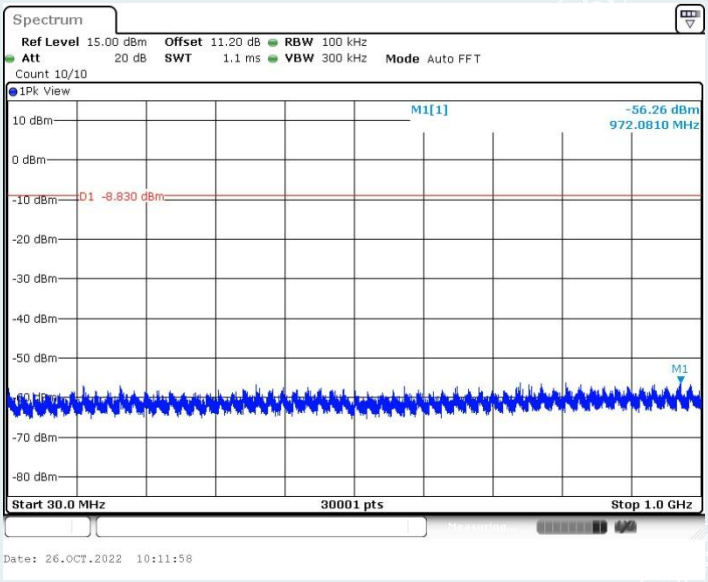
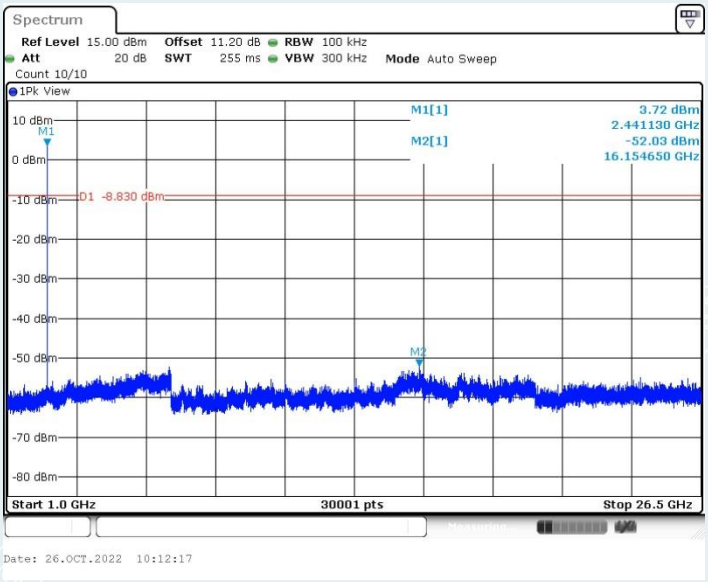
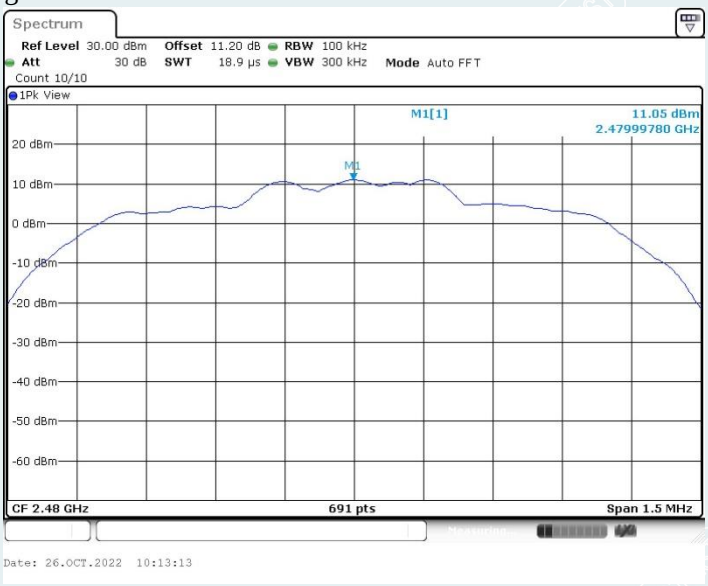
CH Mid

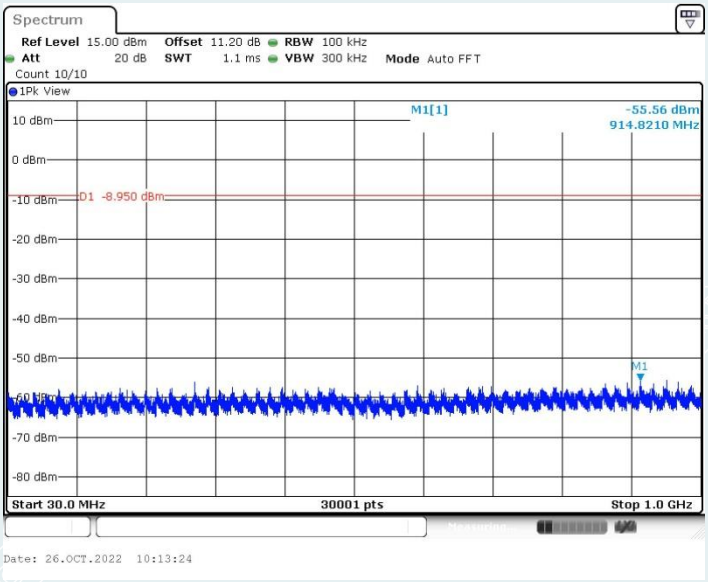
Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.17 dBm
2.44115630 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.441 GHz
691 pts
Span 1.5 MHz
Date: 26.OCT.2022 10:11:46

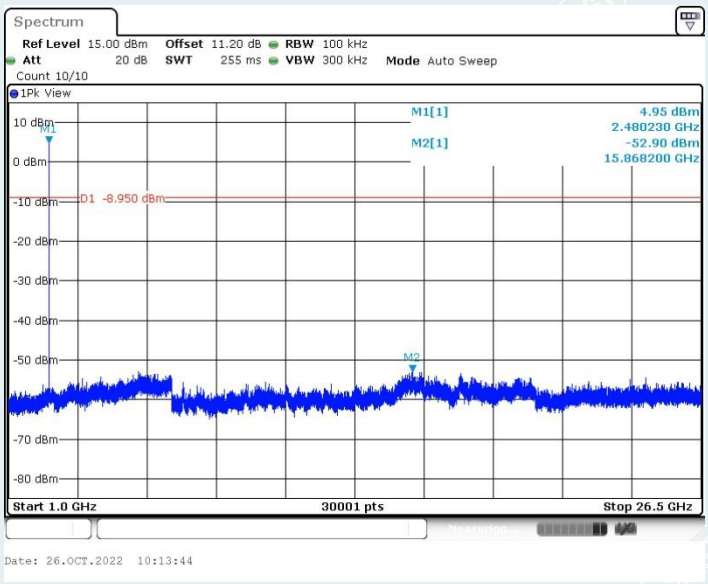

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -56.26 dBm
972.0810 MHz
10 dBm
0 dBm
-10 dBm
D1 -8.830 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
Start 30.0 MHz
30001 pts
Stop 1.0 GHz
Date: 26.OCT.2022 10:11:58


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 3.72 dBm
2.441130 GHz
M2[1] -52.03 dBm
16.154650 GHz
D1 -8.830 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 10:12:17

CH High

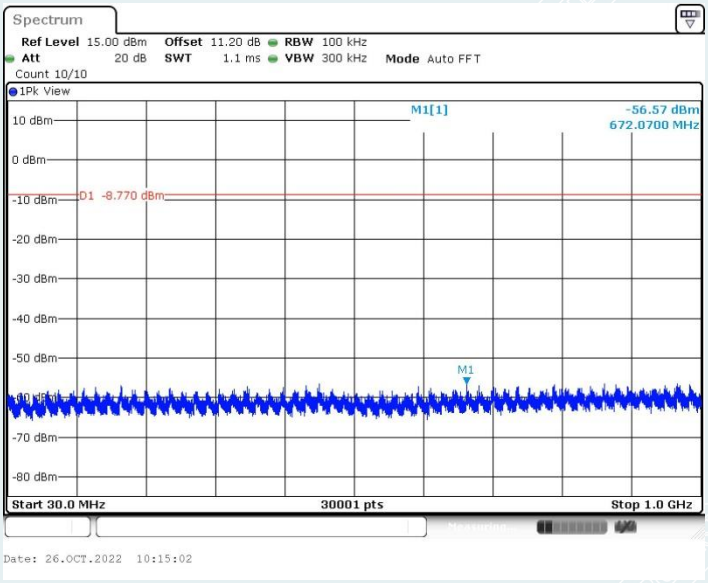

Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.05 dBm
2.47999780 GHz
CF 2.48 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 10:13:13

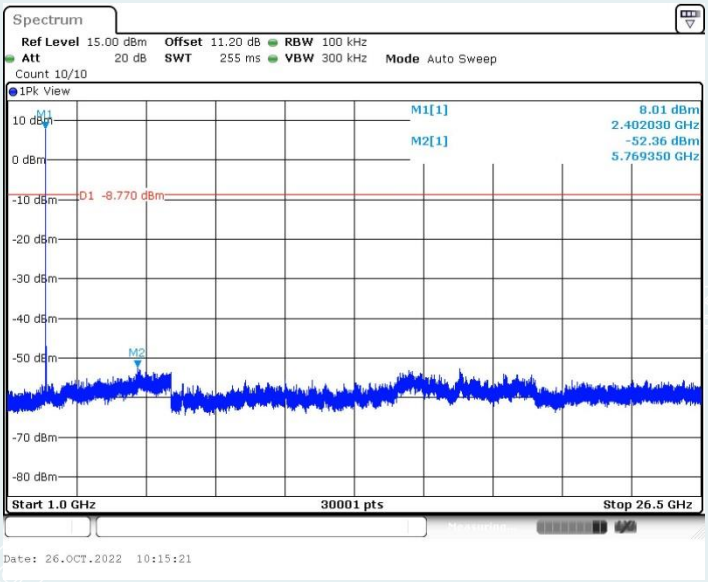

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -55.56 dBm
914.8210 MHz
D1 -8.950 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 10:13:24


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 4.95 dBm
2.480230 GHz
M2[1] -52.90 dBm
15.868200 GHz
D1 -8.950 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 10:13:44

3DH5
CH Low

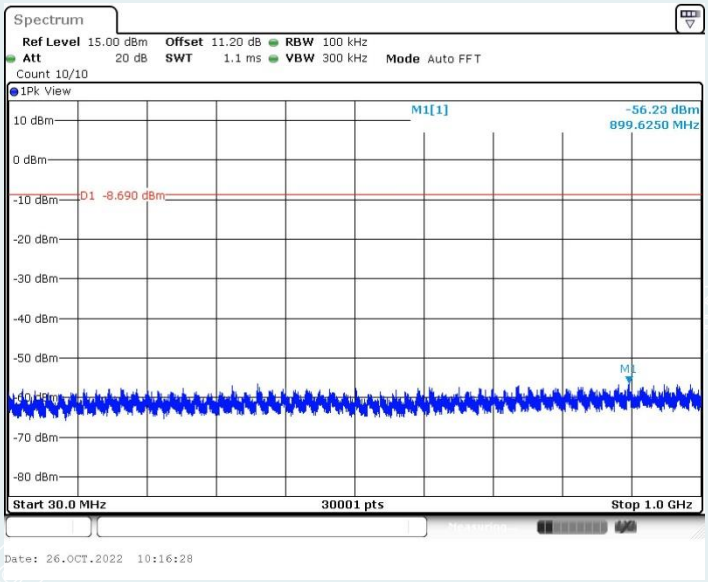
Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.23 dBm
2.40215850 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.402 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 10:14:50

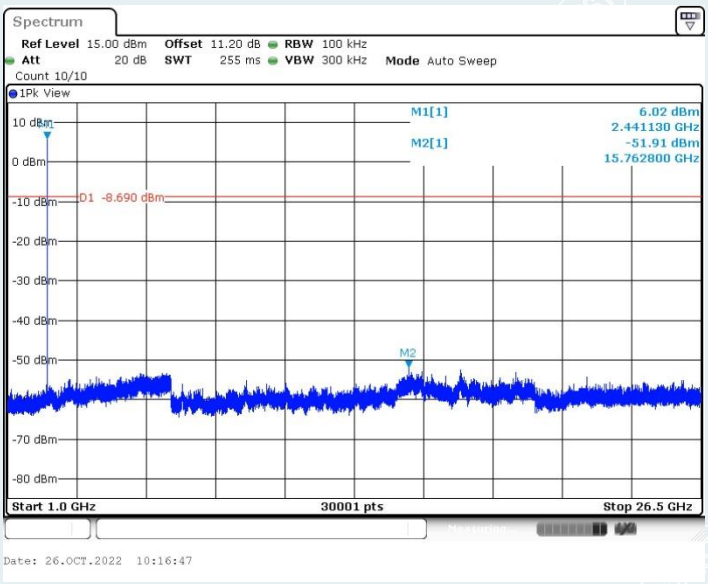

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -56.57 dBm
672.0700 MHz
D1 -8.770 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 10:15:02


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 8.01 dBm
2.402030 GHz
M2[1] -52.36 dBm
5.769350 GHz
D1 -8.770 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 10:15:21

CH Mid

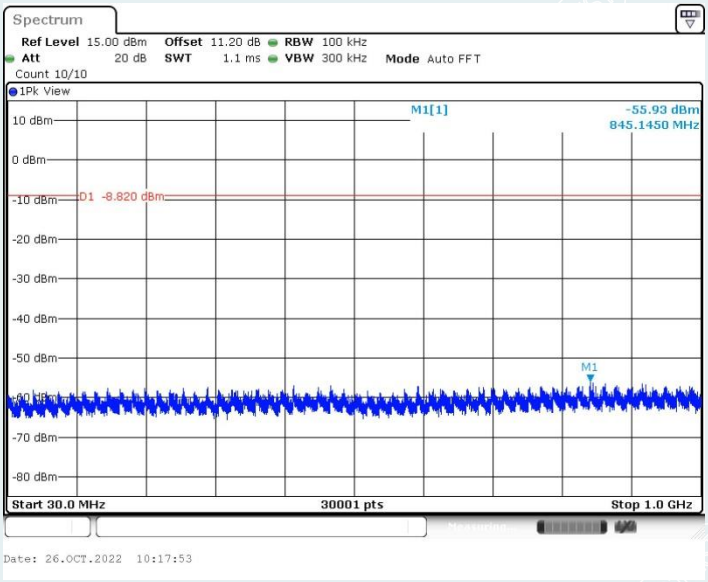
Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.31 dBm
2.44115850 GHz
CF 2.441 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 10:16:16

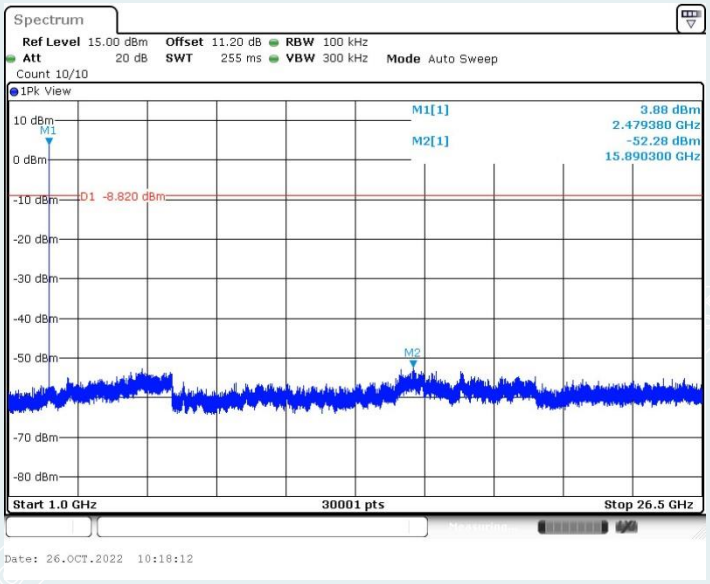

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -56.23 dBm
899.6250 MHz
D1 -8.690 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 10:16:28


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 6.02 dBm
2.441130 GHz
M2[1] -51.91 dBm
15.762800 GHz
D1 -8.690 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 10:16:47

CH High

Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.18 dBm
2.48015850 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.48 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 10:17:41


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -55.93 dBm
845.1450 MHz
10 dBm
0 dBm
-10 dBm
D1 -8.820 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 10:17:53



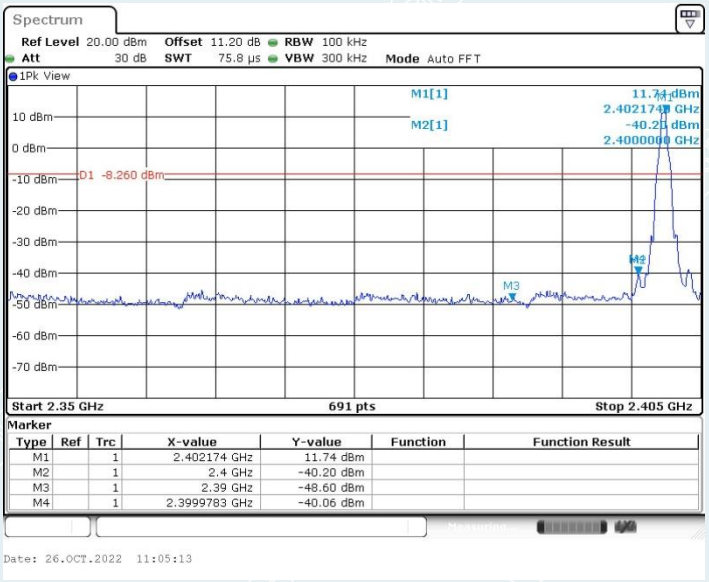
---------- The following blanks ----------

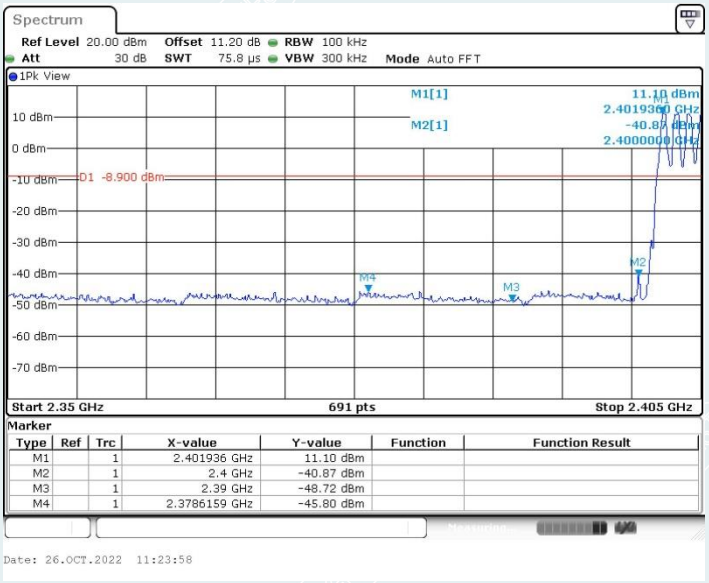
Right earphone

Band Edges

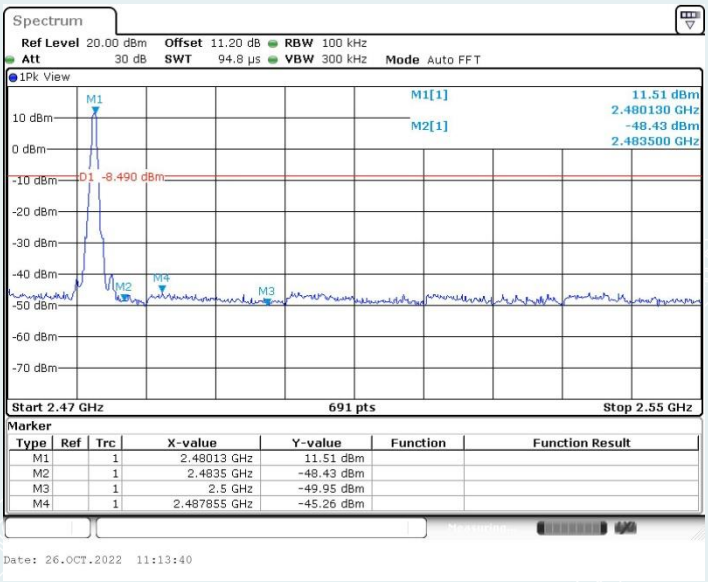
DH5

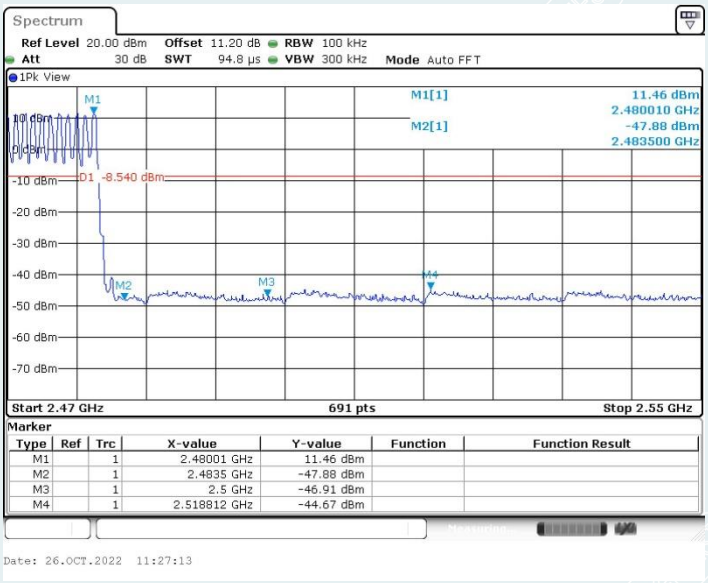
CH Low (2.35GHz ~2.405GHz)



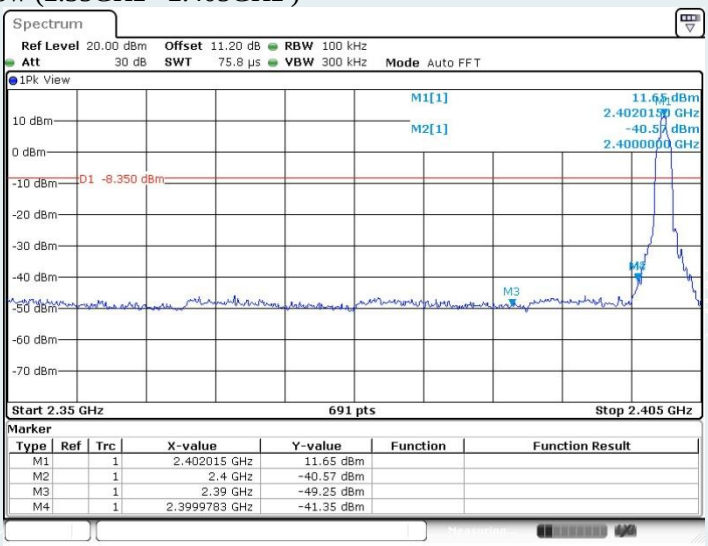


CH High (2.47GHz ~ 2.55GHz)





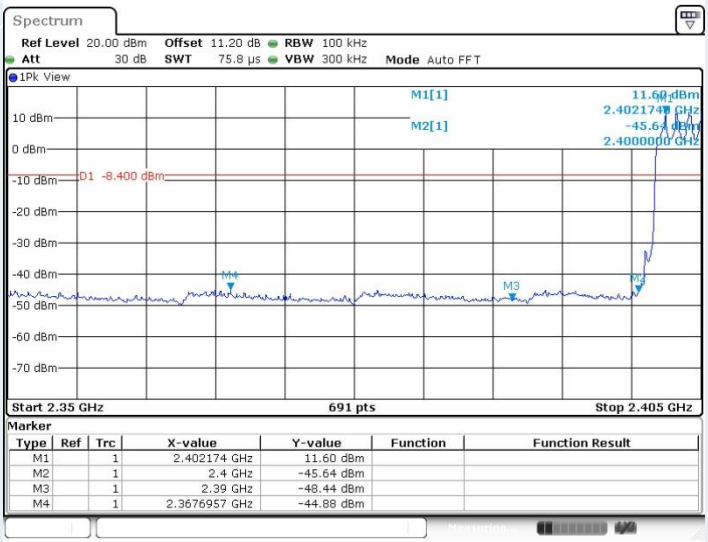
2DH5
CH Low (2.35GHz ~2.405GHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402015 GHz	11.65 dBm		
M2		1	2.4 GHz	-40.57 dBm		
M3		1	2.39 GHz	-49.25 dBm		
M4		1	2.3999783 GHz	-41.35 dBm		

Date: 26.OCT.2022 11:15:16

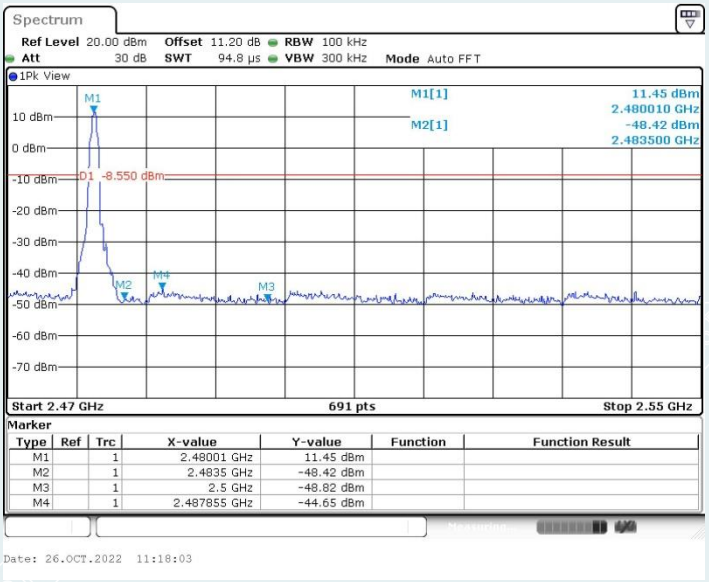


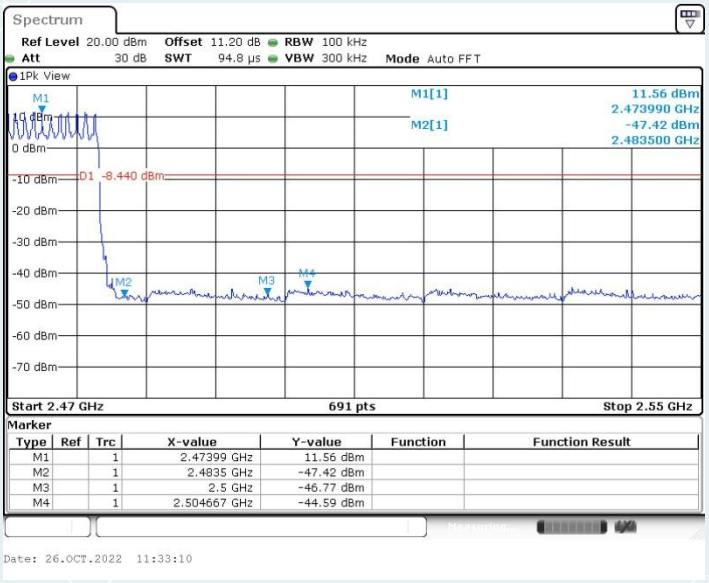
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402174 GHz	11.60 dBm		
M2		1	2.4 GHz	-45.64 dBm		
M3		1	2.39 GHz	-48.44 dBm		
M4		1	2.3676957 GHz	-44.88 dBm		

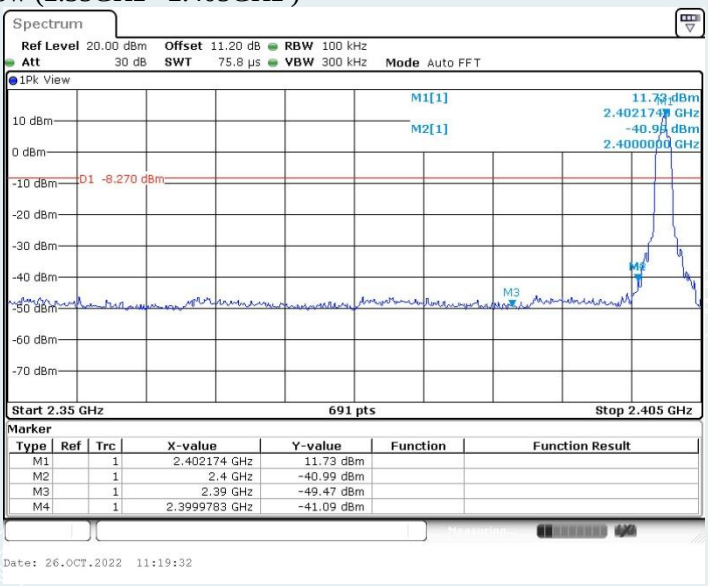
Date: 26.OCT.2022 11:29:00

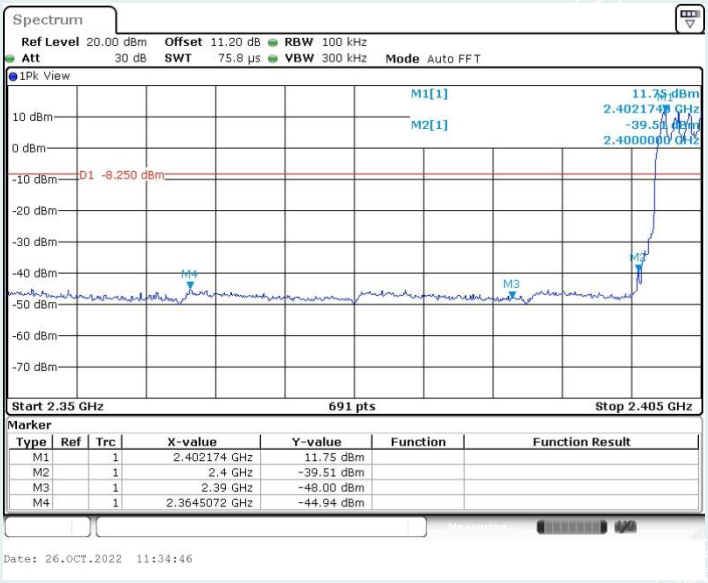
CH High (2.47GHz ~ 2.55GHz)



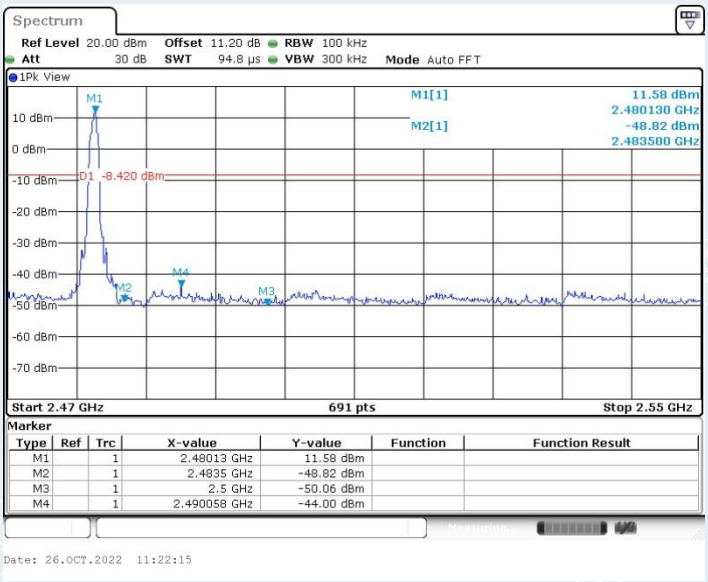


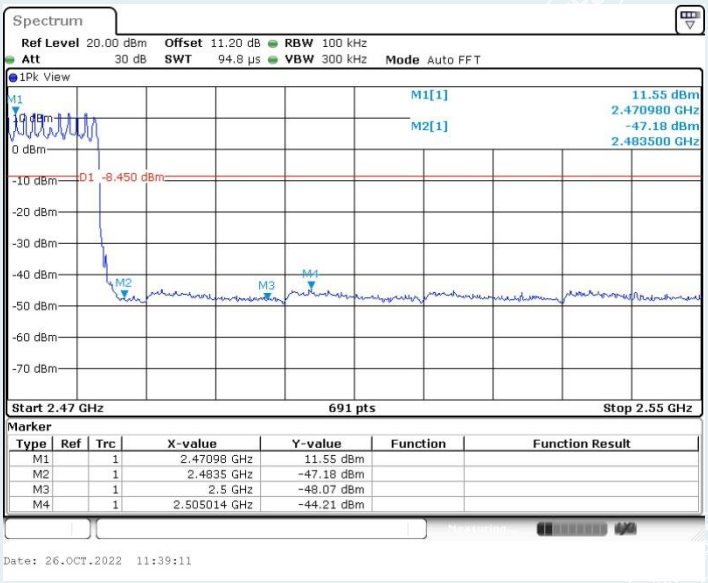
3DH5
CH Low (2.35GHz ~2.405GHz)



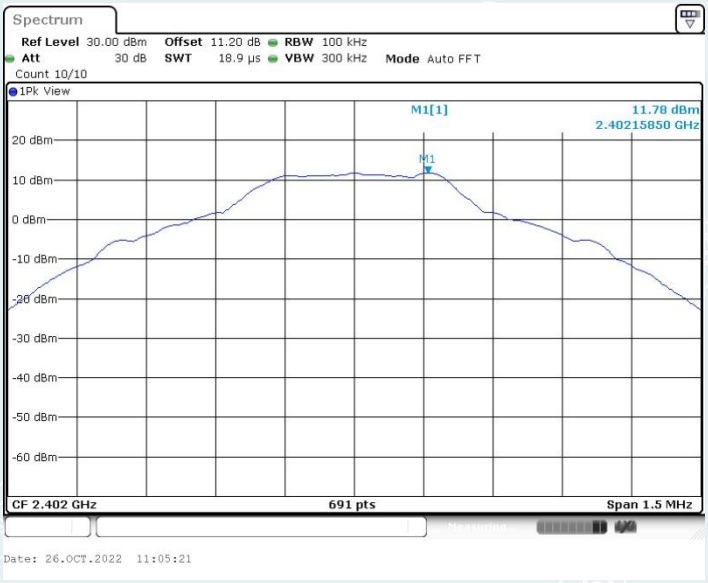


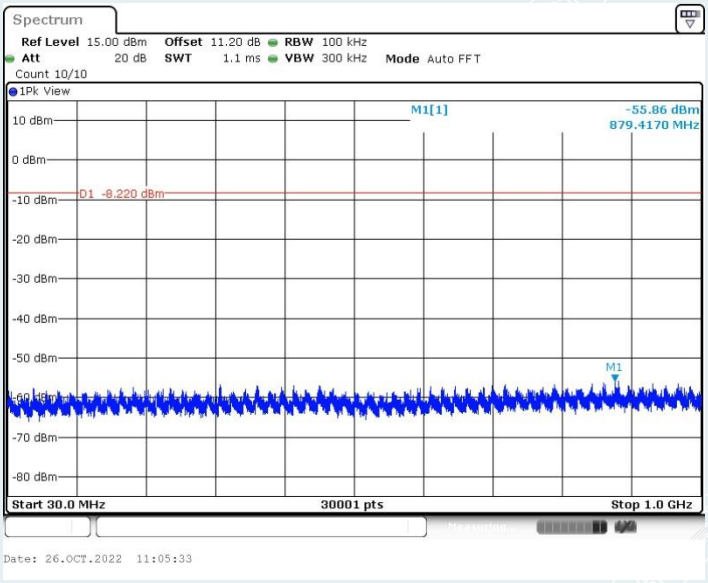
CH High (2.47GHz ~ 2.55GHz)

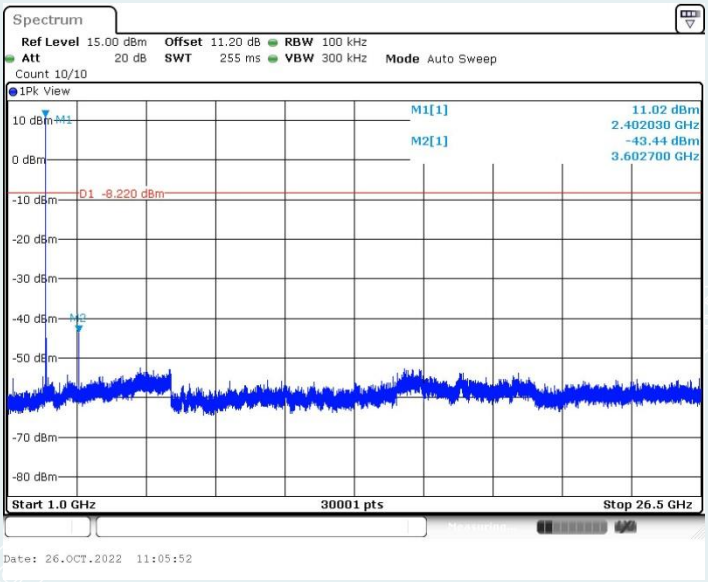




Spurious Emissions
DH5
CH Low

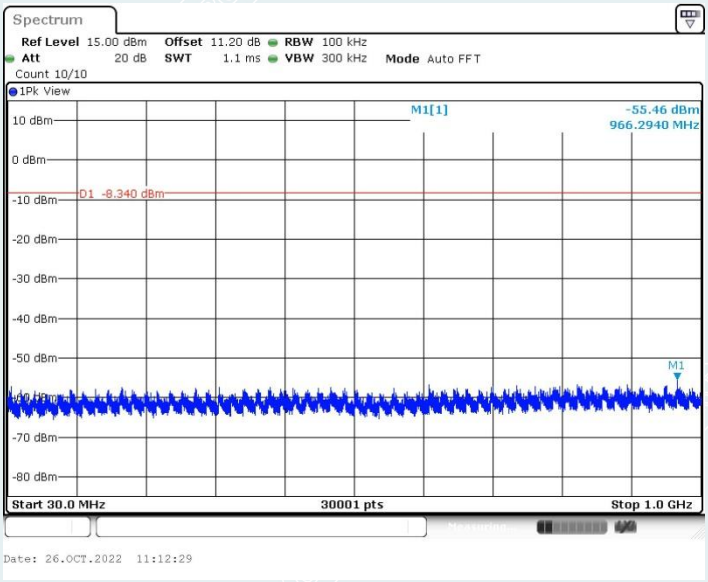


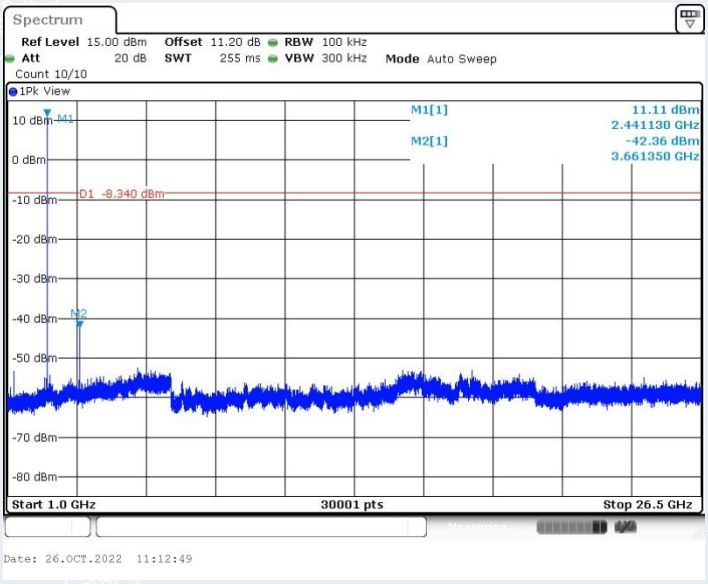



Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 11.02 dBm
2.402030 GHz
M2[1] -43.44 dBm
3.602700 GHz
D1 -8.220 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 11:05:52

CH Mid

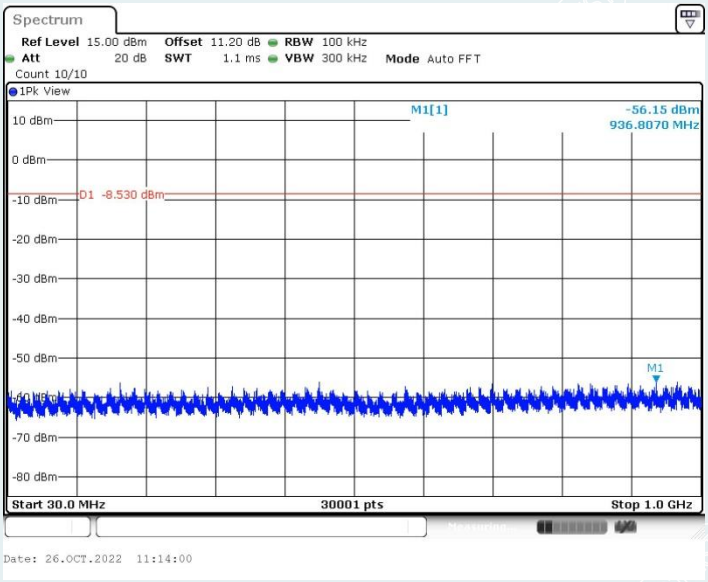
Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.66 dBm
2.44115850 GHz
CF 2.441 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 11:12:18

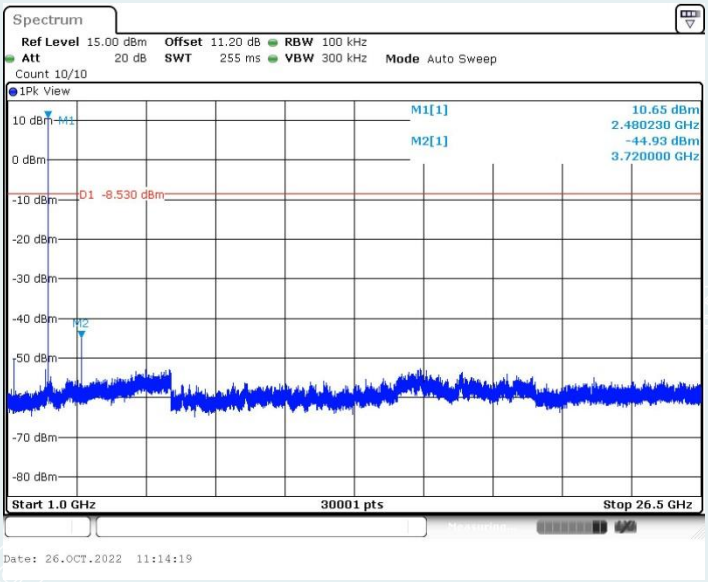

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -55.46 dBm
966.2940 MHz
10 dBm
0 dBm
D1 -8.340 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
M1
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 11:12:29


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 11.11 dBm
2.441130 GHz
M2[1] -42.36 dBm
3.661350 GHz
10 dBm
M1
0 dBm
D1 -8.340 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
M2
-50 dBm
-70 dBm
-80 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 11:12:49

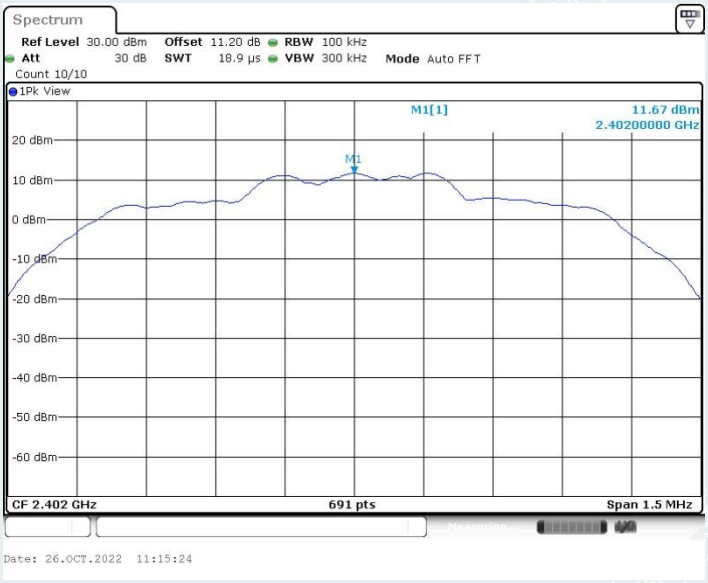
CH High

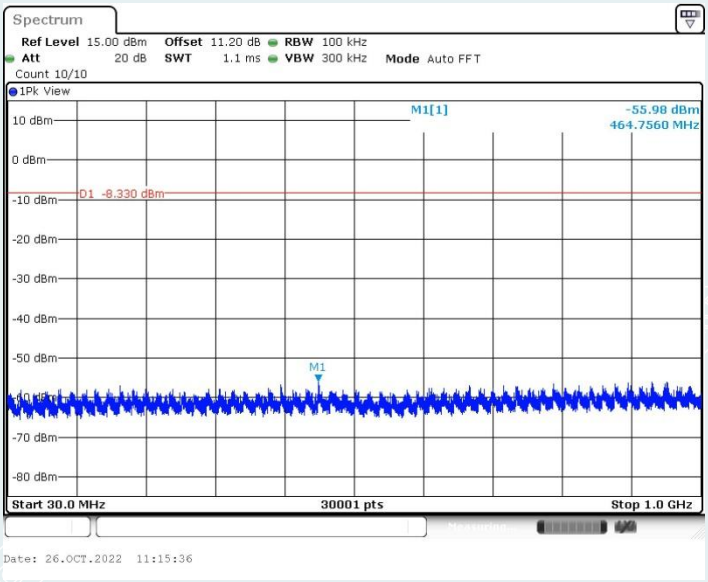
Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.47 dBm
2.48015850 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.48 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 11:13:49

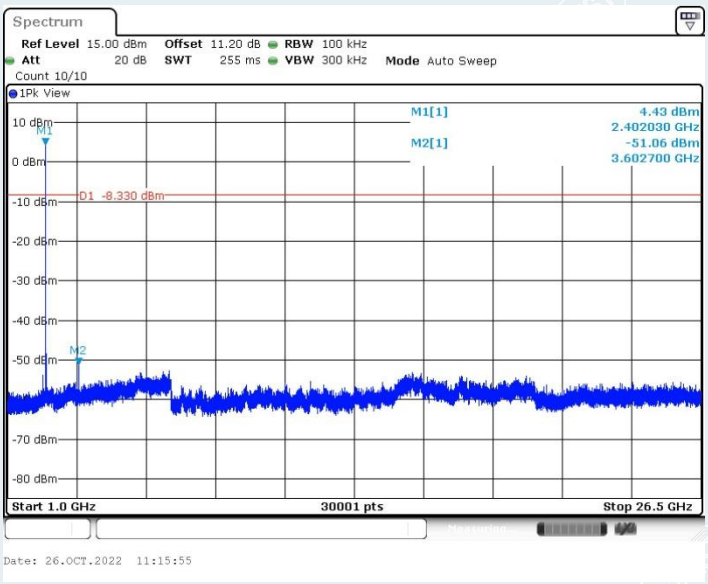

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -56.15 dBm
936.8070 MHz
D1 -8.530 dBm
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 11:14:00


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 10.65 dBm
2.480230 GHz
M2[1] -44.93 dBm
3.720000 GHz
D1 -8.530 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 11:14:19

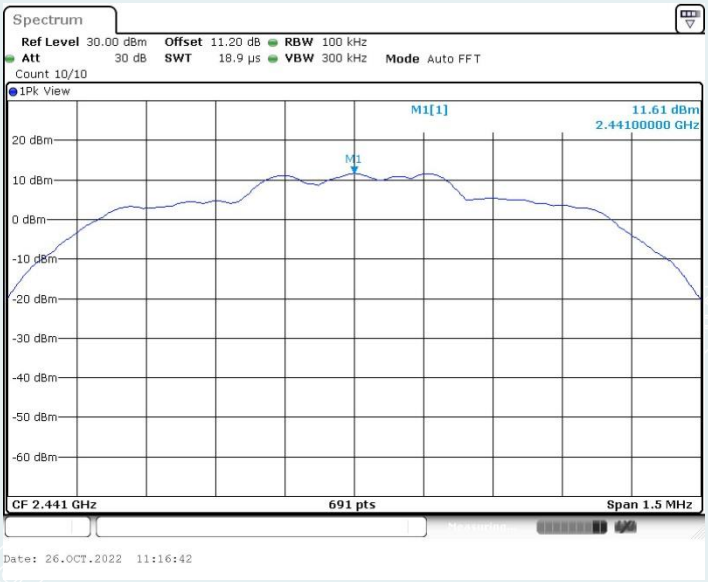
2DH5
CH Low

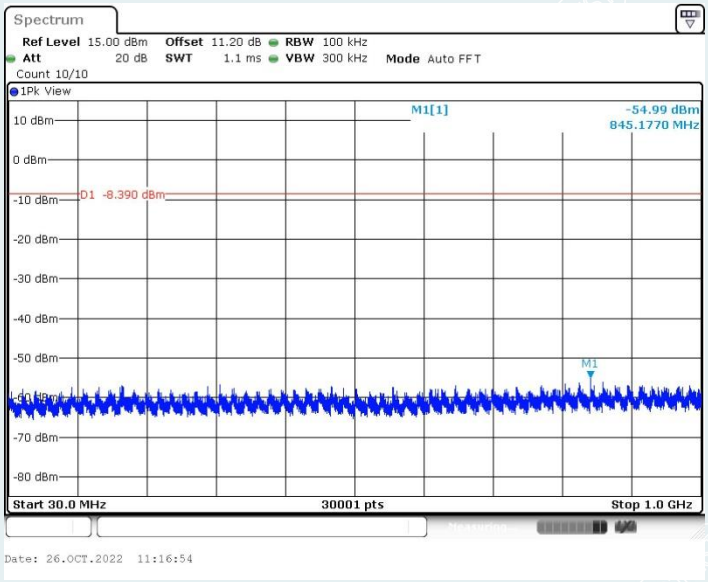

Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.67 dBm
2.40200000 GHz
CF 2.402 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 11:15:24

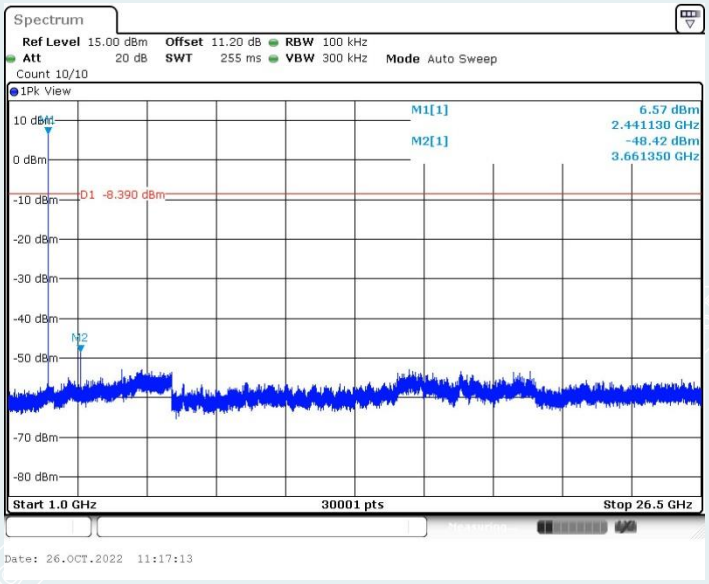

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -55.98 dBm
464.7560 MHz
D1 -8.330 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 11:15:36


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 4.43 dBm
2.402030 GHz
M2[1] -51.06 dBm
3.602700 GHz
D1 -8.330 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 11:15:55

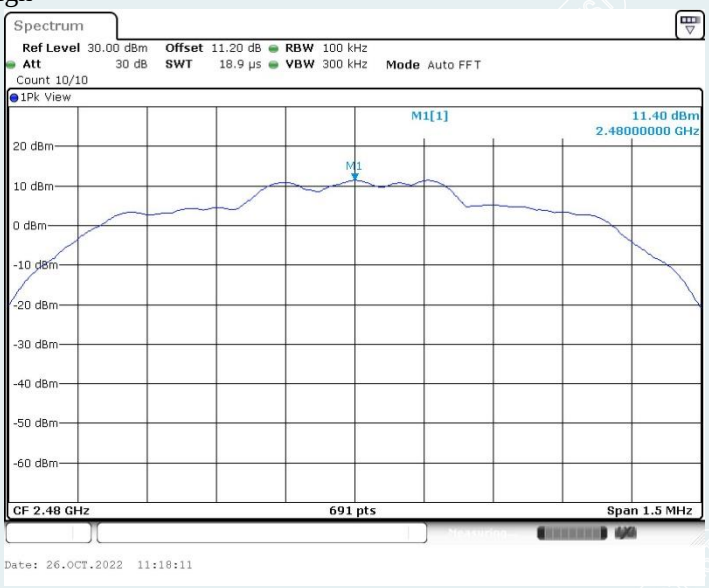
CH Mid

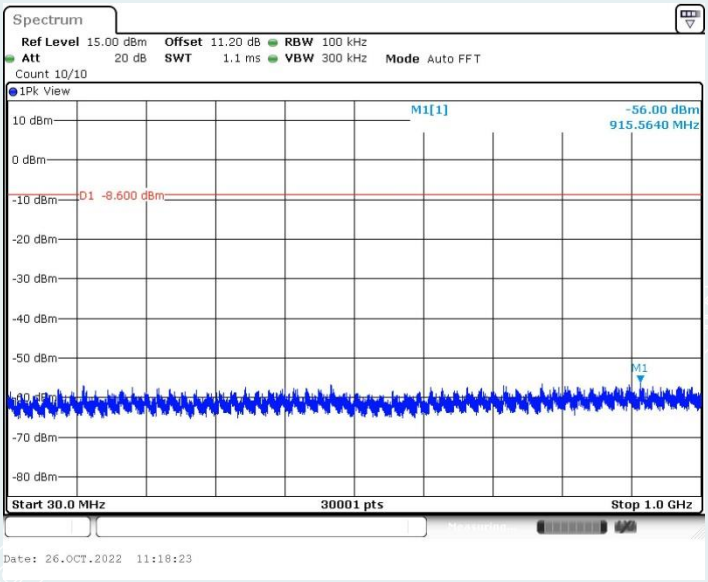

Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.61 dBm
2.44100000 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.441 GHz
691 pts
Span 1.5 MHz
Date: 26.OCT.2022 11:16:42

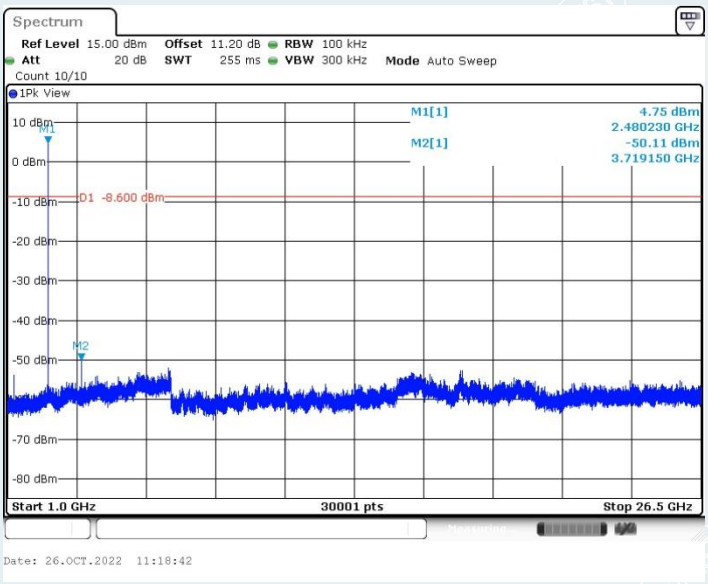

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -54.99 dBm
845.1770 MHz
10 dBm
0 dBm
-10 dBm
D1 -8.390 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
M1
-60 dBm
-70 dBm
-80 dBm
Start 30.0 MHz
30001 pts
Stop 1.0 GHz
Date: 26.OCT.2022 11:16:54


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 6.57 dBm
2.441130 GHz
M2[1] -48.42 dBm
3.661350 GHz
D1 -8.390 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 11:17:13

CH High

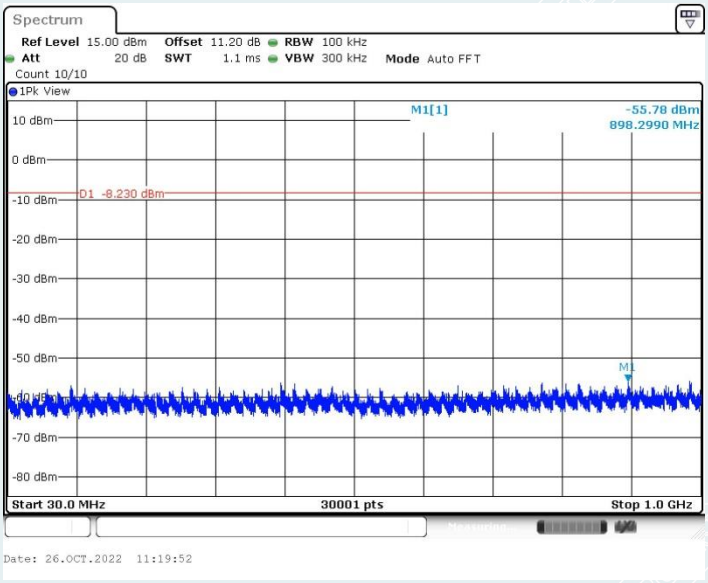

Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.40 dBm
2.48000000 GHz
CF 2.48 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 11:18:11

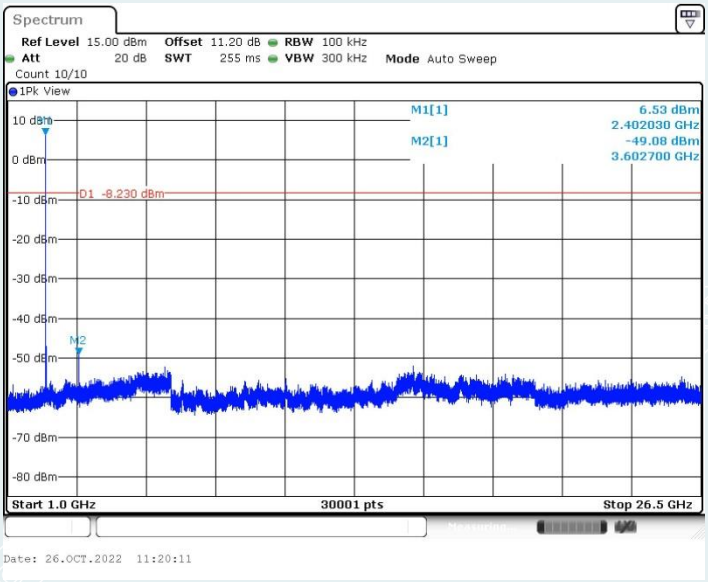

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -56.00 dBm
915.5640 MHz
D1 -8.600 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 11:18:23


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 4.75 dBm
2.480230 GHz
M2[1] -50.11 dBm
3.719150 GHz
D1 -8.600 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 11:18:42

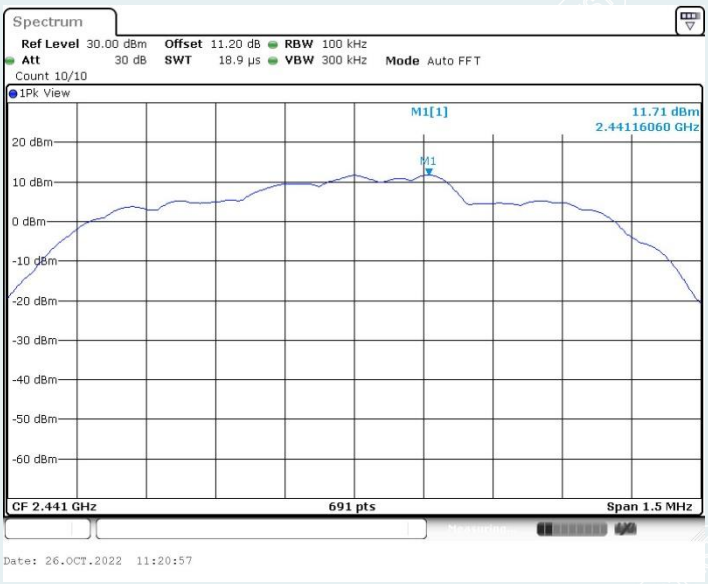
3DH5
CH Low

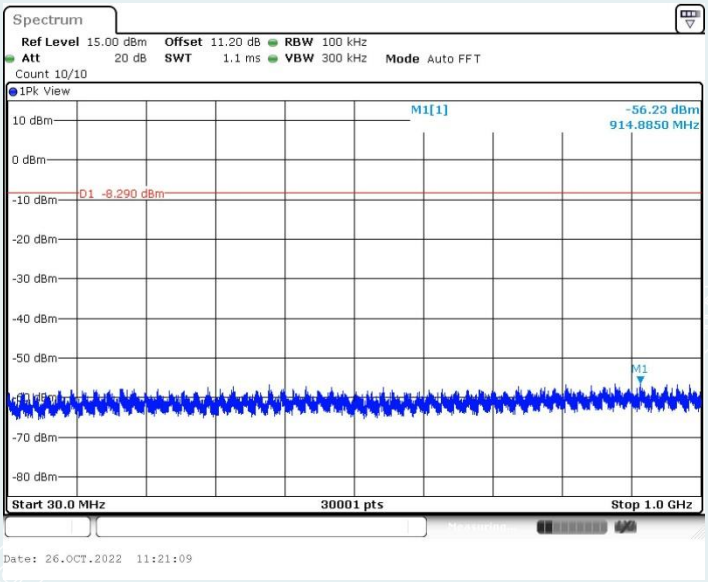
Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.77 dBm
2.40216060 GHz
M1
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.402 GHz
691 pts
Span 1.5 MHz
Date: 26.OCT.2022 11:19:40

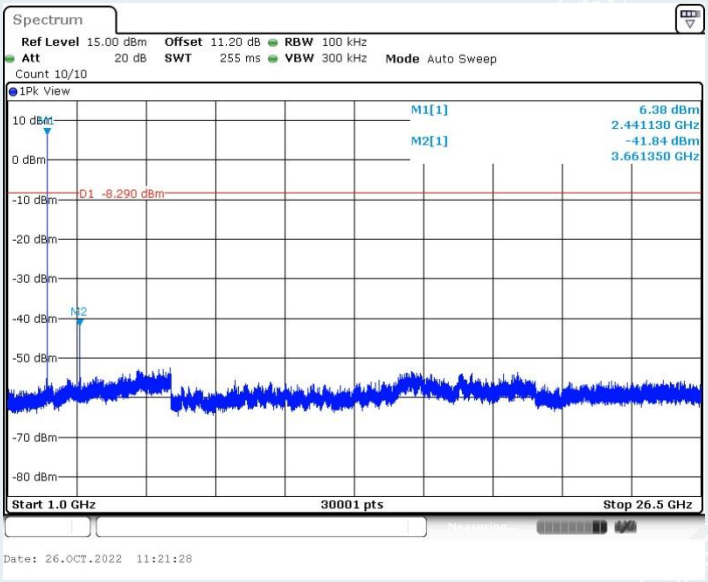

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -55.78 dBm
898.2990 MHz
D1 -8.230 dBm
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
Start 30.0 MHz
30001 pts
Stop 1.0 GHz
Date: 26.OCT.2022 11:19:52


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 6.53 dBm
2.402030 GHz
M2[1] -49.08 dBm
3.602700 GHz
D1 -8.230 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
M2
Start 1.0 GHz
30001 pts
Stop 26.5 GHz
Date: 26.OCT.2022 11:20:11

CH Mid

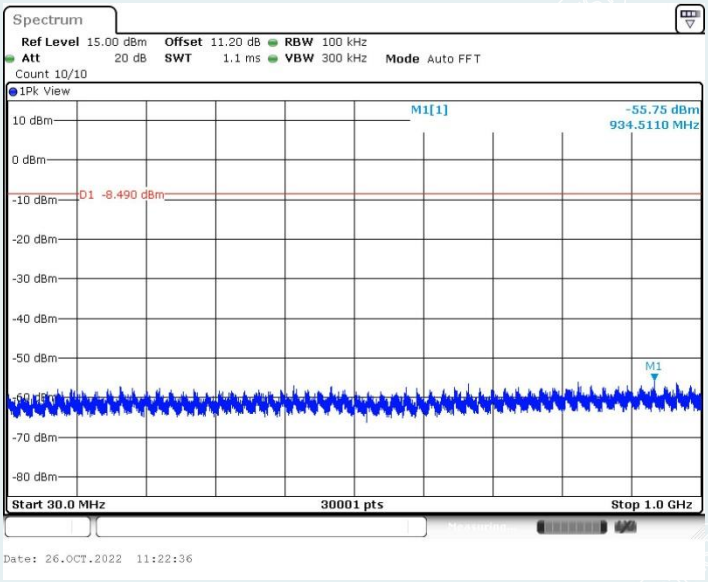

Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.71 dBm
2.44116060 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
CF 2.441 GHz
691 pts
Span 1.5 MHz
Date: 26.OCT.2022 11:20:57

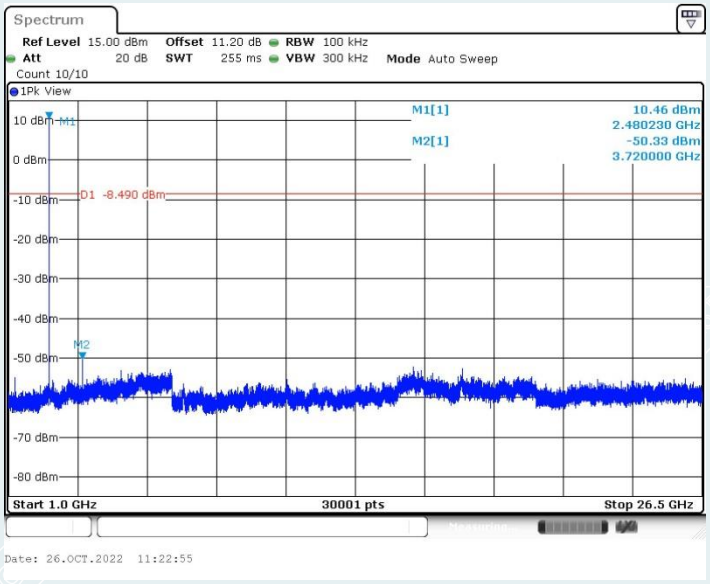

Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -56.23 dBm
914.8850 MHz
D1 -8.290 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 11:21:09


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk View
M1[1] 6.38 dBm
2.441130 GHz
M2[1] -41.84 dBm
3.661350 GHz
D1 -8.290 dBm
Start 1.0 GHz 30001 pts Stop 26.5 GHz
Date: 26.OCT.2022 11:21:28

CH High

Spectrum
Ref Level 30.00 dBm Offset 11.20 dB RBW 100 kHz
Att 30 dB SWT 18.9 µs VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] 11.51 dBm
2.48015850 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 2.48 GHz 691 pts Span 1.5 MHz
Date: 26.OCT.2022 11:22:24


Spectrum
Ref Level 15.00 dBm Offset 11.20 dB RBW 100 kHz
Att 20 dB SWT 1.1 ms VBW 300 kHz Mode Auto FFT
Count 10/10
1Pk View
M1[1] -55.75 dBm
934.5110 MHz
10 dBm
0 dBm
-10 dBm
D1 -8.490 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
-80 dBm
Start 30.0 MHz 30001 pts Stop 1.0 GHz
Date: 26.OCT.2022 11:22:36



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14. RADIATED SPURIOUS EMISSIONS

14.1 LIMITS

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30dB instead of 20dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak(μV/m)	Measurement distance(m)	Quasi-peak(dBμV/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

NOTE:
(1) The emission limits for the ranges 9-90kHz and 110-490kHz are based on measurements employing a linear average detector.
(2) The lower limit shall apply at the transition frequencies.

14.2 TEST PROCEDURES

1) Sequence of testing 9kHz to 30MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 360 °.

--- The antenna height is 1.0 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 °to 360 °) and by rotating the elevation axes (0 °to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QP detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30MHz to 1GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 4 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1GHz to 18GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 4 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18GHz
Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

Pre measurement:

--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

NOTE:

(a).The frequency from 9kHz to 150kHz, Set RBW=300Hz(for Peak&AVG), RBW=300Hz(for Peak&AVG). the frequency from 150kHz to 30MHz, Set RBW=9kHz, RBW=9kHz, (for QP Detector).
(b).The frequency from 30MHz to 1GHz, Set RBW=120kHz, RBW=300kHz, (for QP Detector).
(c).The frequency above 1GHz, for Peak detector: Set RBW=1MHz, RBW=3MHz.
(d).The frequency above 1GHz, for Avg detector: Set RBW=1MHz, if the EUT is configured to transmit with duty cycle ≥98%， set VBW≤RBW/100 (i.e.,10kHz) but not less than 10 Hz. if the EUT duty cycle is ＜98%，set VBW≥1/T, Where T is defined in section 2.7.

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14.3 TEST SETUP

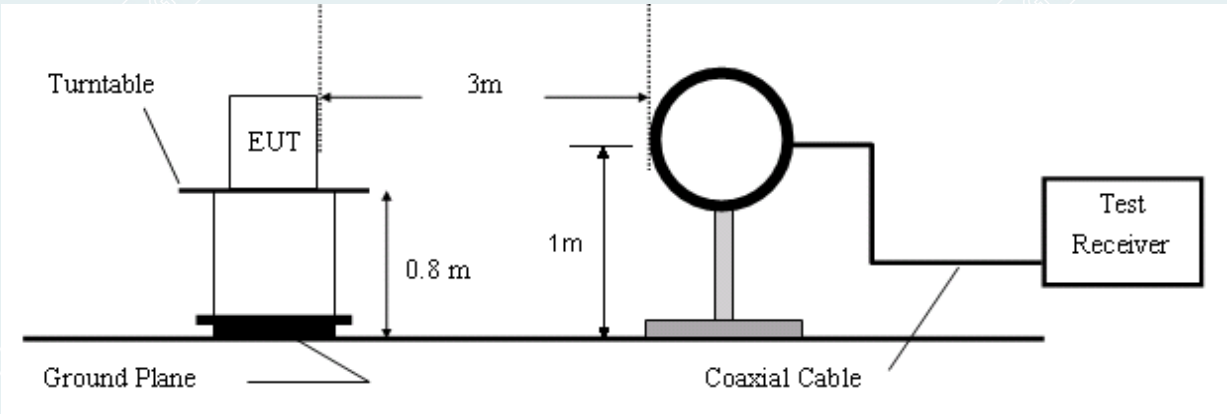


Figure 1. 9kHz to 30MHz radiated emissions test configuration

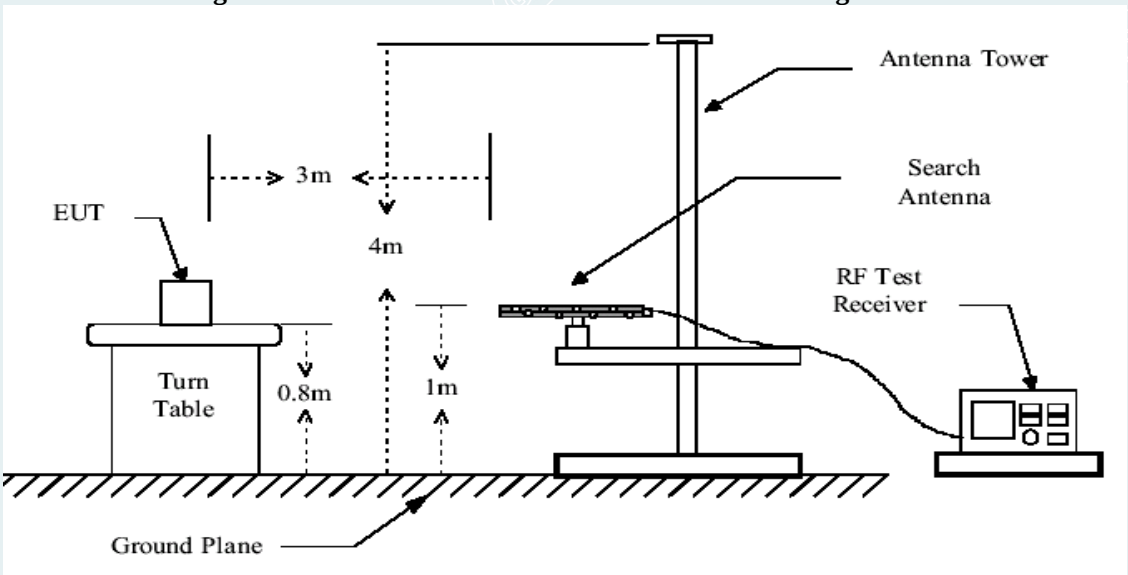


Figure 2. 30MHz to 1GHz radiated emissions test configuration

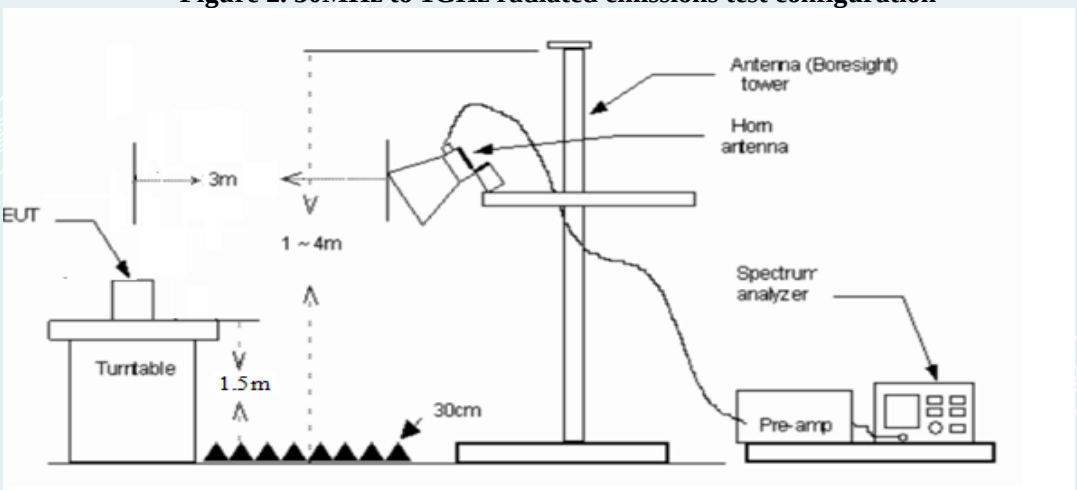


Figure 3. 1GH to 18GHz radiated emissions test configuration

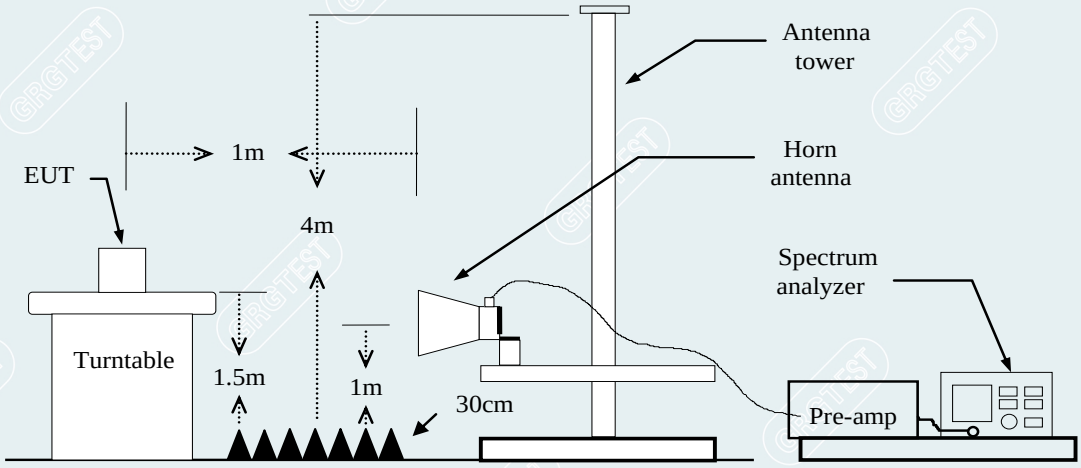


Figure 4. 18GHz to 26.5GHz radiated emissions test configuration

14.4 DATA SAMPLE

30MHz to 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

1GHz-18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

Above 18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	68.86	57.66	-11.20	83.54	25.88	peak	Vertical
xxx	xxx	68.89	-11.20	57.69	63.54	5.85	AVG	Vertical

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBuV) = Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)

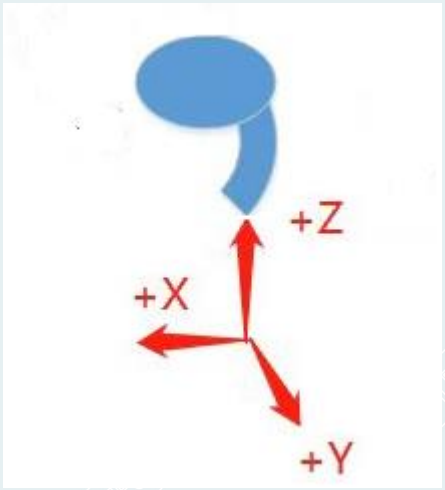
Peak = Peak Reading

QP = Quasi-peak Reading

AVG = Average Reading

14.5 TEST RESULTS

The test are under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the Z position. So the data shown the Z position only.



Below 1GHz:

Pre-test all test mode and recorded the worst case BT DH5 2441MHz test results in the report.

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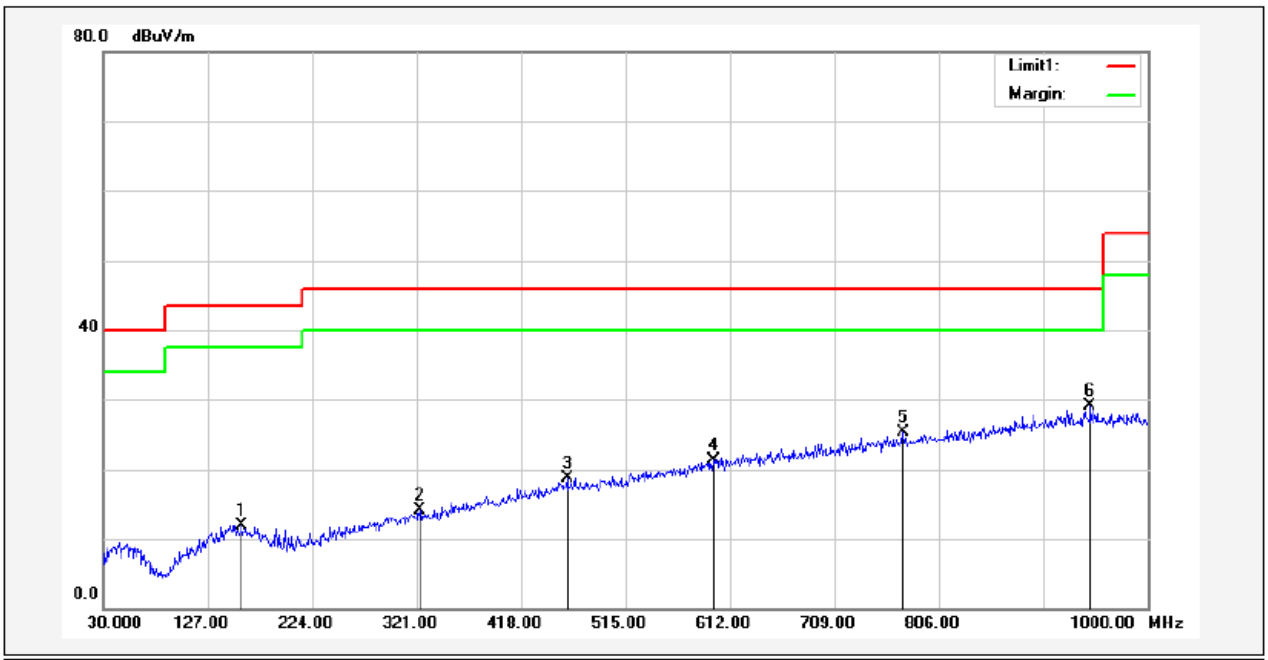
Left earphone

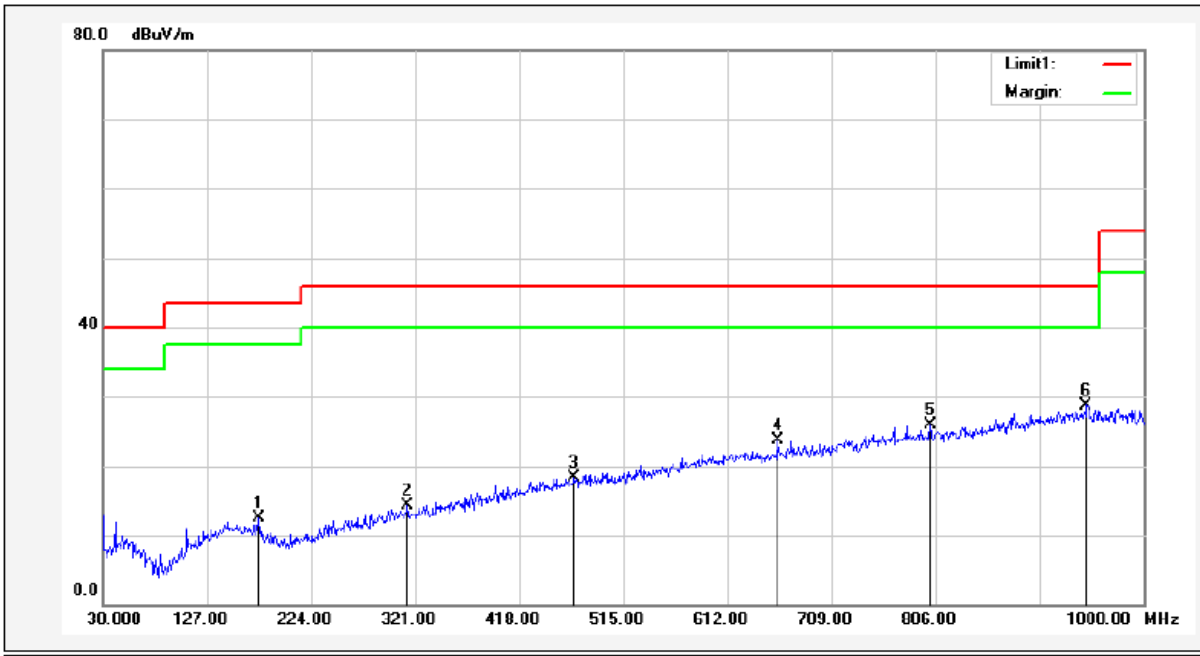
Mode: DH5
Middle Frequency (2441MHz) Date: 2022-10-19
Environment:26.1℃/51%RH/101.0kPa Test Voltage:DC 3.85V
Test Engineer:Huang Xinlong Probe : Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	159.0100	36.88	-24.97	11.91	43.50	-31.59	310	100	QP
2	323.9100	37.13	-22.98	14.15	46.00	-31.85	0	125	QP
3	460.6800	37.26	-18.57	18.69	46.00	-27.31	0	105	QP
4	596.4800	36.45	-15.16	21.29	46.00	-24.71	338	400	QP
5	773.0200	37.15	-11.92	25.23	46.00	-20.77	198	200	QP
6*	946.6500	38.47	-9.44	29.03	46.00	-16.97	315	100	QP

Mode: DH5
Middle Frequency (2441MHz)
Environment: 26.1℃/51%RH/101.0kPa
Test Engineer: Huang Xinlong

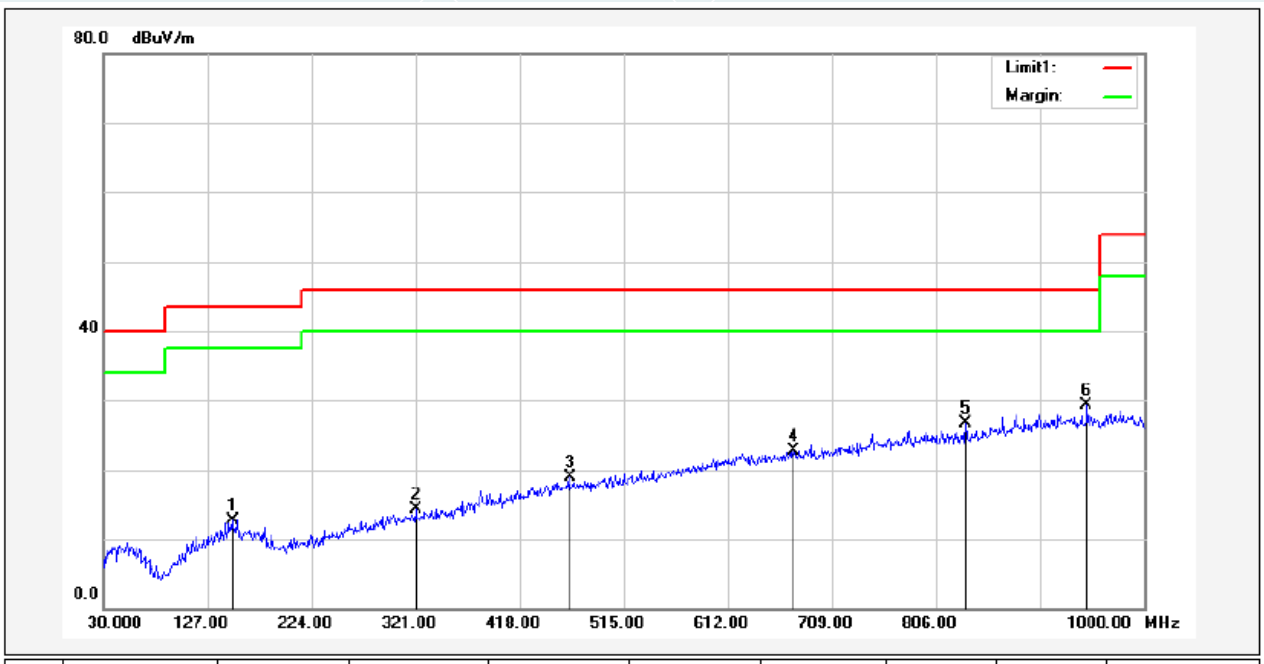
Date: 2022-10-19
Test Voltage: DC 3.85V
Probe : Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	175.5000	38.22	-25.70	12.52	43.50	-30.98	0	387	QP
2	314.2100	37.60	-23.21	14.39	46.00	-31.61	185	400	QP
3	469.4100	36.74	-18.42	18.32	46.00	-27.68	0	195	QP
4	658.5600	37.76	-14.12	23.64	46.00	-22.36	303	100	QP
5	801.1500	37.32	-11.50	25.82	46.00	-20.18	235	300	QP
6*	946.6500	38.24	-9.44	28.80	46.00	-17.20	104	400	QP

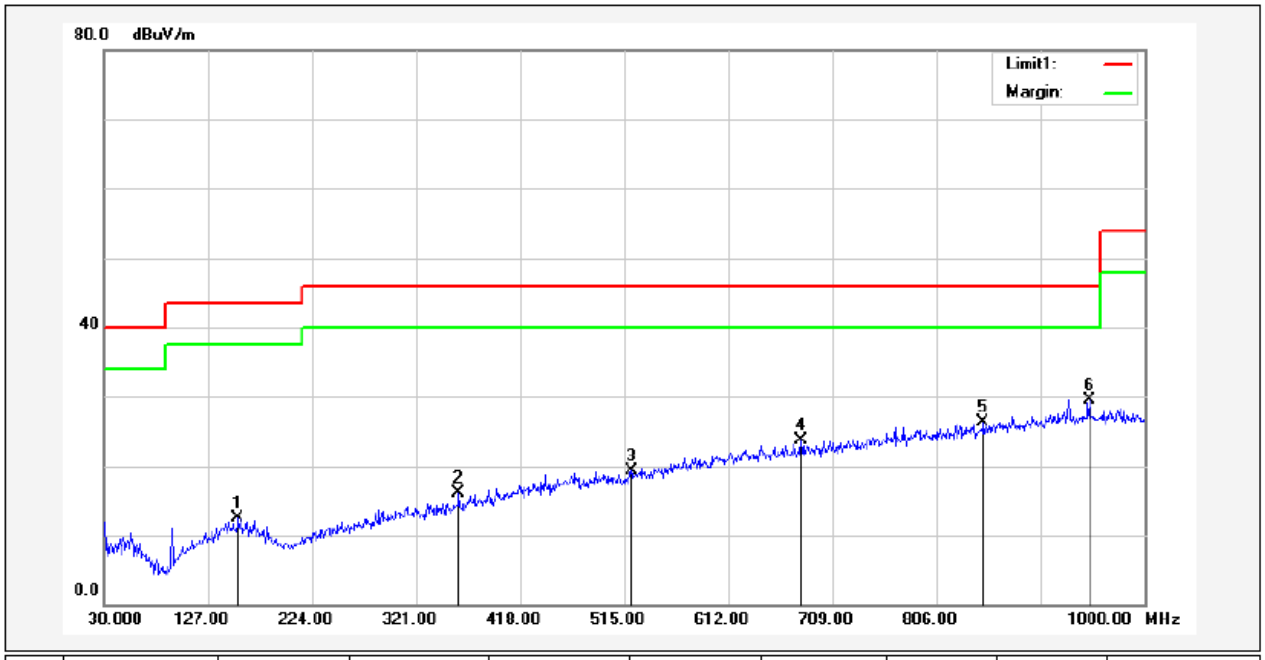
Right earphone

Mode: DH5
Middle Frequency (2441MHz) Date: 2022-10-19
Environment: 26.1℃/51%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer: Huang Xinlong Probe : Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	150.2800	37.53	-24.82	12.71	43.50	-30.79	79	400	QP
2	321.0000	37.39	-23.04	14.35	46.00	-31.65	360	221	QP
3	464.5600	37.31	-18.49	18.82	46.00	-27.18	268	200	QP
4	673.1100	36.46	-13.84	22.62	46.00	-23.38	0	142	QP
5	834.1300	37.74	-11.11	26.63	46.00	-19.37	355	400	QP
6*	946.6500	38.71	-9.44	29.27	46.00	-16.73	0	397	QP

Mode: DH5
Middle Frequency (2441MHz) Date: 2022-10-19
Environment: 26.1℃/51%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer: Huang Xinlong Probe : Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	155.1300	37.40	-24.90	12.50	43.50	-31.00	129	300	QP
2	360.7700	38.06	-21.95	16.11	46.00	-29.89	0	141	QP
3	521.7900	36.70	-17.34	19.36	46.00	-26.64	262	200	QP
4	679.9000	37.33	-13.70	23.63	46.00	-22.37	254	100	QP
5	849.6500	37.13	-10.91	26.22	46.00	-19.78	1	100	QP
6*	948.5900	39.00	-9.42	29.58	46.00	-16.42	0	166	QP

Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.
2 Measuring frequencies from 9kHz to the 1GHz.
3 Radiated emissions measured in frequency range from 30MHz to 1GHz were made with an instrument using Peak/Quasi-peak detector mode.
4 Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5 The IF bandwidth of SPA between 30MHz to 1GHz was 120kHz.

1GHz~18GHz

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Left earphone

Mode: DH5
Lowest Frequency (2402MHz) Date: 2022-10-20
Environment: 24.5℃/43%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer:Zhang Zishan

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2844.2305	58.02	41.60	-16.42	74.00	32.40	100	125	Horizontal
2	3236.2795	57.77	40.93	-16.84	74.00	33.07	100	16	Horizontal
3	5053.3817	55.50	44.39	-11.11	74.00	29.61	200	255	Horizontal
4	6114.7643	55.51	46.53	-8.98	74.00	27.47	200	283	Horizontal
5	6746.7183	54.87	48.43	-6.44	74.00	25.57	100	246	Horizontal
6	7397.4247	53.80	51.15	-2.65	74.00	22.85	200	225	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7376.9338	-2.65	40.67	38.02	54.00	15.98	111	7.2	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1676.3345	60.50	38.44	-22.06	74.00	35.56	200	13	Vertical
2	2700.4626	59.35	42.09	-17.26	74.00	31.91	200	43	Vertical
3	3603.8255	59.31	43.81	-15.50	74.00	30.19	100	204	Vertical
4	4850.8564	56.97	44.09	-12.88	74.00	29.91	200	334	Vertical
5	5454.6818	56.21	45.04	-11.17	74.00	28.96	100	126	Vertical
6	6517.9397	53.69	46.75	-6.94	74.00	27.25	100	14	Vertical

Mode: DH5
Middle Frequency (2441MHz) Date: 2022-10-20
Environment: 24.5℃/43%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer:Zhang Zishan

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1279.0349	60.08	37.68	-22.40	74.00	36.32	100	37	Horizontal
2	2258.4073	59.50	40.85	-18.65	74.00	33.15	100	15	Horizontal
3	2825.7282	58.39	41.52	-16.87	74.00	32.48	100	360	Horizontal
4	4653.9567	55.97	43.80	-12.17	74.00	30.20	200	344	Horizontal
5	5925.3657	55.61	46.28	-9.33	74.00	27.72	200	114	Horizontal
6	6696.087	53.85	47.74	-6.11	74.00	26.26	100	344	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2261.4077	60.63	41.58	-19.05	74.00	32.42	100	216	Vertical
2	2343.1679	60.52	41.95	-18.57	74.00	32.05	200	166	Vertical
3	2952.9941	58.67	41.59	-17.08	74.00	32.41	100	296	Vertical
4	3661.9577	59.15	42.33	-16.82	74.00	31.67	100	65	Vertical
5	5055.2569	55.71	44.54	-11.17	74.00	29.46	200	326	Vertical
6	6561.0701	54.19	47.84	-6.35	74.00	26.16	100	285	Vertical

Mode: DH5
Highest Frequency (2480MHz) Date: 2022-10-20
Environment: 24.5℃/43%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer:Zhang Zishan

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1276.0345	60.96	38.61	-22.35	74.00	35.39	100	36	Horizontal
2	2950.7438	58.51	41.18	-17.33	74.00	32.82	200	97	Horizontal
3	3571.9465	57.30	40.92	-16.38	74.00	33.08	200	264	Horizontal
4	5122.7653	56.36	44.82	-11.54	74.00	29.18	200	43	Horizontal
5	6609.8262	55.13	48.12	-7.01	74.00	25.88	100	315	Horizontal
6	7271.7840	53.34	50.00	-3.34	74.00	24.00	200	214	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1390.0488	60.24	38.63	-21.61	74.00	35.37	100	185	Vertical
2	1723.3404	59.46	37.92	-21.54	74.00	36.08	100	37	Vertical
3	2296.4121	59.23	40.69	-18.54	74.00	33.31	200	357	Vertical
4	2986.7483	58.01	41.46	-16.55	74.00	32.54	100	136	Vertical
5	4650.2063	55.40	43.41	-11.99	74.00	30.59	100	154	Vertical
6	6564.8206	54.03	47.70	-6.33	74.00	26.30	200	14	Vertical

Mode: 2DH5
Lowest Frequency (2402MHz) Date: 2022-10-21
Environment: 24.5℃/43%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer:Zhang Zishan

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1248.7811	60.43	38.48	-21.95	74.00	35.52	200	77	Horizontal
2	2813.2267	59.89	42.72	-17.17	74.00	31.28	100	116	Horizontal
3	3601.9502	57.38	41.52	-15.86	74.00	32.48	200	126	Horizontal
4	5059.0074	56.27	45.05	-11.22	74.00	28.95	100	254	Horizontal
5	6189.7737	55.76	47.67	-8.09	74.00	26.33	200	66	Horizontal
6	7104.8881	53.78	49.54	-4.24	74.00	24.46	100	214	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1375.5469	60.57	38.82	-21.75	74.00	35.18	200	174	Vertical
2	3041.2552	58.99	41.83	-17.16	74.00	32.17	100	214	Vertical
3	3603.8255	59.36	43.86	-15.50	74.00	30.14	200	285	Vertical
4	4252.6566	57.47	41.95	-15.52	74.00	32.05	100	165	Vertical
5	4650.2063	56.91	44.92	-11.99	74.00	29.08	200	265	Vertical
6	6609.8262	54.20	47.81	-6.39	74.00	26.19	100	85	Vertical

Mode: 2DH5
Middle Frequency (2441MHz) Date: 2022-10-21
Environment: 24.5℃/43%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer:Zhang Zishan

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1592.5741	59.85	37.17	-22.68	74.00	36.83	100	155	Horizontal
2	2218.6523	58.97	40.80	-18.17	74.00	33.20	200	154	Horizontal
3	2880.2350	59.62	42.22	-17.40	74.00	31.78	100	115	Horizontal
4	3761.3452	57.04	40.30	-16.74	74.00	33.70	200	0	Horizontal
5	4560.1950	56.56	43.06	-13.50	74.00	30.94	200	226	Horizontal
6	6377.2972	55.14	47.60	-7.54	74.00	26.40	200	207	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1401.0501	60.49	38.97	-21.52	74.00	35.03	200	155	Vertical
2	1690.3363	60.05	38.41	-21.64	74.00	35.59	100	204	Vertical
3	3086.2608	58.52	40.92	-17.60	74.00	33.08	100	325	Vertical
4	3661.9577	60.37	43.55	-16.82	74.00	30.45	100	325	Vertical
5	4828.3535	56.93	44.30	-12.63	74.00	29.70	100	156	Vertical
6	6613.5767	54.92	48.47	-6.45	74.00	25.53	100	16	Vertical

Mode: 2DH5
Highest Frequency (2480MHz) Date: 2022-10-21
Environment: 24.5℃/43%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer:Zhang Zishan

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1520.5651	60.58	38.10	-22.48	74.00	35.90	100	311	Horizontal
2	2235.6545	60.76	42.35	-18.41	74.00	31.65	100	292	Horizontal
3	2849.7312	58.63	42.34	-16.29	74.00	31.66	200	73	Horizontal
4	4344.5431	56.96	42.95	-14.01	74.00	31.05	200	205	Horizontal
5	5057.1321	55.89	44.70	-11.19	74.00	29.30	200	314	Horizontal
6	7104.8881	53.43	49.19	-4.24	74.00	24.81	200	78	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1421.8027	60.16	38.49	-21.67	74.00	35.51	100	96	Vertical
2	2380.9226	60.48	41.64	-18.84	74.00	32.36	100	165	Vertical
3	3720.0900	59.88	42.63	-17.25	74.00	31.37	200	276	Vertical
4	4657.7072	56.48	44.29	-12.19	74.00	29.71	200	207	Vertical
5	5994.7493	55.36	46.54	-8.82	74.00	27.46	100	37	Vertical
6	6909.8637	53.68	48.55	-5.13	74.00	25.45	200	187	Vertical

Mode: 3DH5
Lowest Frequency (2402MHz) Date: 2022-10-21
Environment: 24.5℃/43%RH/101.0kPa Test Voltage: DC 3.85V
Test Engineer:Zhang Zishan

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1278.0348	60.00	37.61	-22.39	74.00	36.39	100	360	Horizontal
2	2859.7325	58.60	41.96	-16.64	74.00	32.04	200	192	Horizontal
3	3219.4024	58.33	41.77	-16.56	74.00	32.23	200	334	Horizontal
4	4323.9155	56.80	42.54	-14.26	74.00	31.46	100	0	Horizontal
5	4938.9924	56.37	44.32	-12.05	74.00	29.68	100	157	Horizontal
6	7007.3759	53.72	48.59	-5.13	74.00	25.41	100	128	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1429.3037	60.35	38.63	-21.72	74.00	35.37	100	203	Vertical
2	2966.7458	58.87	42.00	-16.87	74.00	32.00	100	154	Vertical
3	3603.8255	60.20	44.70	-15.50	74.00	29.30	100	345	Vertical
4	4644.5806	55.97	43.86	-12.11	74.00	30.14	100	345	Vertical
5	6576.072	53.93	47.63	-6.30	74.00	26.37	100	345	Vertical