

9.4 TEST RESULT

The maximum Conducted Power (CP) for VHF/UHF is

Analog: 5W/1 W for 12.5 KHz Channel Separation

Digital: 5W/1 W for 12.5 KHz Channel Separation

Calculation Formula: $CP = R + A + L$

* Note:

CP: The final Conducted Power

R : The reading value from spectrum analyzer

A : The attenuation value of the used attenuator

L : The loss of all connection cables

VHF:

Analog:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(136.025MHz)	36.93
	Middle(151.850MHz)	36.85
	Middle(155.025MHz)	36.86
	Middle(161.610MHz)	36.83
	Top (173.975MHz)	36.87

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(136.025MHz)	36.75
	Middle(151.850MHz)	36.81
	Middle(155.025MHz)	36.82
	Middle(161.610MHz)	36.80
	Top (173.975MHz)	36.76

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(136.025MHz)	29.92
	Middle(151.850MHz)	29.85
	Middle(155.025MHz)	29.90
	Middle(161.610MHz)	29.87
	Top (173.975MHz)	29.86

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(136.025MHz)	29.76
	Middle(151.850MHz)	29.82
	Middle(155.025MHz)	29.82
	Middle(161.610MHz)	29.68
	Top (173.975MHz)	29.72

Digital:

Date + voice:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(136.025MHz)	36.82
	Middle(151.850MHz)	36.79
	Middle(155.025MHz)	36.83
	Middle(161.610MHz)	36.81
	Top (173.975MHz)	36.75

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(136.025MHz)	36.77
	Middle(151.850MHz)	36.74
	Middle(155.025MHz)	36.84
	Middle(161.610MHz)	36.81
	Top (173.975MHz)	36.82

Date transmission mode:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(136.025MHz)	36.82
	Middle(151.850MHz)	36.78
	Middle(155.025MHz)	36.81
	Middle(161.610MHz)	36.84
	Top (173.975MHz)	36.76

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(136.025MHz)	36.75
	Middle(151.850MHz)	36.81
	Middle(155.025MHz)	36.78
	Middle(161.610MHz)	36.79
	Top (173.975MHz)	36.84

Date + voice:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(136.025MHz)	29.84
	Middle(151.850MHz)	29.68
	Middle(155.025MHz)	29.88
	Middle(161.610MHz)	29.83
	Top (173.975MHz)	29.91

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(136.025MHz)	29.78
	Middle(151.850MHz)	29.79
	Middle(155.025MHz)	29.82
	Middle(161.610MHz)	29.78
	Top (173.975MHz)	29.93

Date transmission mode:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(136.025MHz)	29.81
	Middle(151.850MHz)	29.84
	Middle(155.025MHz)	29.76
	Middle(161.610MHz)	29.86
	Top (173.975MHz)	29.82

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(136.025MHz)	29.82
	Middle(151.850MHz)	29.85
	Middle(155.025MHz)	29.75
	Middle(161.610MHz)	29.79
	Top (173.975MHz)	29.85

UHF:

Analog:

Conducted Power Measurement Results-5W		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(400.025MHz)	36.91
	Middle(453.225MHz)	36.85
	Middle(454.025MHz)	36.84
	Top (479.975MHz)	36.72

Radiated Power Measurement Results-5W		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(400.025MHz)	36.63
	Middle(453.225MHz)	36.79
	Middle(454.025MHz)	36.81
	Top (479.975MHz)	36.72

Conducted Power Measurement Results-1W		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(400.025MHz)	29.93
	Middle(453.225MHz)	29.91
	Middle(454.025MHz)	29.79
	Top (479.975MHz)	29.92

Radiated Power Measurement Results-1W		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(400.025MHz)	29.88
	Middle(453.225MHz)	29.82
	Middle(454.025MHz)	29.85
	Top (479.975MHz)	29.72

Digital:

Date + voice:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(400.025MHz)	36.82
	Middle(453.225MHz)	36.81
	Middle(454.025MHz)	36.89
	Top (479.975MHz)	36.74

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(400.025MHz)	36.92
	Middle(453.225MHz)	36.85
	Middle(454.025MHz)	36.91
	Top (479.975MHz)	36.72

Date transmission mode:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(400.025MHz)	36.73
	Middle(453.225MHz)	36.84
	Middle(454.025MHz)	36.83
	Top (479.975MHz)	36.65

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 36.99dBm(5W)
12.5 KHz	Bottom(400.025MHz)	36.82
	Middle(453.225MHz)	36.81
	Middle(454.025MHz)	36.84
	Top (479.975MHz)	36.81

Date + voice:

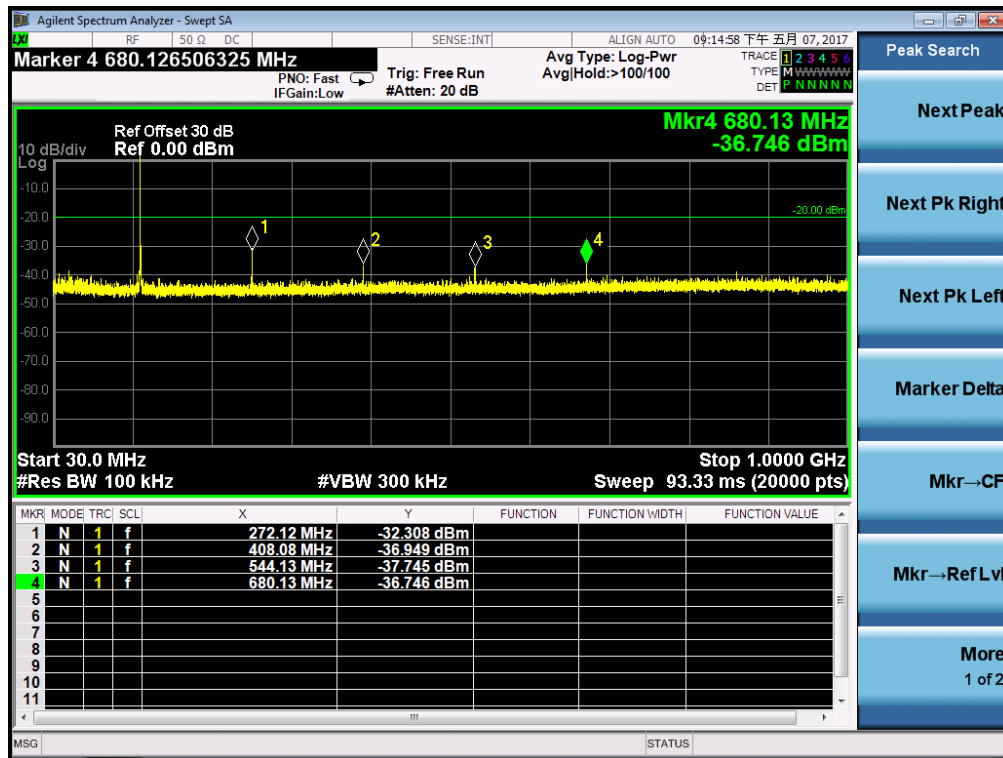
Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(400.025MHz)	29.87
	Middle(453.225MHz)	29.79
	Middle(454.025MHz)	29.90
	Top (479.975MHz)	29.91

Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(400.025MHz)	29.83
	Middle(453.225MHz)	29.81
	Middle(454.025MHz)	29.82
	Top (479.975MHz)	29.65

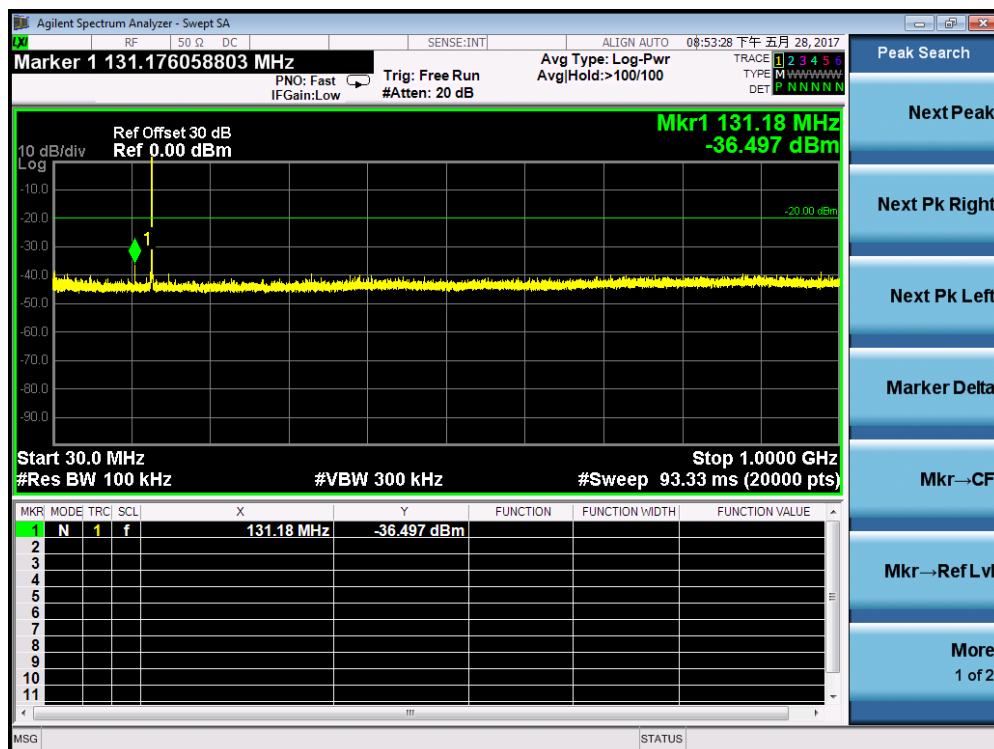
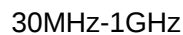
Date transmission mode:

Conducted Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(400.025MHz)	29.86
	Middle(453.225MHz)	29.85
	Middle(454.025MHz)	29.84
	Top (479.975MHz)	29.78

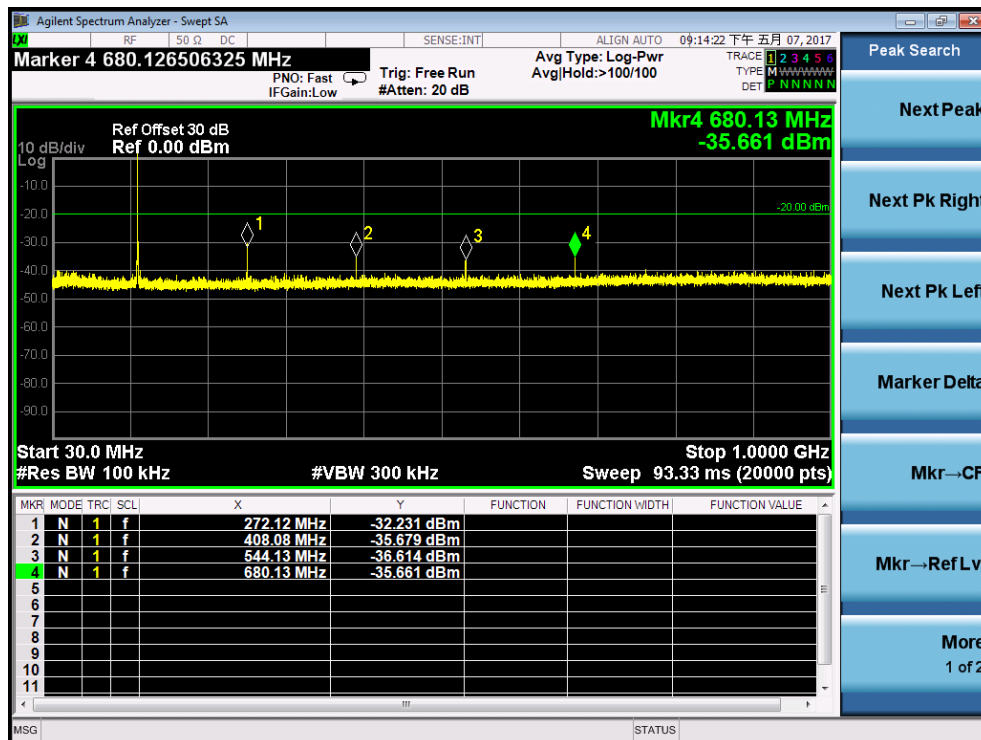
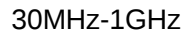
Radiated Power Measurement Results		
Channel Separation	Channel	Measurement Result (dBm)
		For 30dBm(1W)
12.5 KHz	Bottom(400.025MHz)	29.76
	Middle(453.225MHz)	29.75
	Middle(454.025MHz)	29.82
	Top (479.975MHz)	29.65



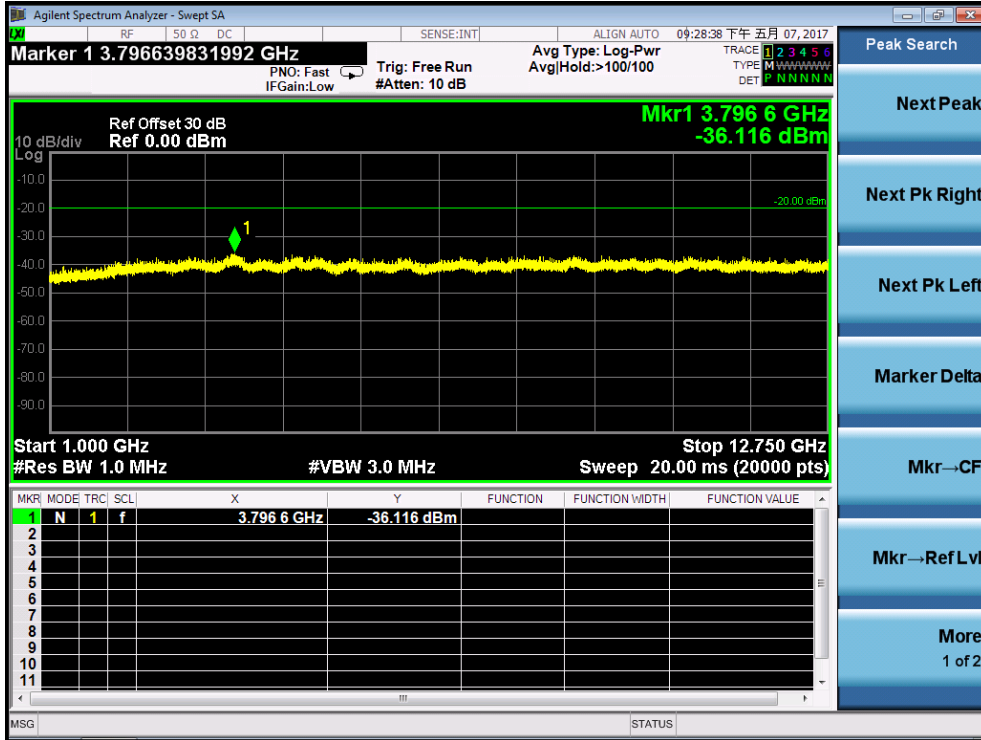
1GHz-12.75GHz



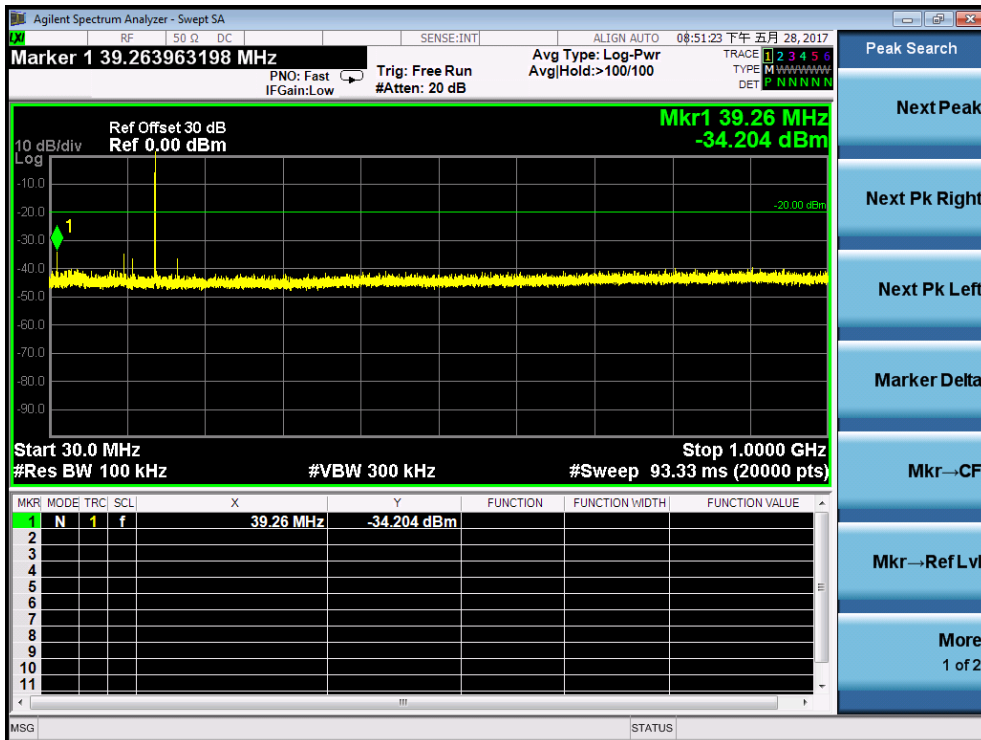
1GHz-12.75GHz



1GHz-12.75GHz

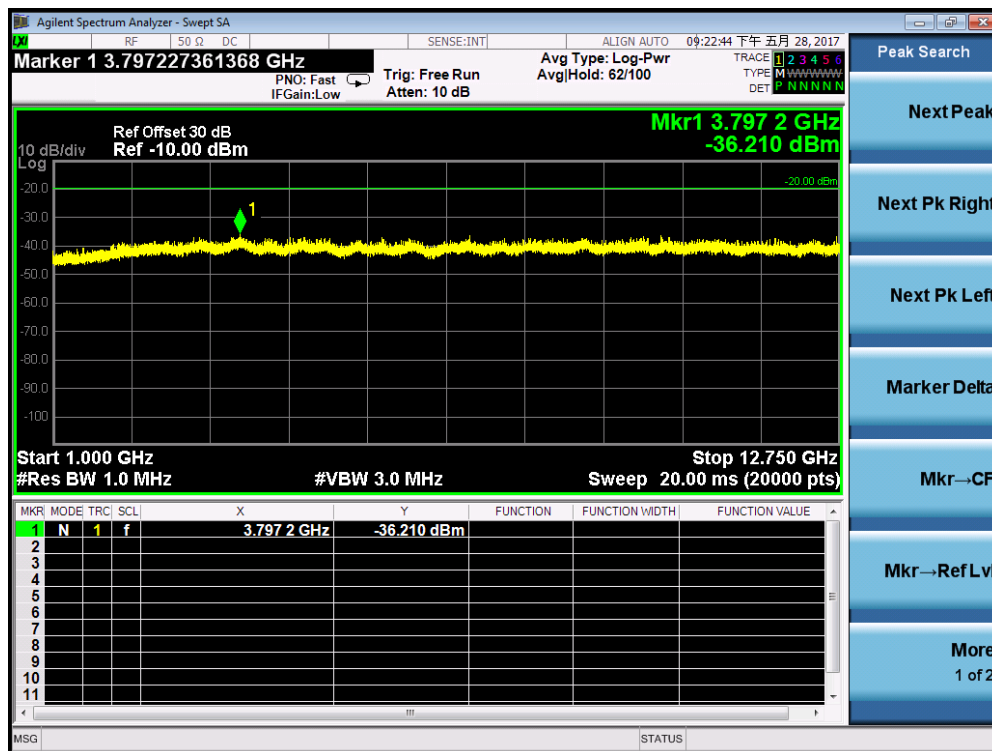


30MHz-1GHz



Conduct Spurious Emission (worst) @ 161.610MHz With 12.5 KHz Channel Separation-1W

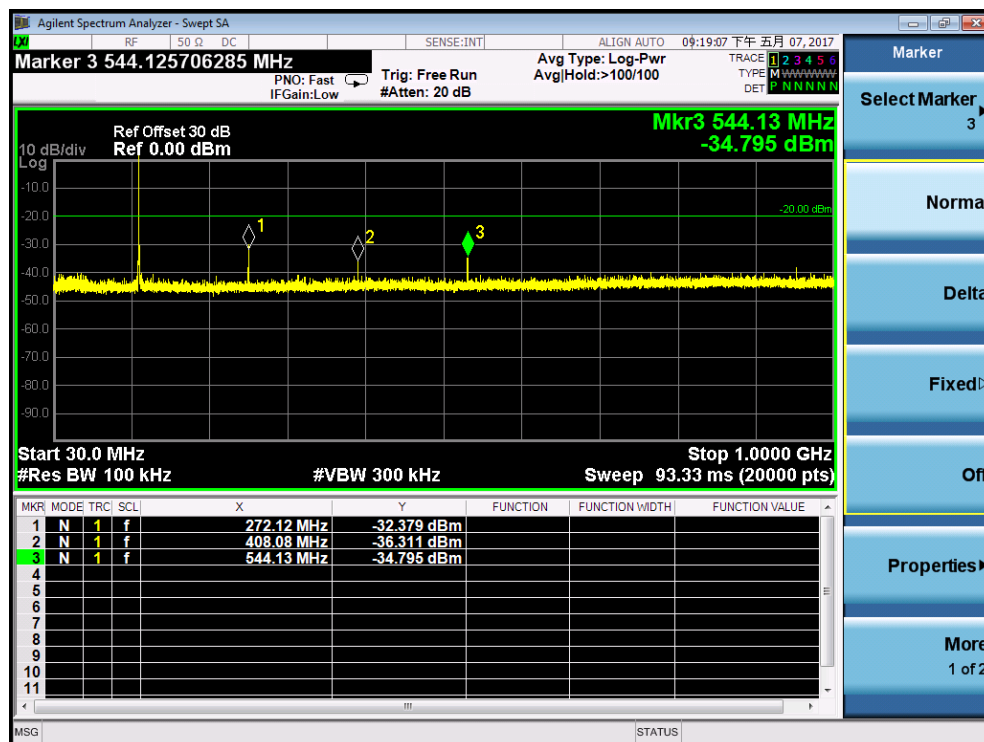
1GHz-12.75GHz



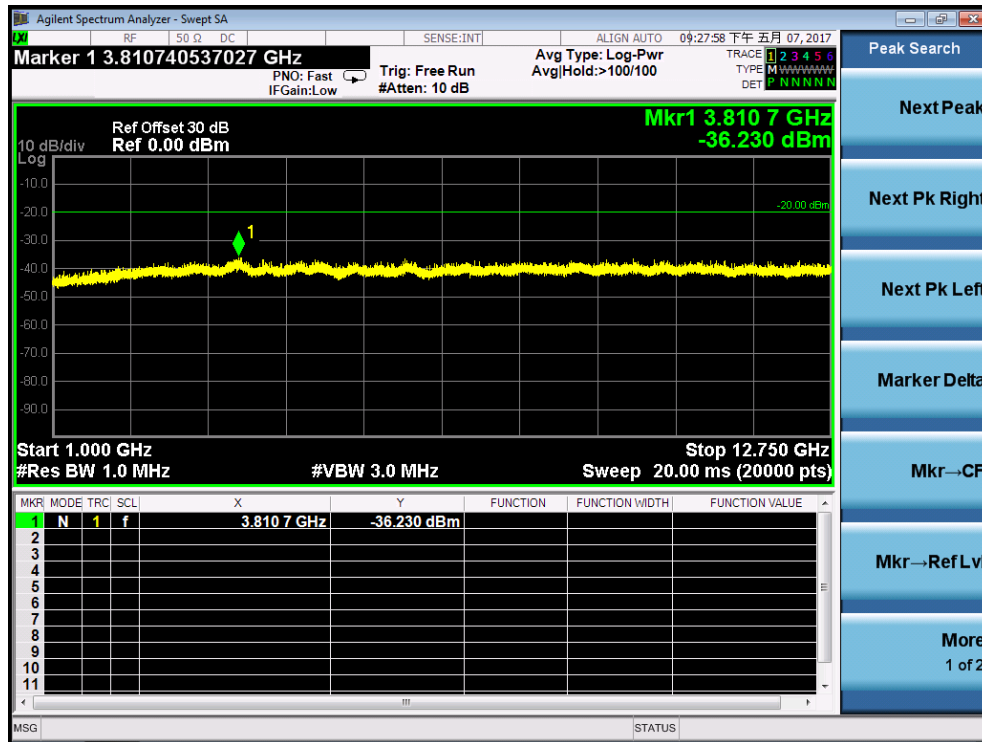
Digital:

Conducted Spurious Emission (worst) @136.025MHz With 12.5 KHz Channel Separation-5W

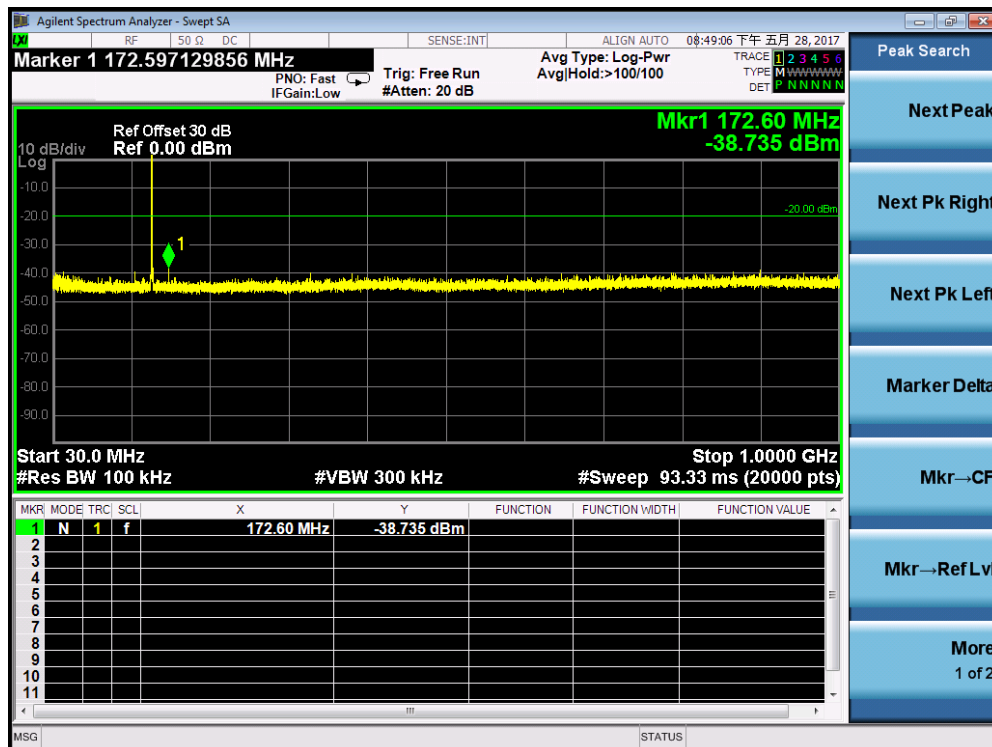
30MHz-1GHz



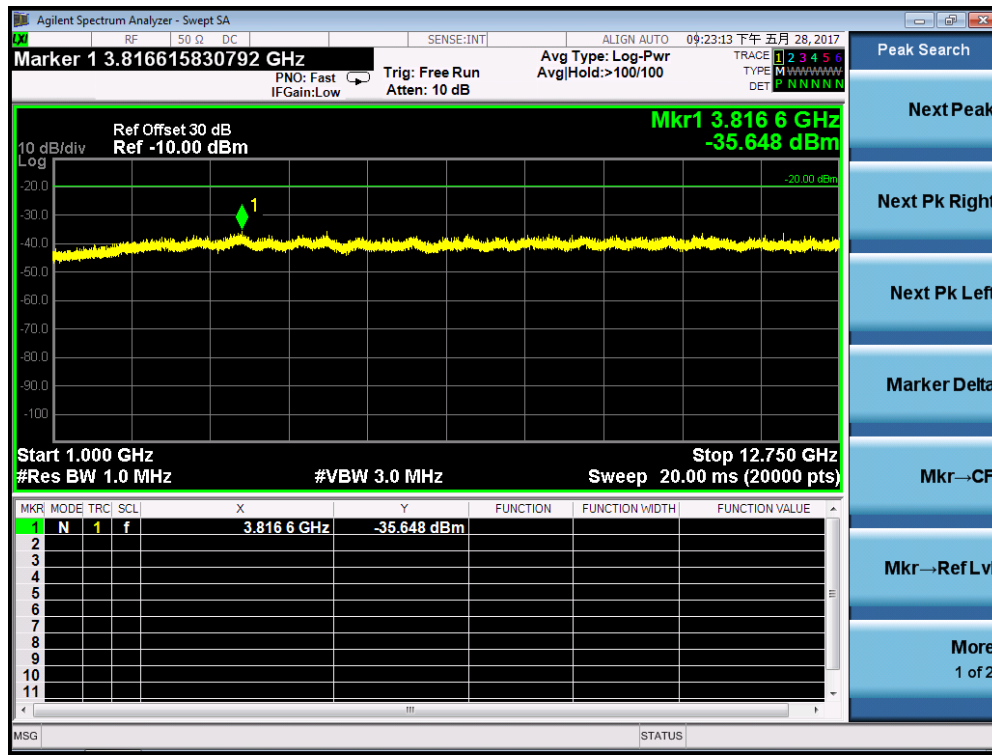
1GHz-12.75GHz



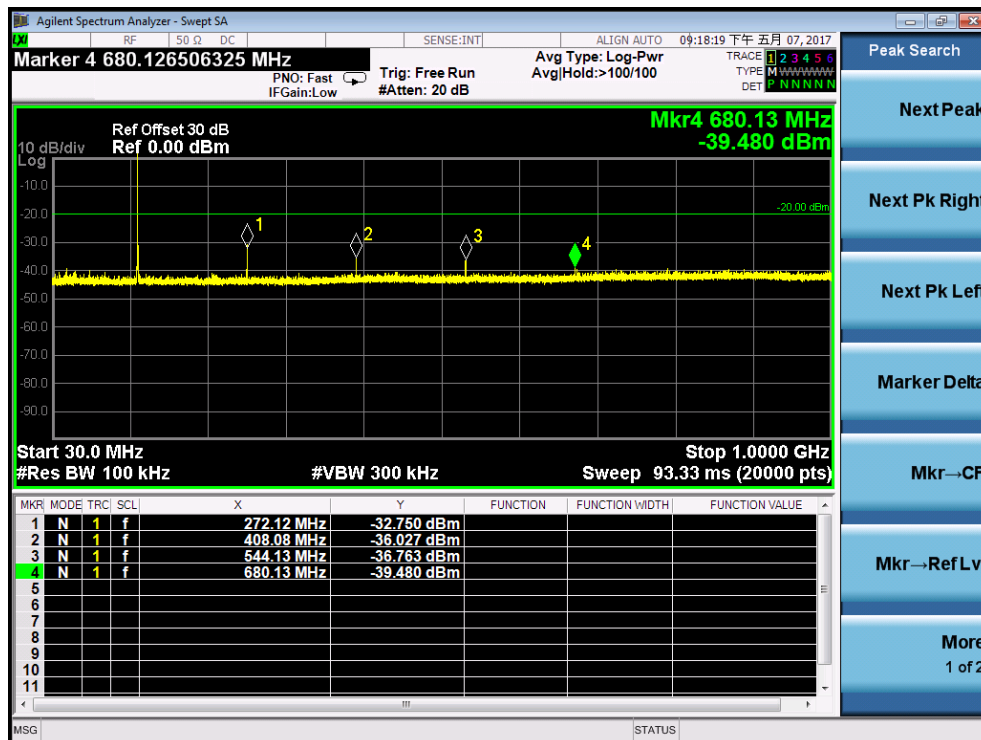
30MHz-1GHz



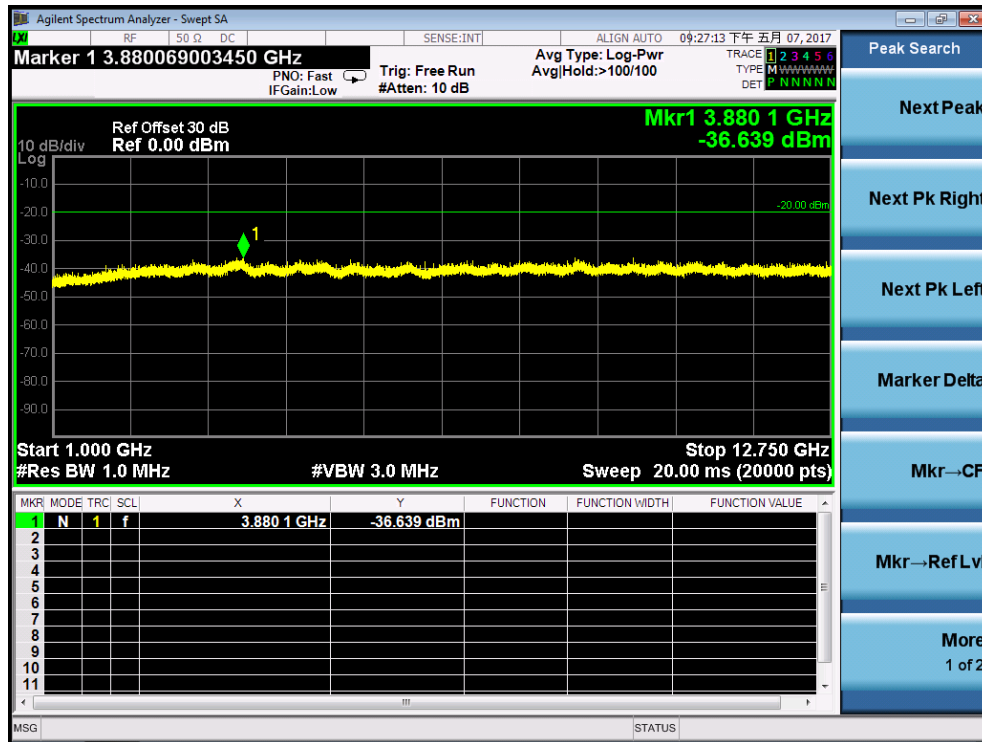
Conduct Spurious Emission (worst) @ 151.850MHz With 12.5 KHz Channel Separation-5W
1GHz-12.75GHz



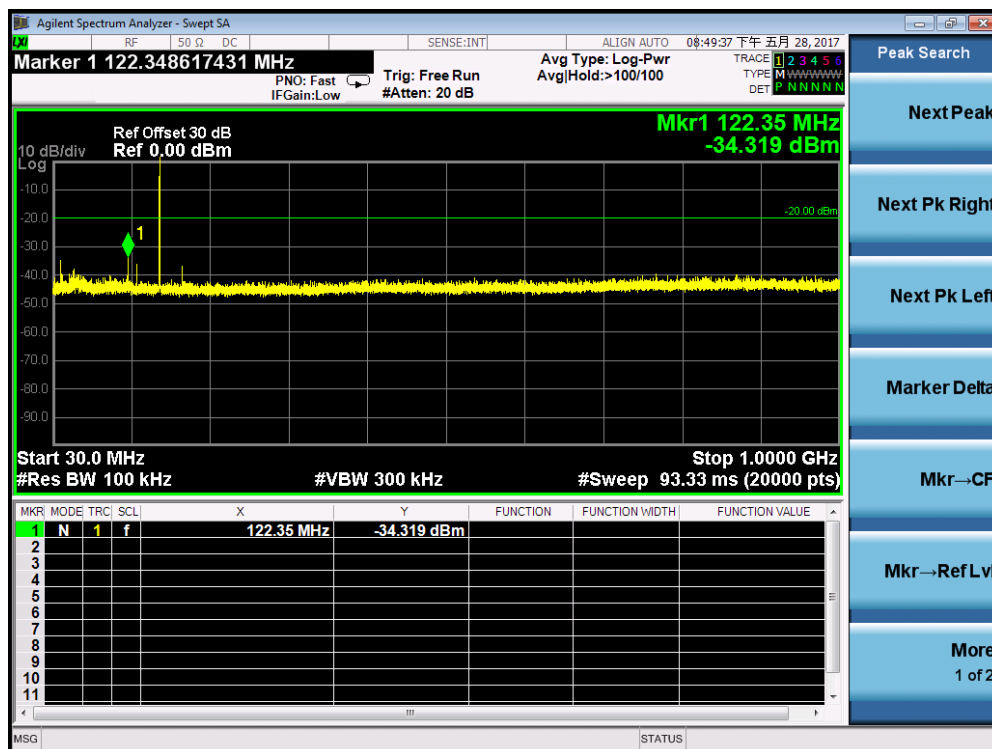
Conducted Spurious Emission (worst) @136.025MHz With 12.5 KHz Channel Separation-1W
30MHz-1GHz



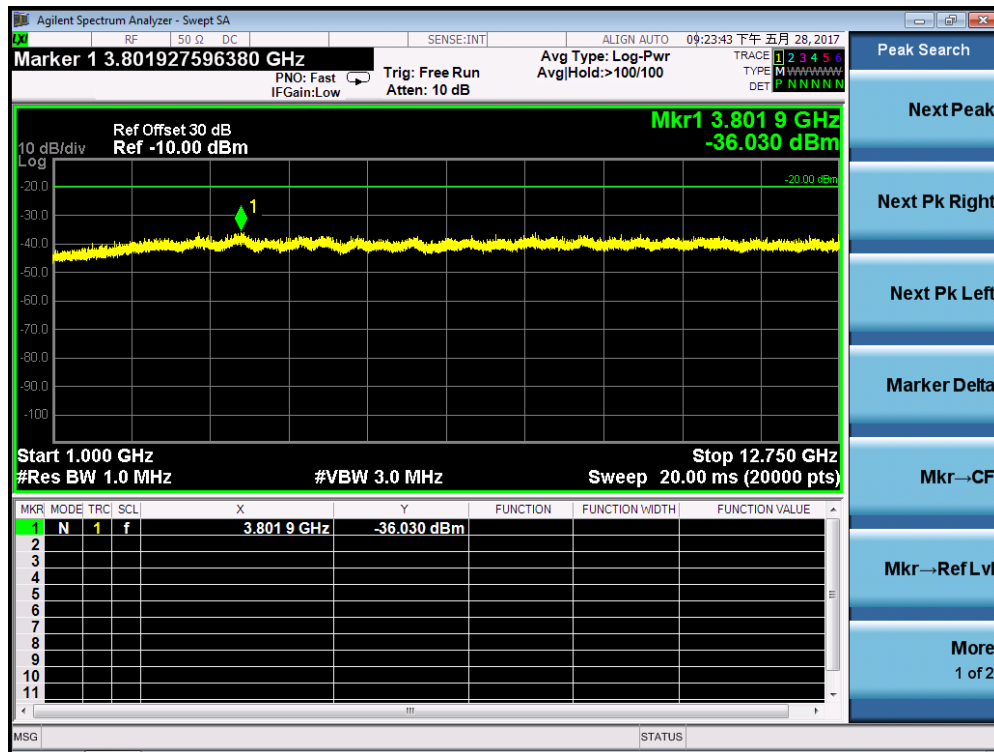
1GHz-12.75GHz



30MHz-1GHz



Conduct Spurious Emission (worst) @ 161.610MHz With 12.5 KHz Channel Separation-1W
1GHz-12.75GHz

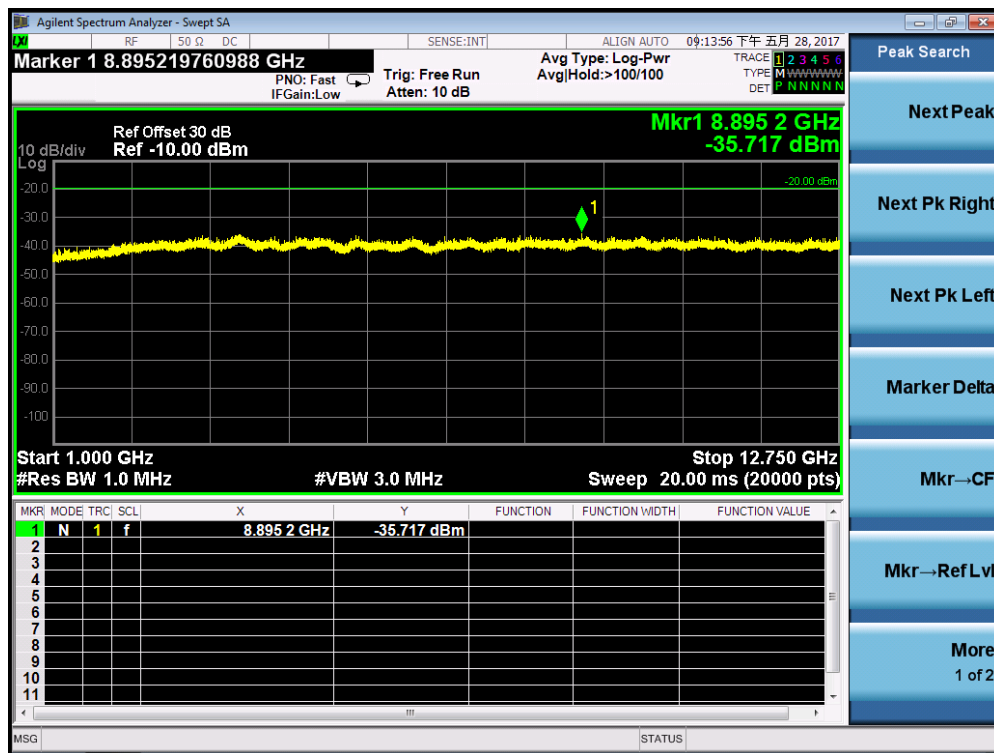
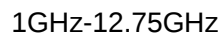


Note: only result the worst case in this part.

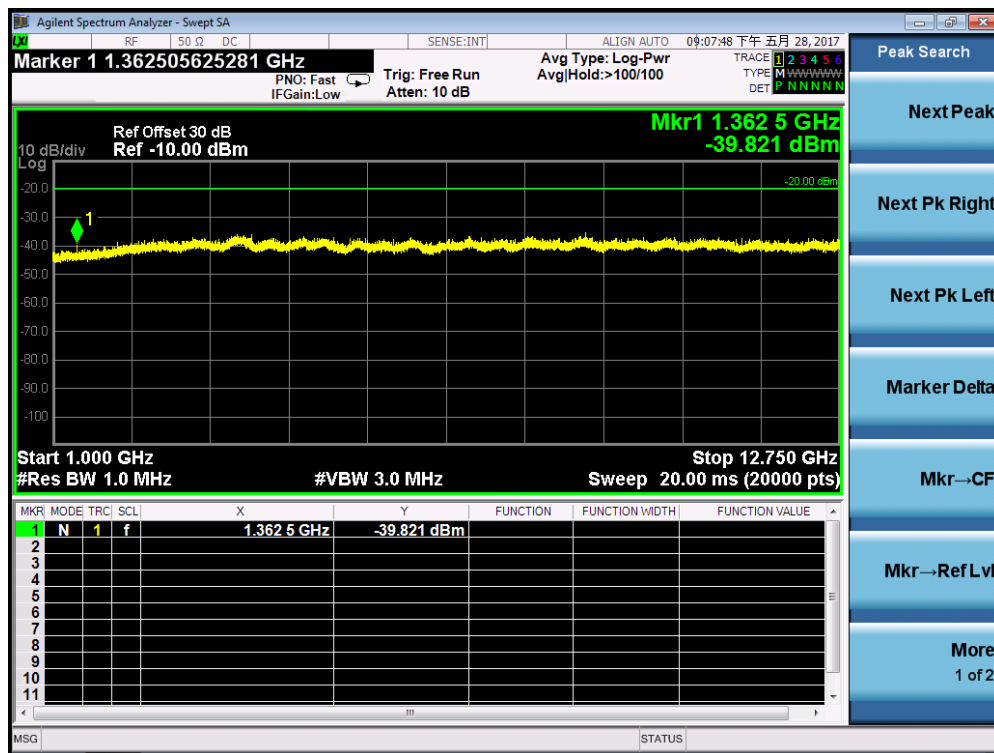
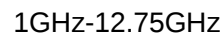
Analog:

[illegible]

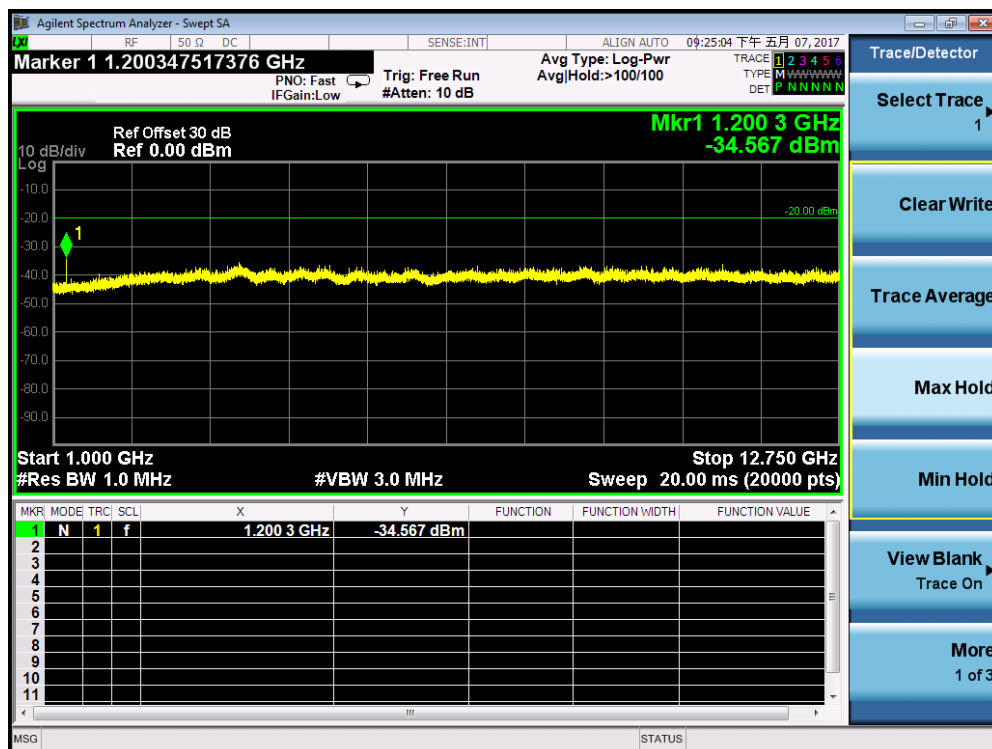
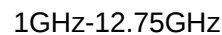
30MHz-1GHz



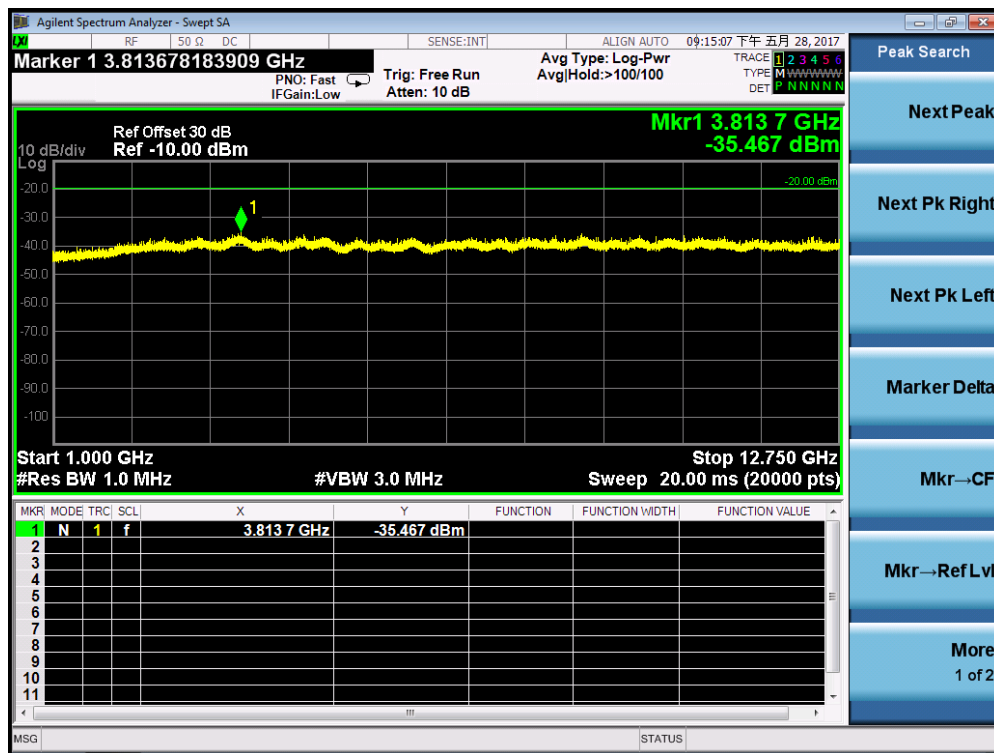
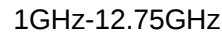
30MHz-1GHz



30MHz-1GHz

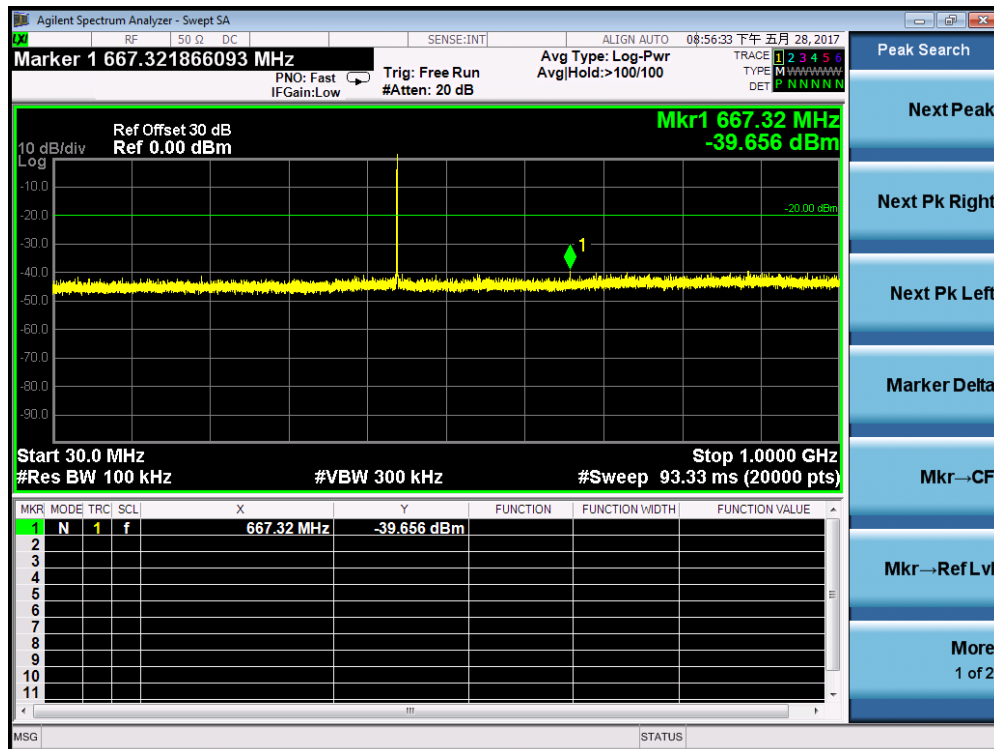


30MHz-1GHz



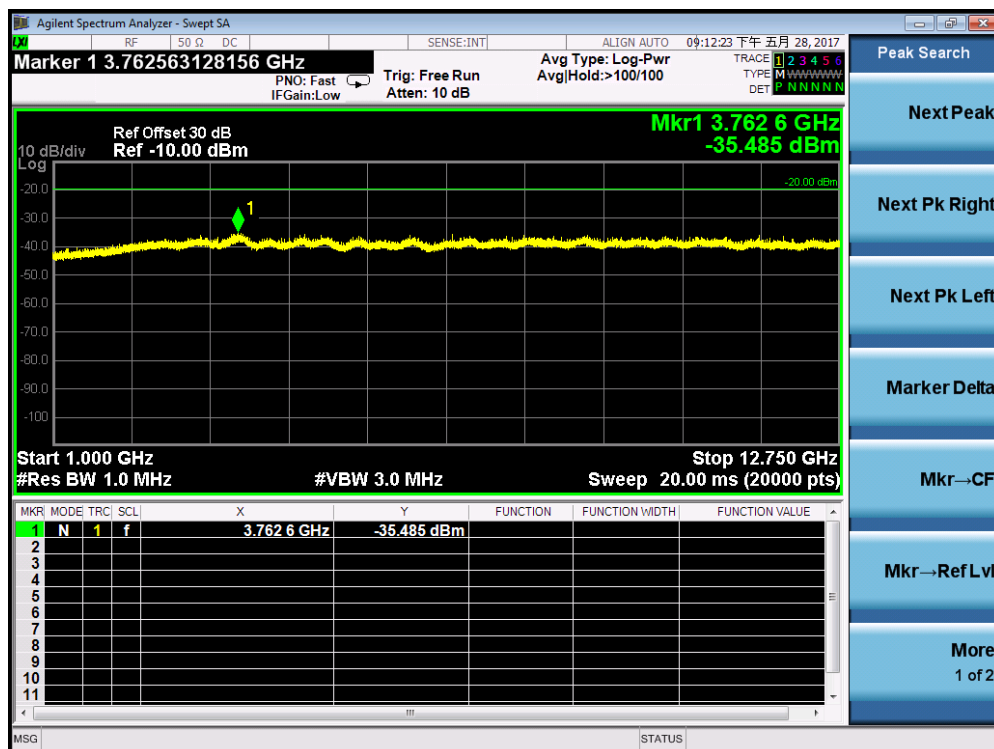
Conducted Spurious Emission (worst) @ 454.025MHz With 12.5 KHz Channel Separation-1W

30MHz-1GHz



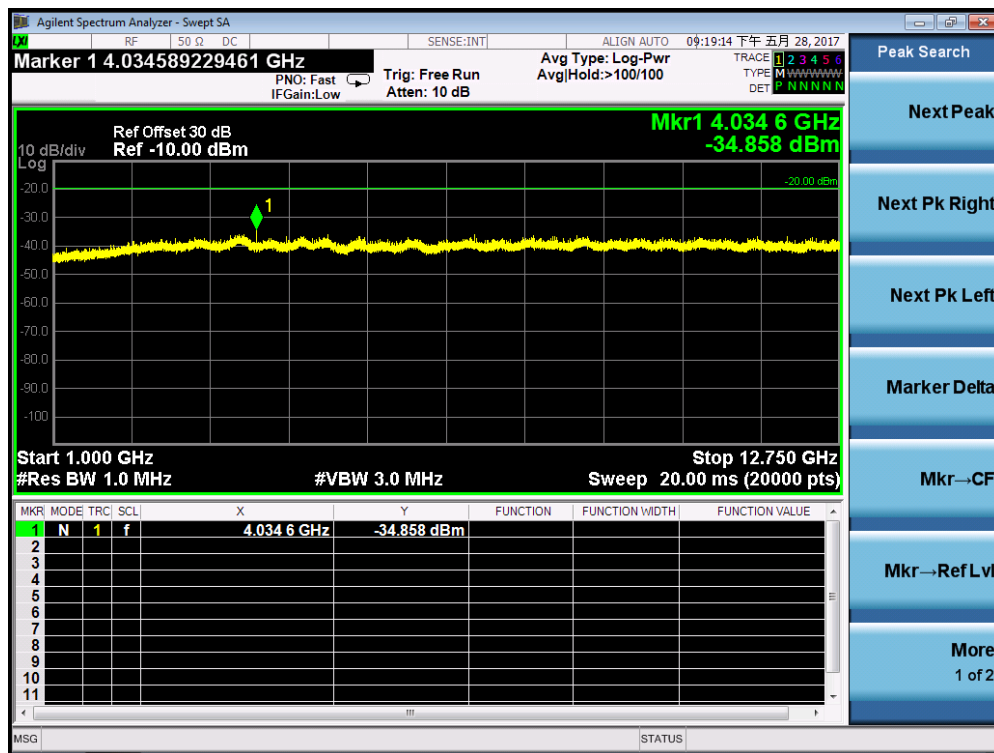
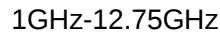
Conduct Spurious Emission (worst) @ 454.025MHz With 12.5 KHz Channel Separation-1W

1GHz-12.75GHz



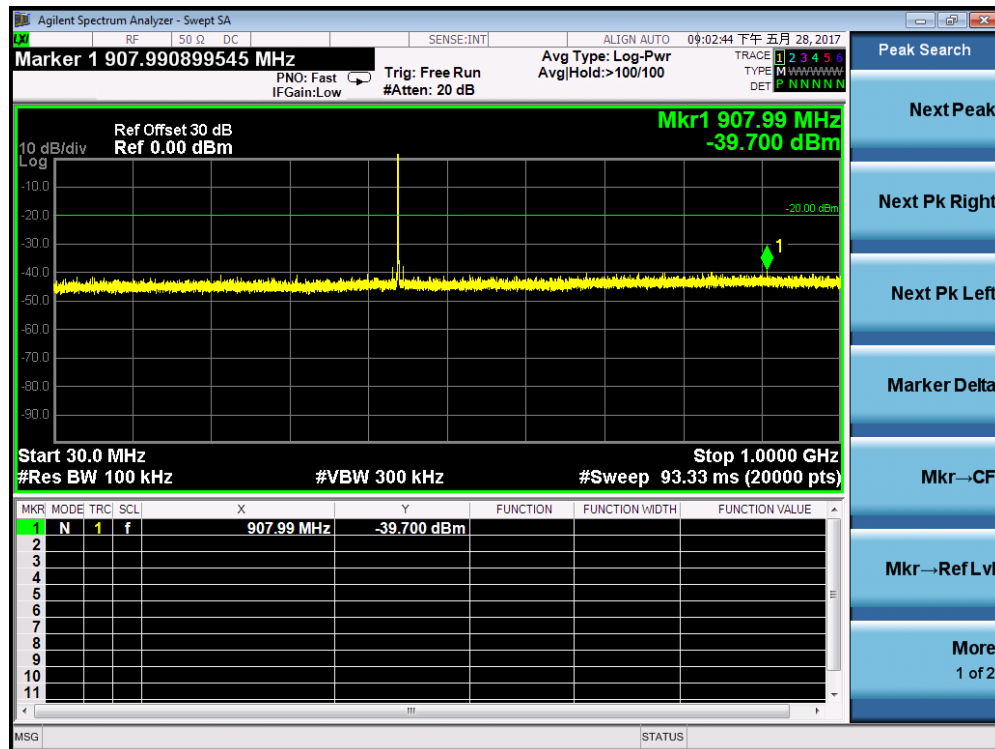
Note: All the test frequencies was tested, but only the worst data be recorded in this part.

30MHz-1GHz



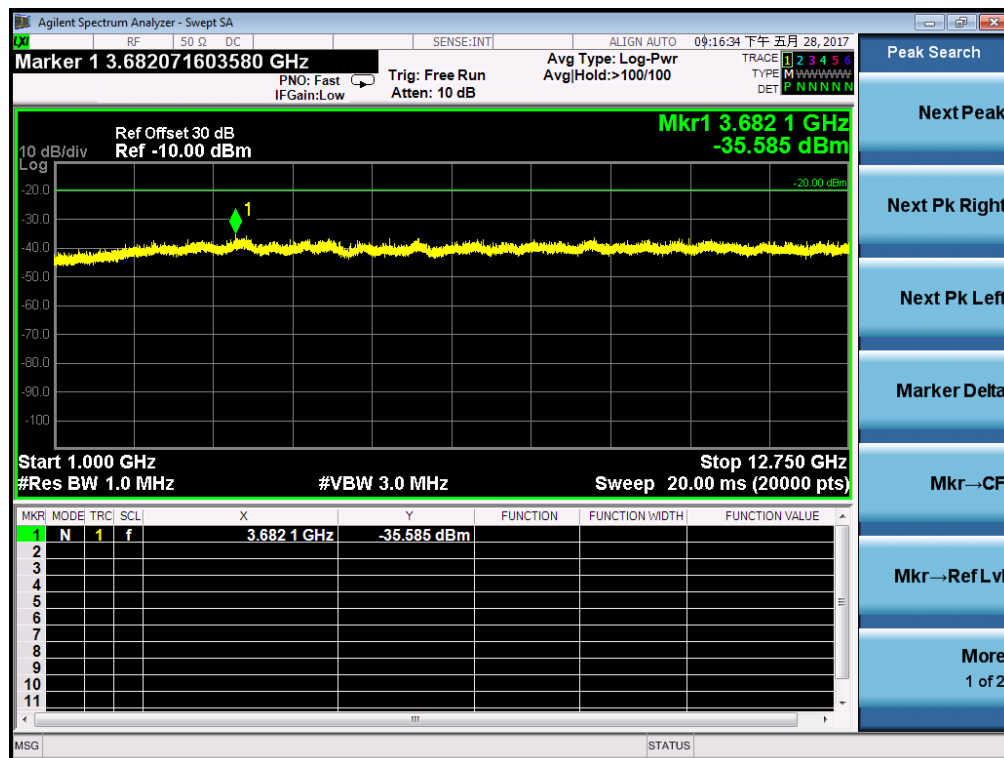
Conducted Spurious Emission (worst) @ 454.025MHz With 12.5 KHz Channel Separation-5W

30MHz-1GHz

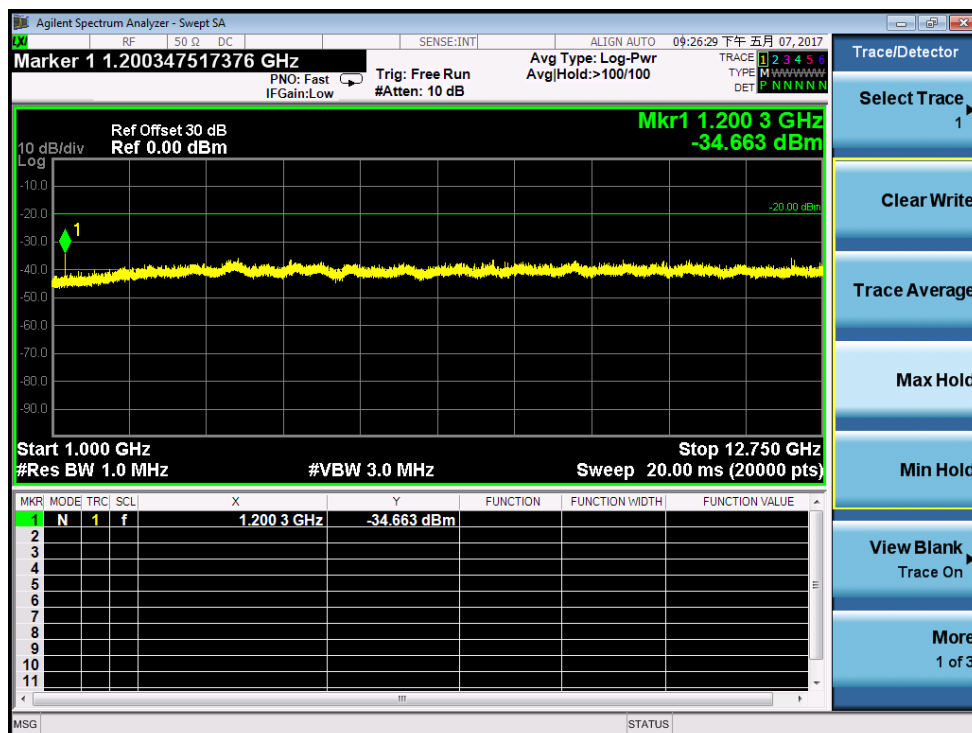
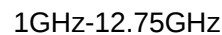


Conduct Spurious Emission (worst) @ 454.025MHz With 12.5 KHz Channel Separation-5W

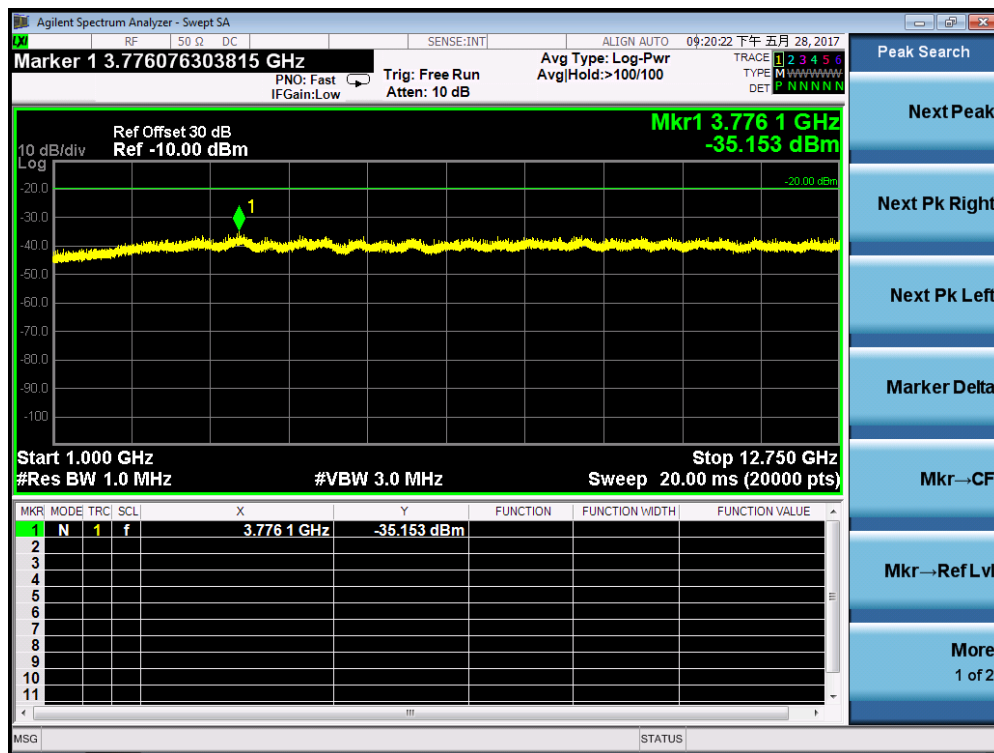
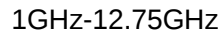
1GHz-12.75GHz



30MHz-1GHz

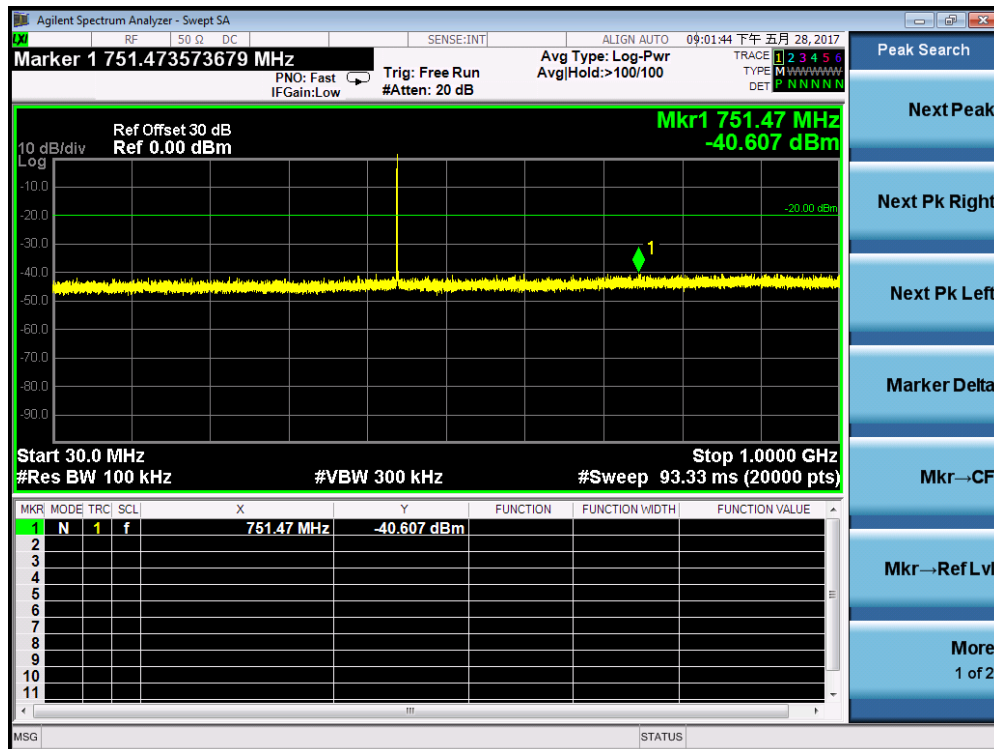


30MHz-1GHz



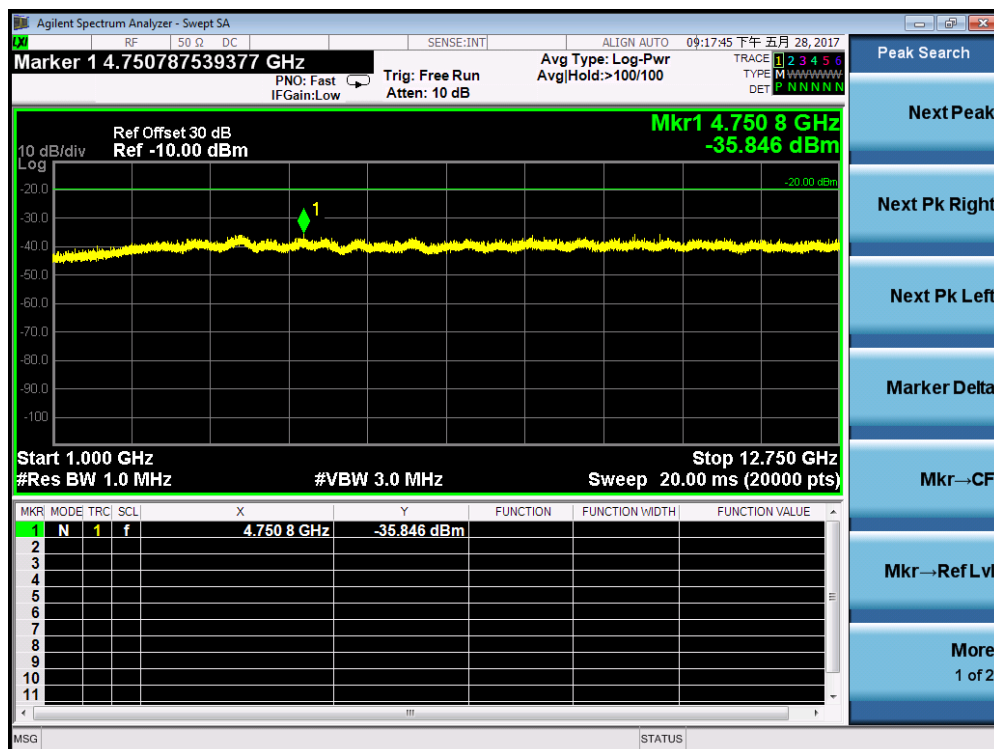
Conducted Spurious Emission (worst) @ 454.025MHz With 12.5 KHz Channel Separation-1W

30MHz-1GHz



Conduct Spurious Emission (worst) @ 454.025MHz With 12.5 KHz Channel Separation-1W

1GHz-12.75GHz



Note: All the test frequencies was tested, but only the worst data be recorded in this part.

10. TRANSMITTER FREQUENCY BEHAVIOR

10.1 PROVISIONS APPLICABLE

FCC §90.214

Time intervals ^{1, 2}	Maximum frequency difference ³	All equipment	
		150 to 174 MHz	421 to 512 MHz
Transient Frequency Behavior for Equipment Designed to Operate on 25 kHz Channels			
t ₁ ⁴	± 25.0 kHz	5.0 ms	10.0 ms
t ₂	± 12.5 kHz	20.0 ms	25.0 ms
t ₃ ⁴	± 25.0 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 12.5 kHz Channels			
t ₁ ⁴	± 12.5 kHz	5.0 ms	10.0 ms
t ₂	± 6.25 kHz	20.0 ms	25.0 ms
t ₃ ⁴	± 12.5 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 6.25 kHz Channels			
t ₁ ⁴	± 6.25 kHz	5.0 ms	10.0 ms
t ₂	± 3.125 kHz	20.0 ms	25.0 ms
t ₃ ⁴	± 6.25 kHz	5.0 ms	10.0 ms

¹ t_{on} is the instant when a 1 kHz test signal is completely suppressed, including any capture time due to phasing.

t_1 is the time period immediately following t_{on} .

t_2 is the time period immediately following t_1 .

t_3 is the time period from the instant when the transmitter is turned off until t_{off} .

t_{off} is the instant when the 1 kHz test signal starts to rise.

² During the time from the end of t_2 to the beginning of t_3 , the frequency difference must not exceed the limits specified in §90.213.

³ Difference between the actual transmitter frequency and the assigned transmitter frequency.

⁴ If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

10.2 TEST METHOD

TIA/EIA-603 2.2.19.3

10.3 DESCRIBE LIMIT LINE OF TRANSMITTER FREQUENCY BEHAVIOR

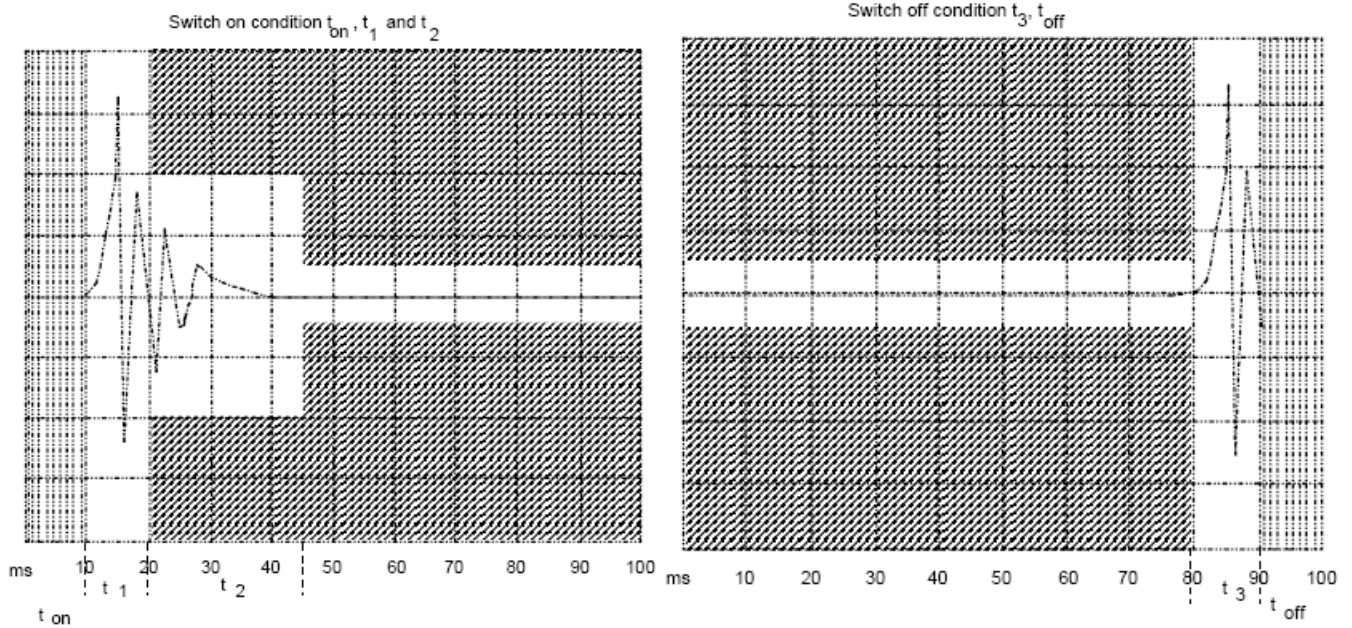
ton: The switch-on instant t_{on} of a transmitter is defined by the condition when the output power, measured at the antenna terminal, exceeds 0,1 % of the full output power (-30 dBc).

t1: period of time starting at t_{on} and finishing according to above 11.1

t2: period of time starting at the end of t_1 and finishing according to above 11.1

toff: switch-off instant defined by the condition when the output power falls below 0,1 % of the full output power (-30 dBc).

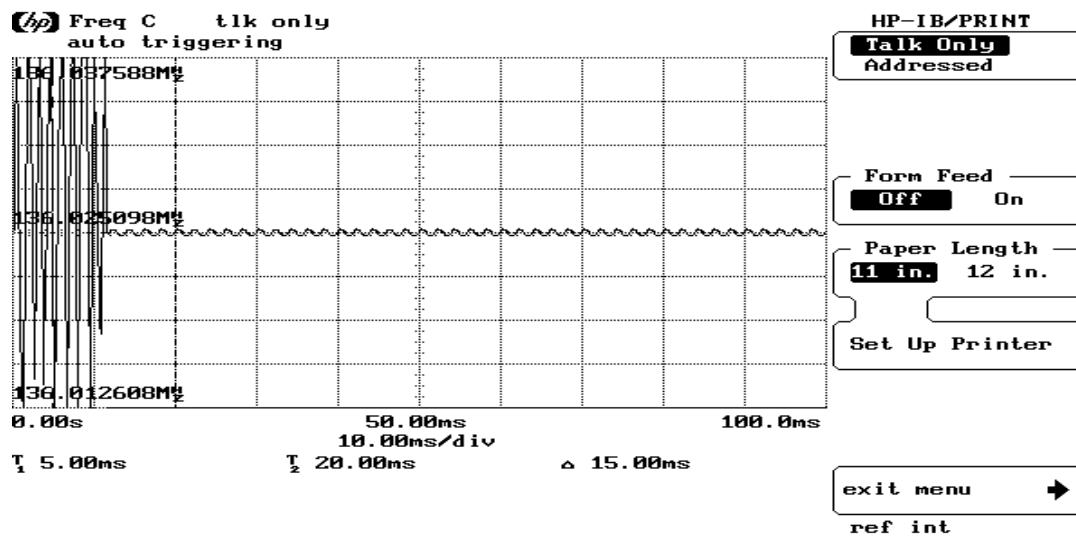
t3: period of time that finishing at t_{off} and starting according to above 11.1



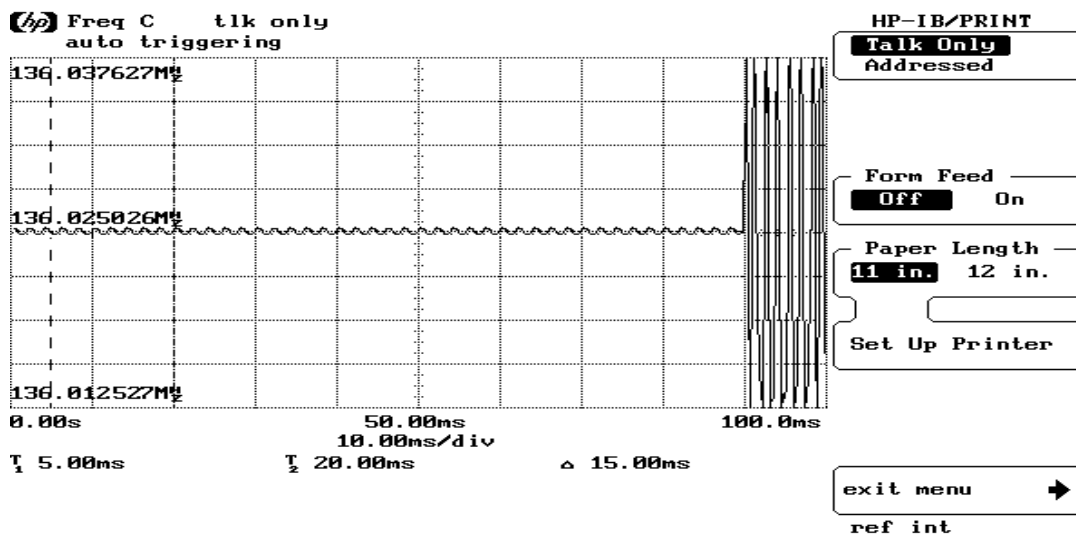
10.4 MEASURE RESULT

VHF:

Transmitter Frequency Behavior @ 12.5 KHz Channel Separation--Off to On

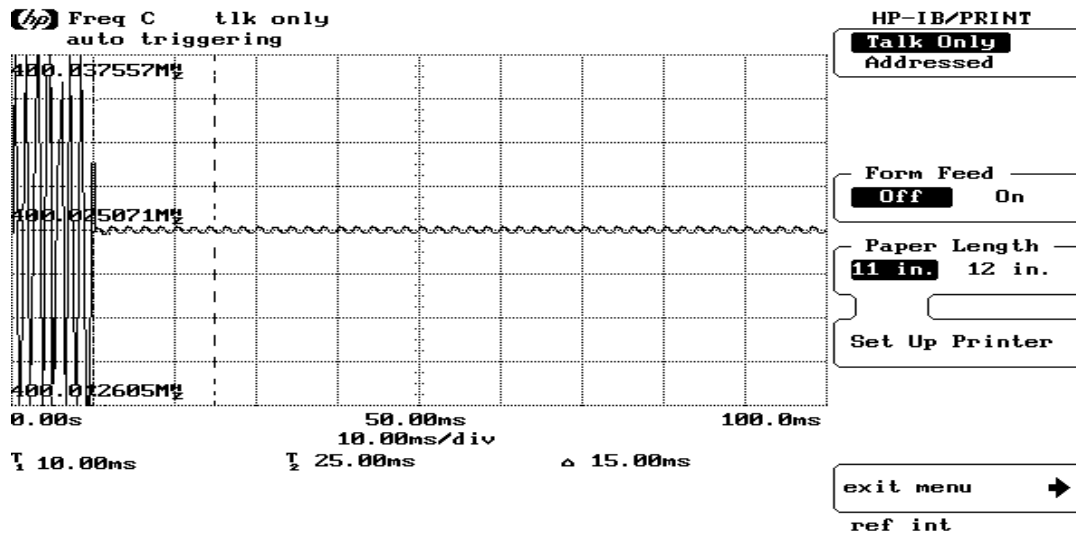


Transmitter Frequency Behavior @ 12.5 KHz Channel Separation--On to Off

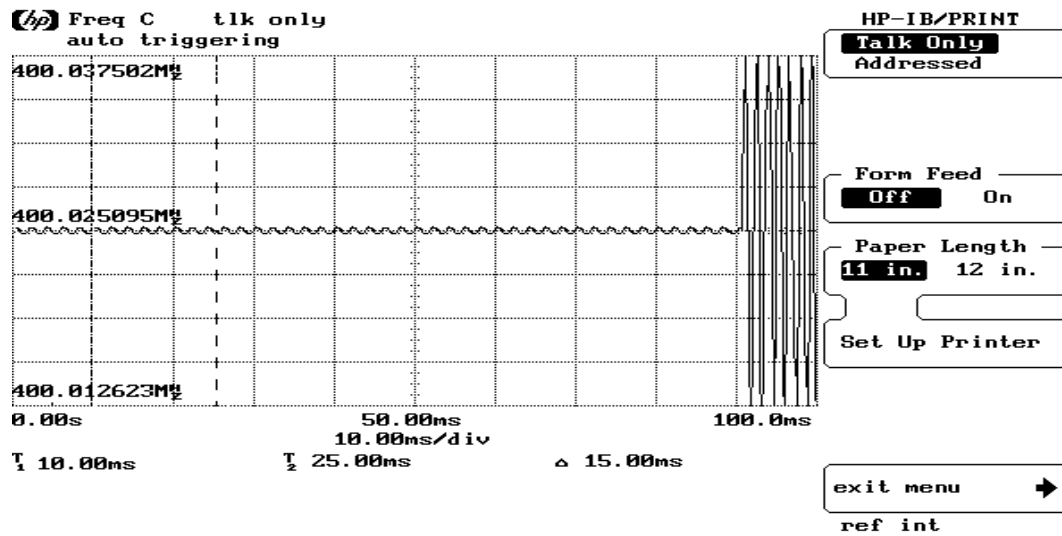


UHF:

Transmitter Frequency Behavior @ 12.5 KHz Channel Separation--Off to On



Transmitter Frequency Behavior @ 12.5 KHz Channel Separation--On to Off



11. AUDIO LOW PASS FILTER RESPONSE

11.1 LIMITS

2.1047(a): Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.

90.242(b)(8): Recommended audio filter attenuation characteristics are given below:

Audio band	Minimum Attenuation Rel. to 1 KHz Attenuation
3 –20 KHz 20 – 30 KHz	$60 \log_{10}(f/3)$ dB where f is in KHz 50dB

11.2. METHOD OF MEASUREMENTS

The rated audio input signal was applied to the input of the audio low-pass filter (or of all modulation stages) using an audio oscillator, this input signal level and its corresponding output signal were then measured and recorded using the FFT Digital Spectrum Analyzer. Tests were repeated at different audio signal frequencies from 0 to 50 KHz.

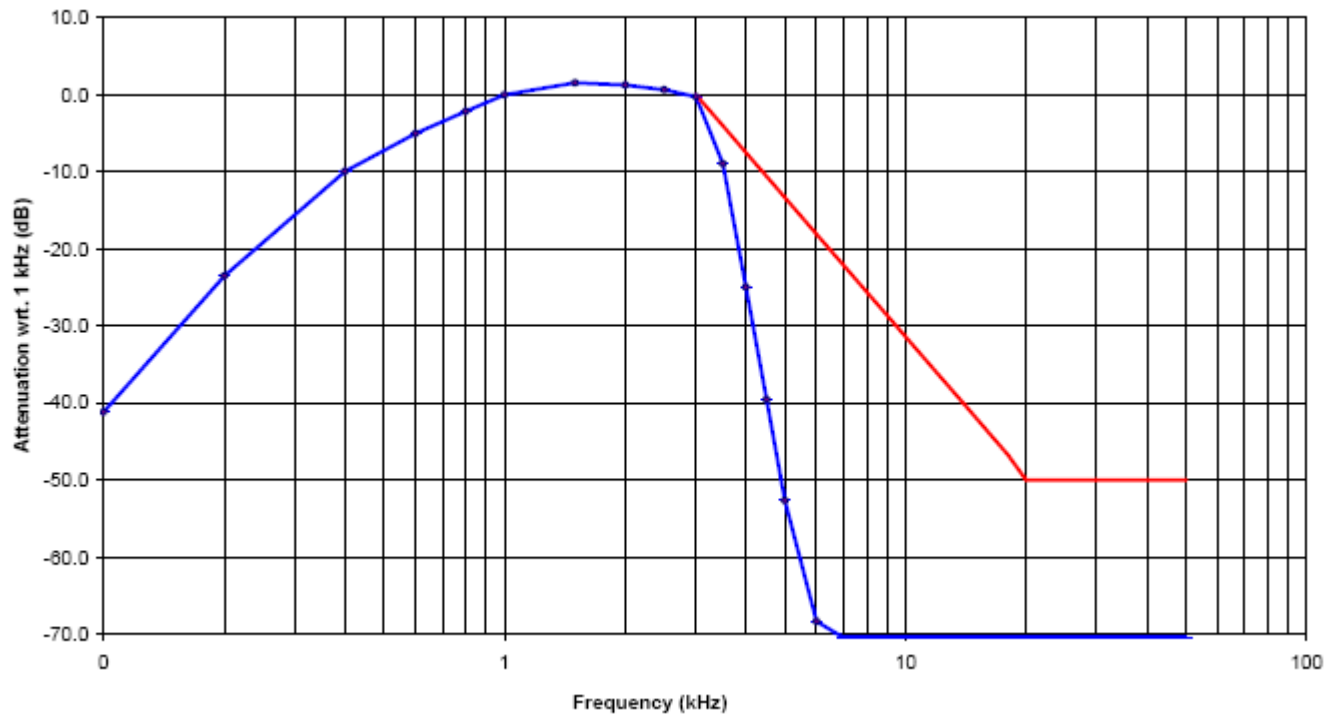
11.3 TEST DATA

Analog:

12.5 KHZ CHANNEL SPACING, F3E, FREQUENCY OF ALL MODULATION STATES (TEST RESULT FOR UHF)-5W

Frequency	Audio In	Audio out	Attenuation	Attenuation	Recommended Attenuation
(KHz)	(dBV)	(dBV)	(Out_In)	Rel.to 3 KHz	(dB)
			dB	(dB)	
0.1	-76.18	-31.26	45.63	-36.56	
0.2	-76.18	-17.36	58.22	-25.62	
0.4	-76.18	-6.28	71.64	-12.81	
0.6	-76.18	0.43	74.22	-6.42	
0.8	-76.18	4.16	78.94	-2.91	
1.0	-76.18	7.15	83.63	-0.02	
1.5	-76.18	8.26	84.82	2.15	
2.0	-76.18	8.98	85.36	1.52	
2.5	-76.18	7.53	83.81	0.65	
3.0	-76.18	6.24	82.54	-1.81	0
3.5	-76.18	2.61	78.42	-4.92	-4
4.0	-76.18	-2.35	74.63	-9.41	-8
4.5	-76.18	-9.22	68.24	-16.54	-13
5.0	-76.18	-15.16	60.63	-21.75	-14
6.0	-76.18	-21.21	54.12	-28.62	-17
7.0	-76.18	-31.63	46.24	-36.45	-21
8.0	-76.18	-39.25	37.91	-47.67	-25
9.0	-76.18	-61.92	15.16	-66.41	-26
10.0	-76.18	-61.92	15.16	-66.41	-30
12.0	-76.18	-61.92	15.16	-66.41	-38
14.0	-76.18	-61.92	15.16	-66.41	-41
16.0	-76.18	-61.92	15.16	-66.41	-43
18.0	-76.18	-61.92	15.16	-66.41	-46
20.0	-76.18	-61.92	15.16	-66.41	-48
25.0	-76.18	-61.92	15.16	-66.41	-48
30.0	-76.18	-61.92	15.16	-66.41	-48
35.0	-76.18	-61.92	15.16	-66.41	-48
40.0	-76.18	-61.92	15.16	-66.41	-48
45.0	-76.18	-61.92	15.16	-66.41	-48
50.0	-76.18	-61.92	15.16	-66.41	-48

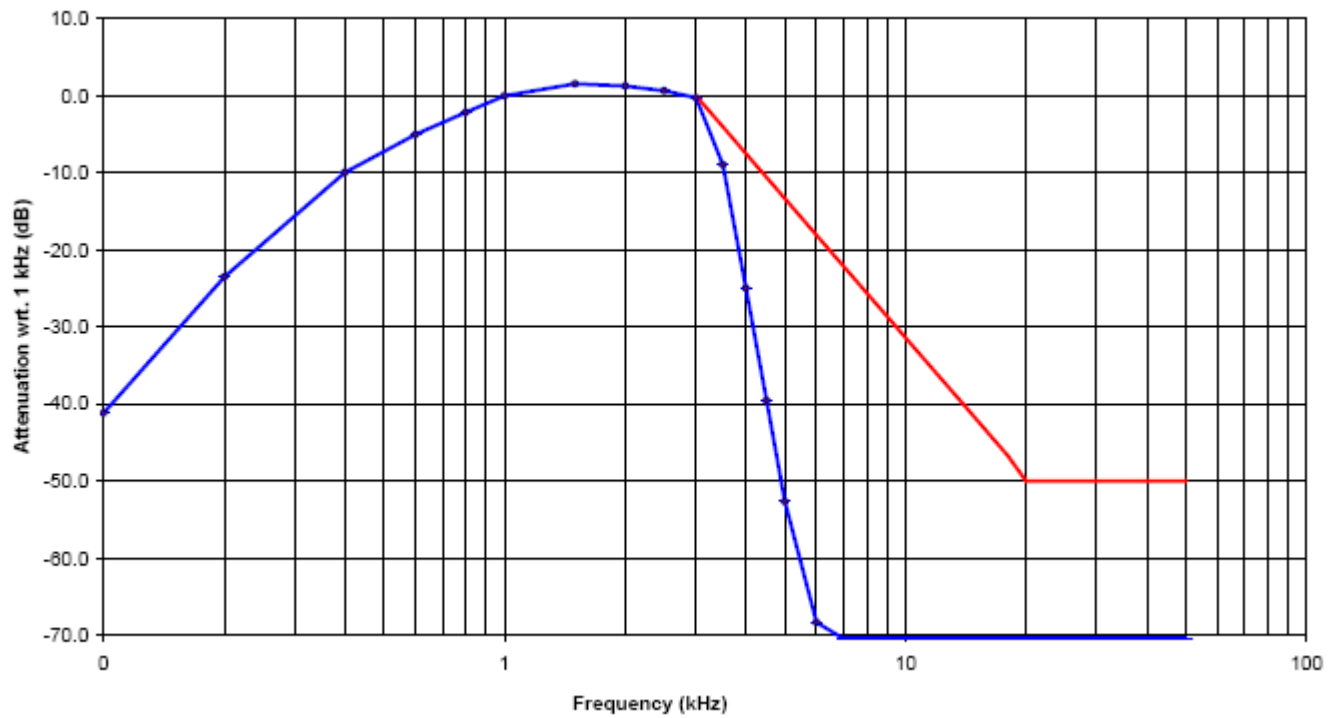
Note: Due to the difficulty of measuring the Frequency Response of the internal low-pass filter, the Frequency Response of All Modulation States is performed to show the roll-off at 3 KHz in comparison with the recommended audio filter attenuation.



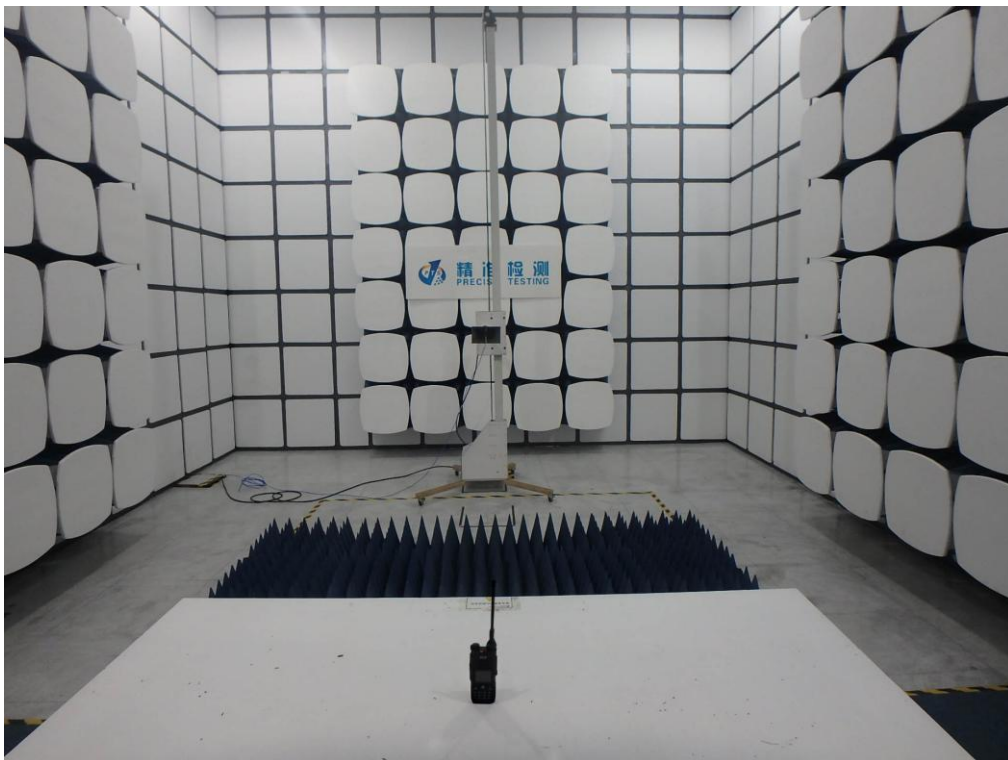
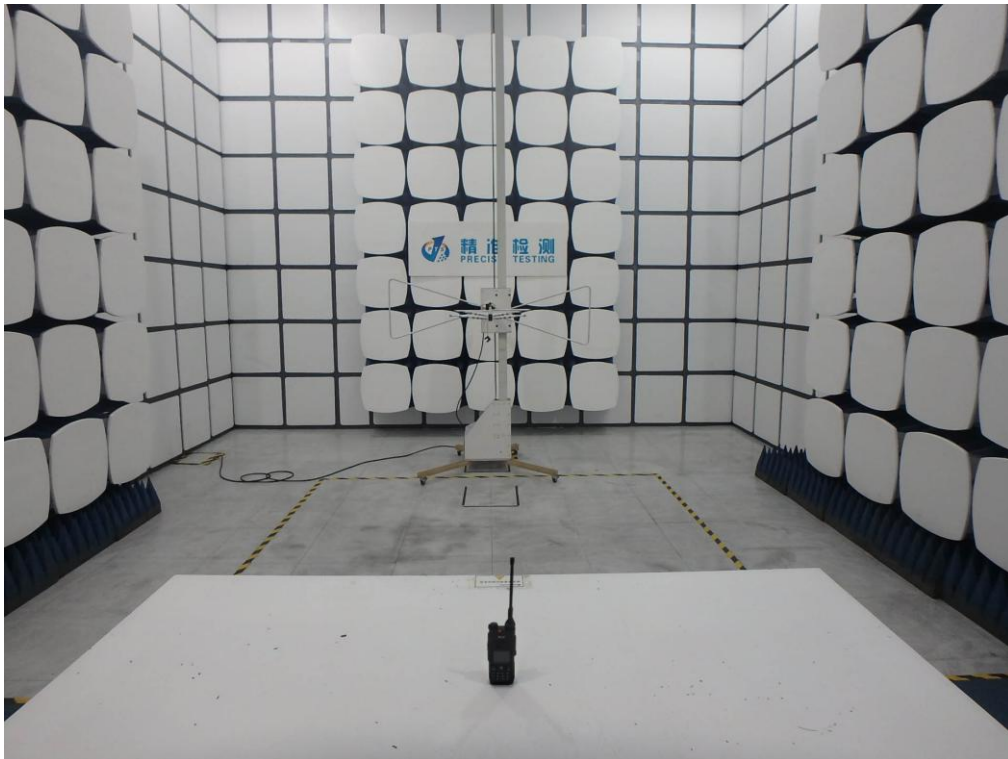
12.5KHZ CHANNEL SPACING, F3E, FREQUENCY OF ALL MODULATION STATES (TEST RESULT FOR VHF)-5W

Frequency	Audio In	Audio out	Attenuation	Attenuation	Recommended Attenuation
(KHz)	(dBV)	(dBV)	(Out_In)	Rel.to 3 KHz	(dB)
			dB	(dB)	
0.1	-76.15	-31.12	45.63	-36.25	
0.2	-76.15	-17.26	58.28	-25.16	
0.4	-76.15	-6.22	71.16	-12.69	
0.6	-76.15	0.43	74.23	-6.15	
0.8	-76.15	4.18	78.94	-2.86	
1.0	-76.15	7.19	83.69	-0.06	
1.5	-76.15	8.23	84.86	2.12	
2.0	-76.15	8.94	85.32	1.58	
2.5	-76.15	7.52	83.82	0.64	
3.0	-76.15	6.28	82.52	-1.83	0
3.5	-76.15	2.66	78.46	-4.92	-3
4.0	-76.15	-2.33	74.63	-9.43	-9
4.5	-76.15	-9.26	68.22	-16.51	-11
5.0	-76.15	-15.17	60.62	-21.75	-15
6.0	-76.15	-21.23	54.14	-28.63	-17
7.0	-76.15	-31.63	46.22	-36.47	-22
8.0	-76.15	-39.26	37.93	-47.65	-25
9.0	-76.15	-61.92	15.17	-66.46	-29
10.0	-76.15	-61.92	15.17	-66.46	-32
12.0	-76.15	-61.92	15.17	-66.46	-36
14.0	-76.15	-61.92	15.17	-66.46	-41
16.0	-76.15	-61.92	15.17	-66.46	-45
18.0	-76.15	-61.92	15.17	-66.46	-46
20.0	-76.15	-61.92	15.17	-66.46	-48
25.0	-76.15	-61.92	15.17	-66.46	-48
30.0	-76.15	-61.92	15.17	-66.46	-48
35.0	-76.15	-61.92	15.17	-66.46	-48
40.0	-76.15	-61.92	15.17	-66.46	-48
45.0	-76.15	-61.92	15.17	-66.46	-48
50.0	-76.15	-61.92	15.17	-66.46	-48

Note: Due to the difficulty of measuring the Frequency Response of the internal low-pass filter, the Frequency Response of All Modulation States is performed to show the roll-off at 3 KHz in comparison with the recommended audio filter attenuation.



APPENDIX I: PHOTOGRAPHS OF SETUP
RADIATED EMISSION TEST SETUP



APPENDIX II: EXTERNAL VIEW OF EUT

TOTAL VIEW OF EUT



TOP VIEW OF EUT



BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



BACK VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



THE LABEL OF POWER ADAPTER MARKETED



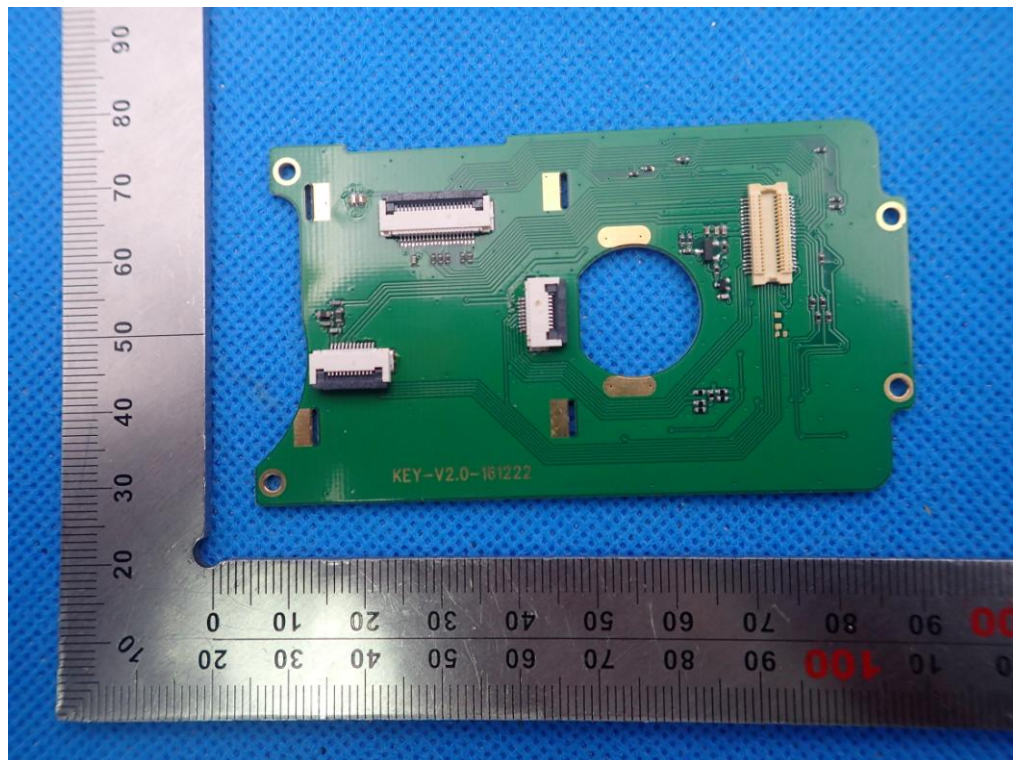
OPEN VIEW-1 OF EUT



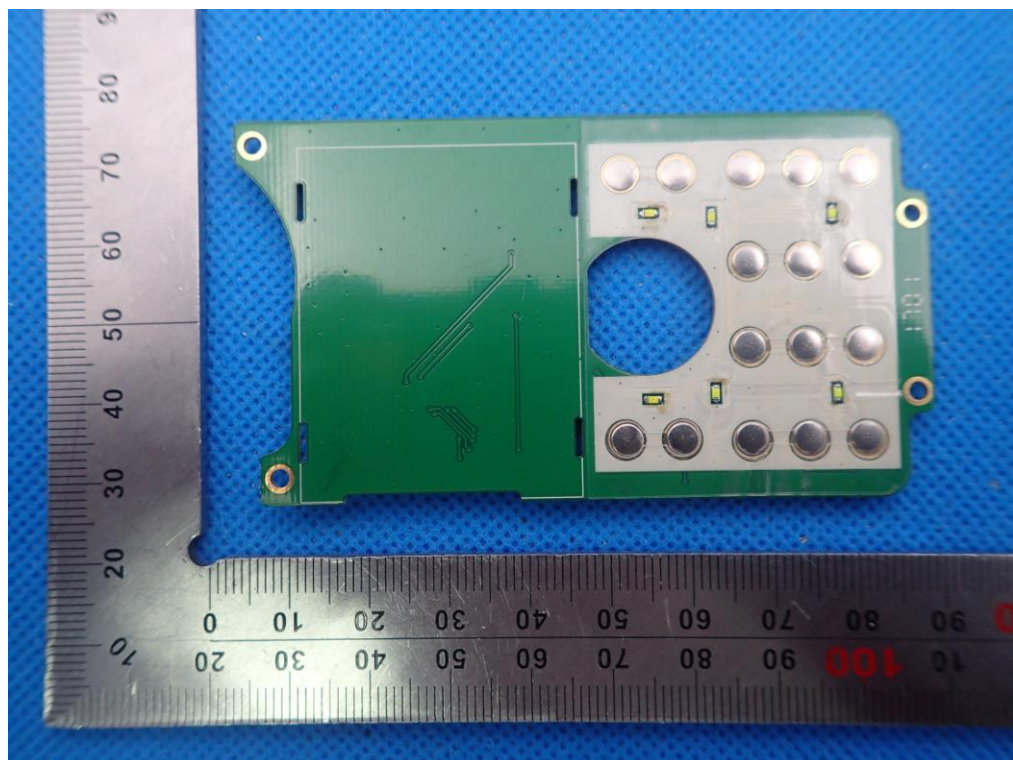
OPEN VIEW-2 OF EUT



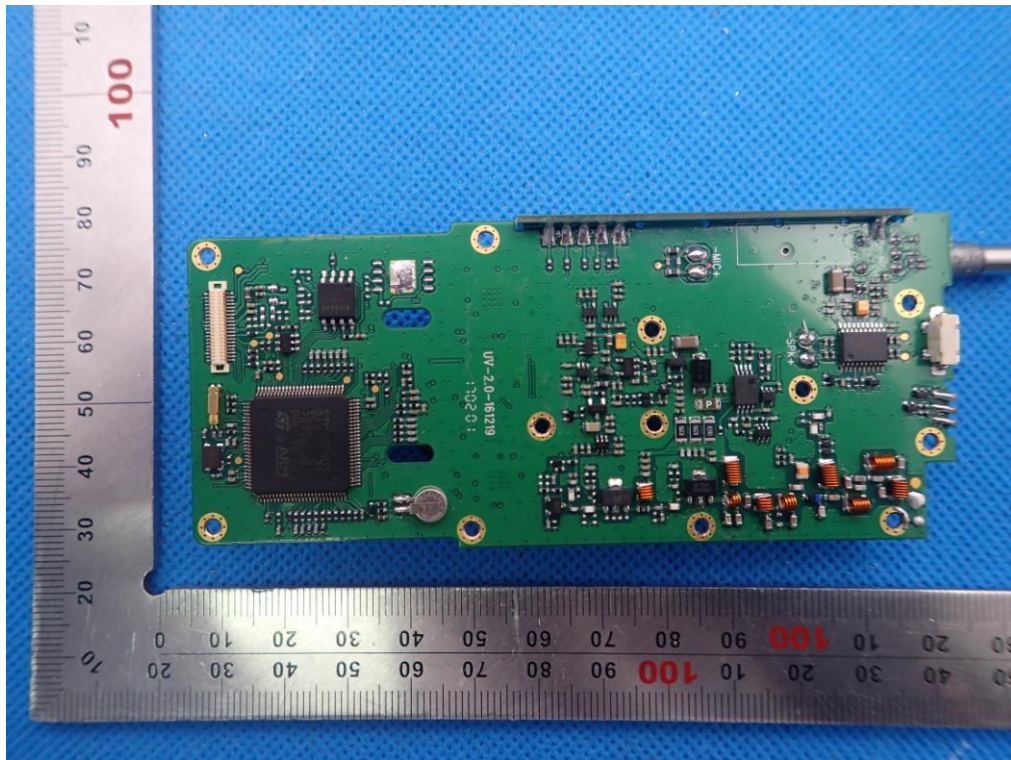
INTERNAL VIEW-1 OF EUT



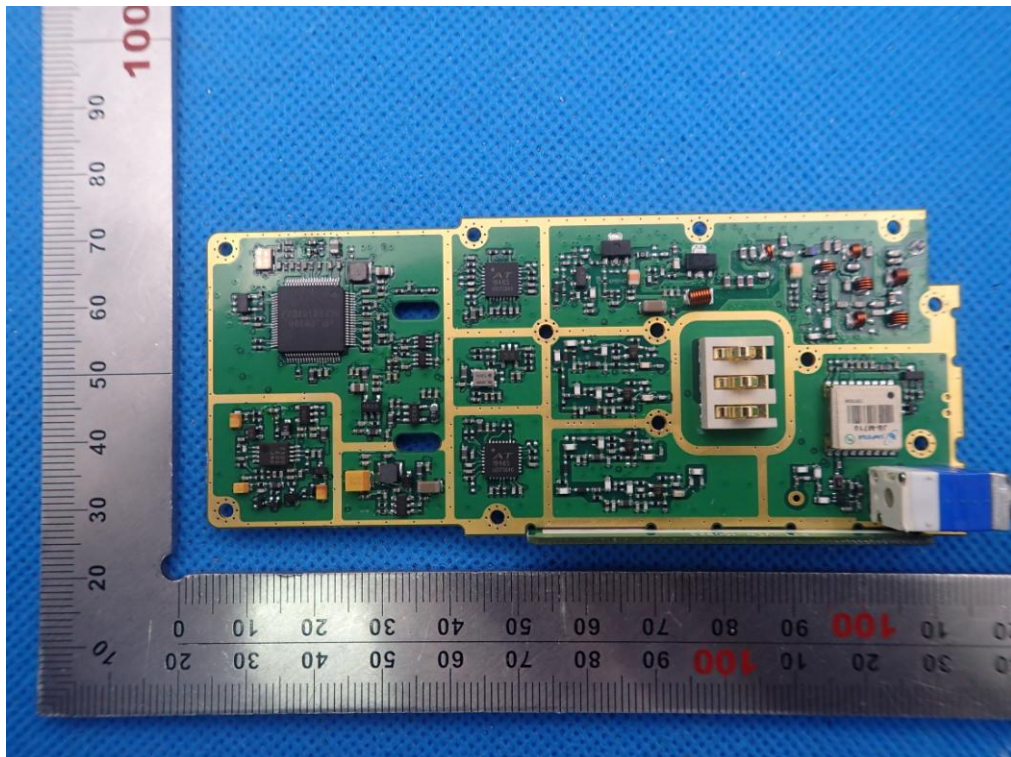
INTERNAL VIEW-2 OF EUT



INTERNAL VIEW-3 OF EUT



INTERNAL VIEW-4 OF EUT



-----END OF REPORT-----