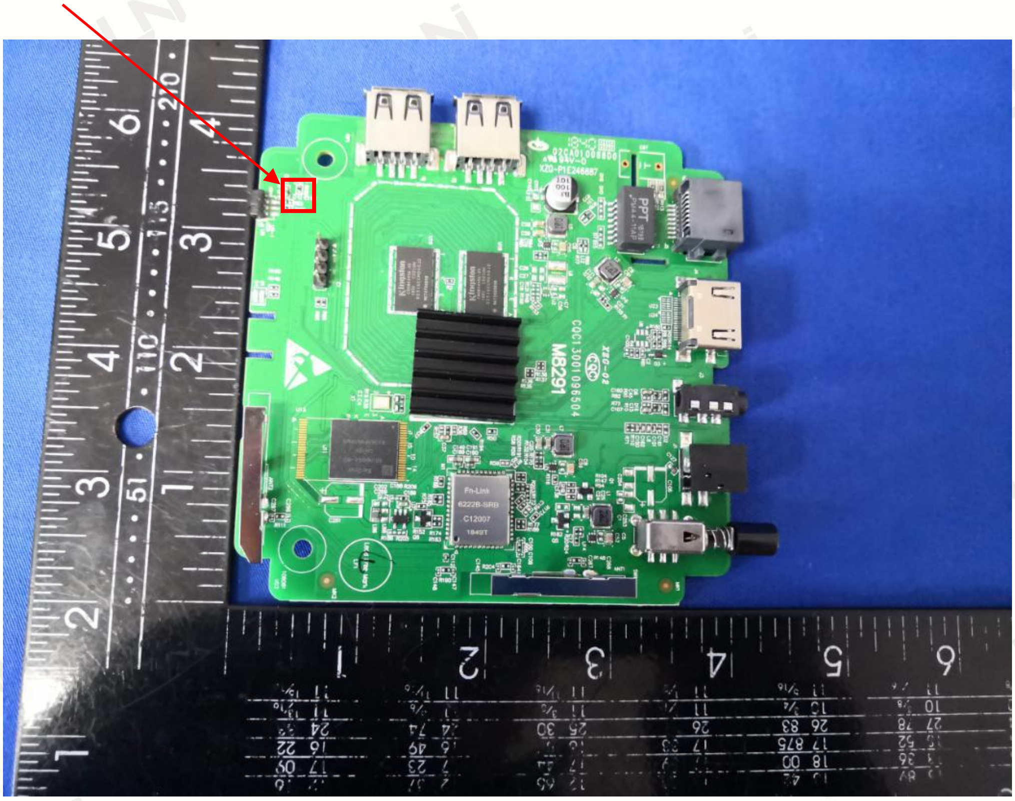
The system receiver have input bandwidths that match the hopping channel bandwidths of their corresponding transmitter and shift frequencies in synchronization with the transmitted signals.

14. 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.

Antenna Connected Construction
The antenna used in this product is an Internal Antenna, The directional gains of antenna used for transmitting is 2dBi.

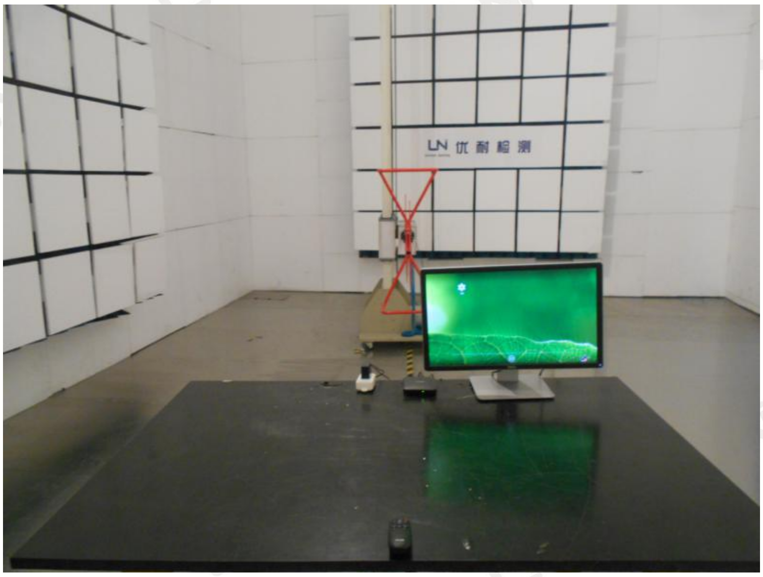
BT ANTENNA:



15. PHOTOGRAPH OF TEST

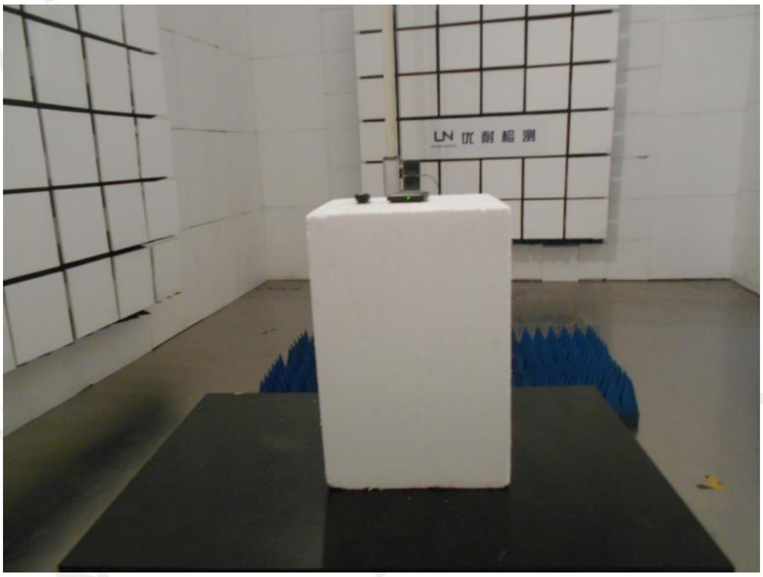
Radiated Emission

(Below 1G)

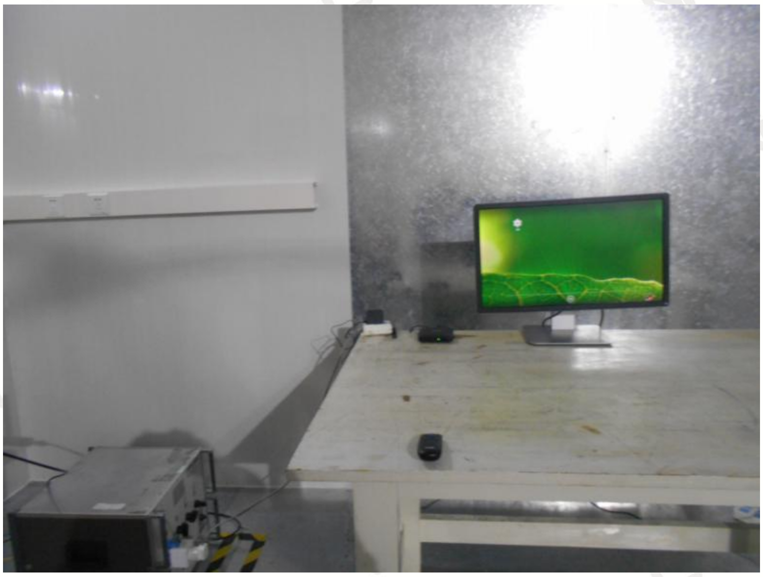


Radiated Emission

(Above 1G)



Conducted Emission



End of Report