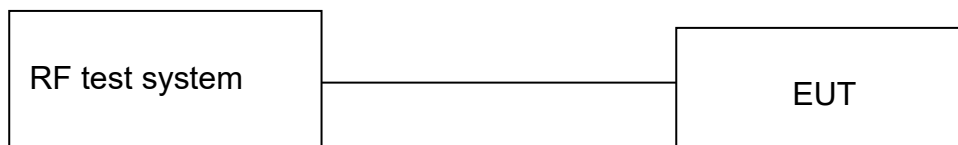


9.CONDUCTED SPURIOUS EMISSIONS

9.1.Limit

In any 100 kHz 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 20 dB below that in the 100 kHz 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 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

9.2.Test Setup



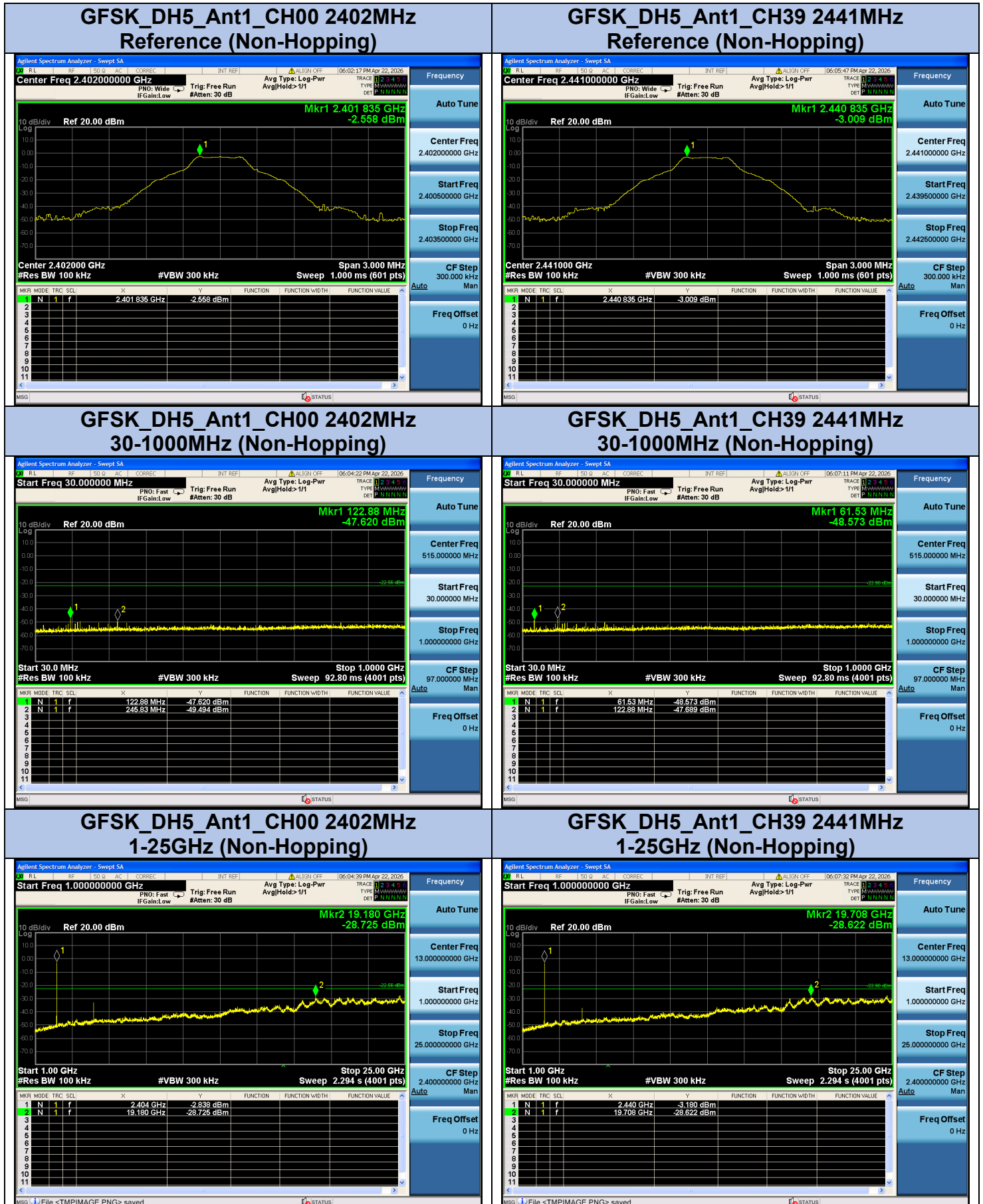
9.3.Spectrum Analyzer Setting

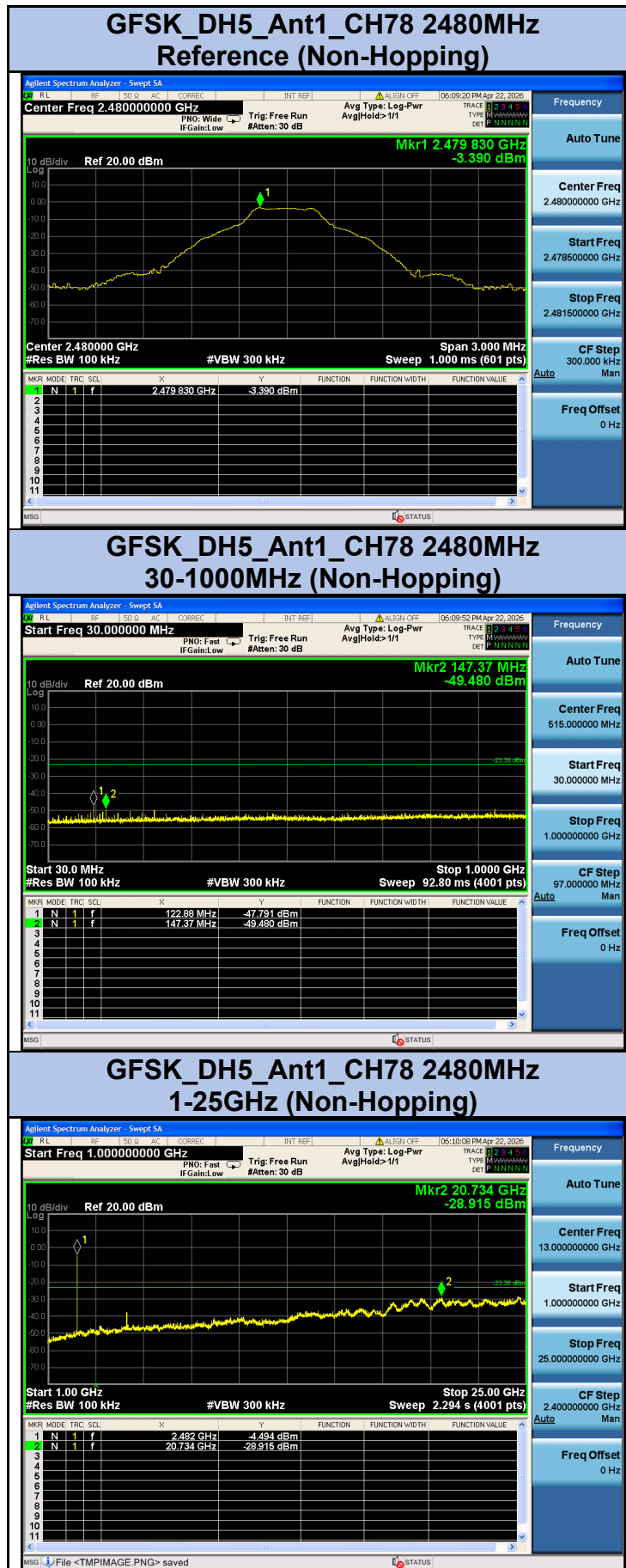
Spectrum Parameters	Setting
RBW	100KHz
VBW	300KHz
Start frequency	30MHz
Stop frequency	25.0GHz
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

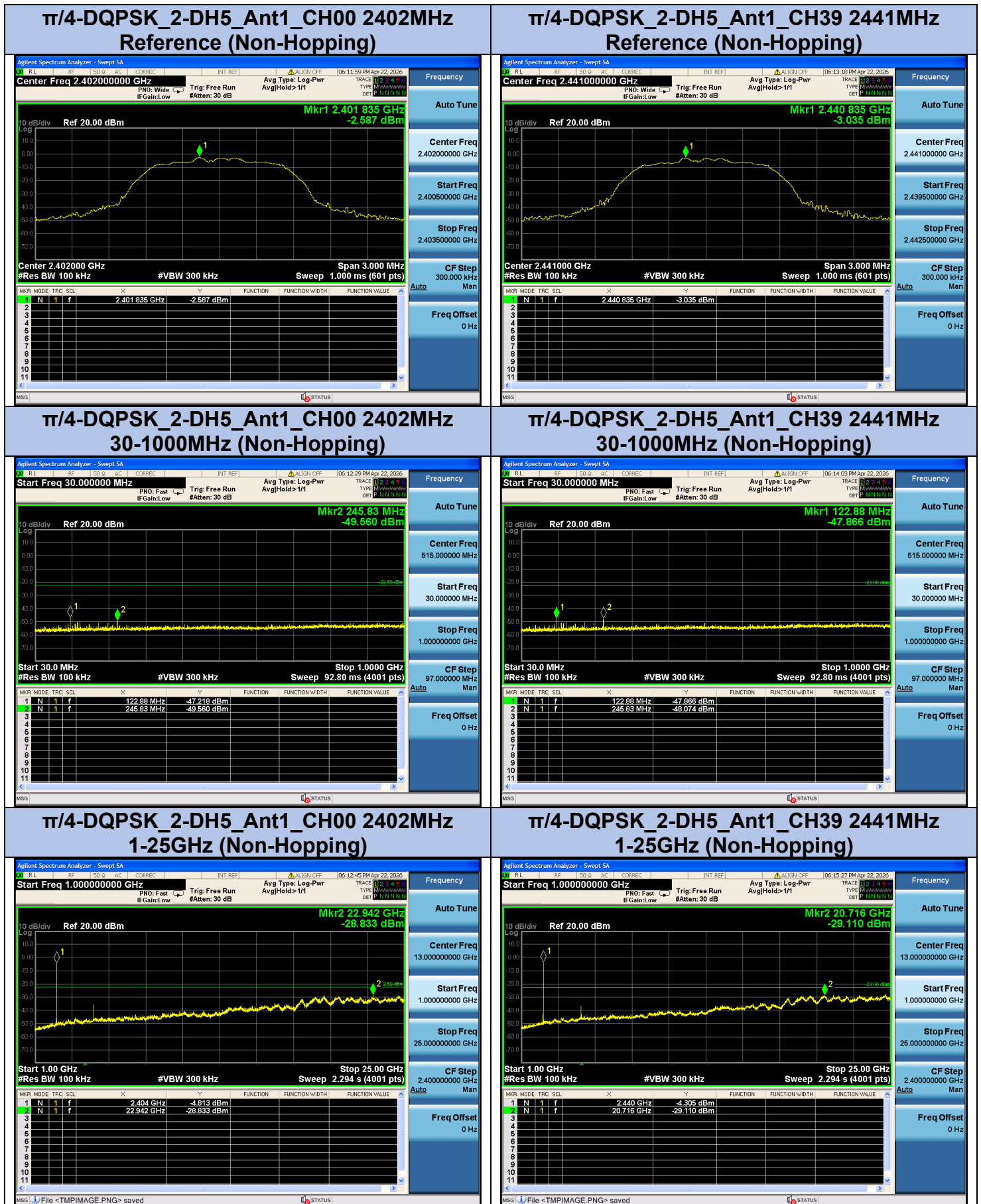
9.4.Test Procedure

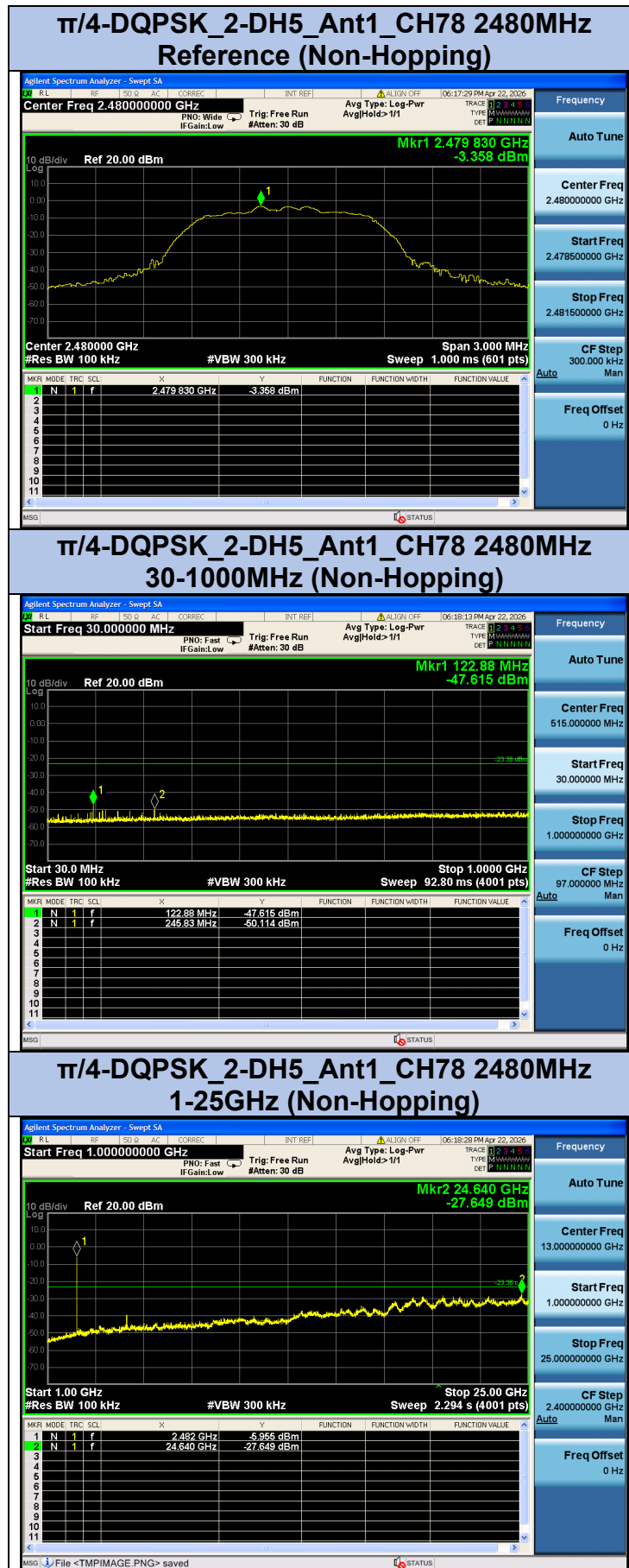
- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 9.3.
- Set the EUT transmit continuously with maximum output power over fixed single hopping channel.
- Allow trace to stabilize, use the marker function to mark the highest emission level outside the authorized band.
- Repeat above procedures until all channels and test modes were measured.
- Record the results in the test report.

9.5. Test Result

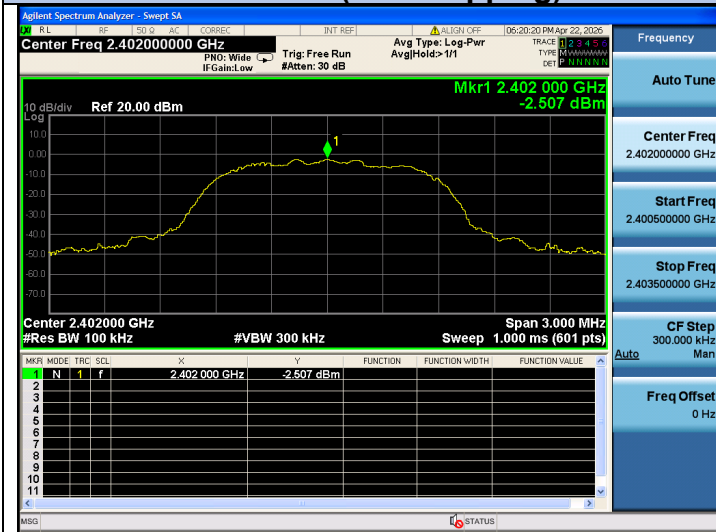




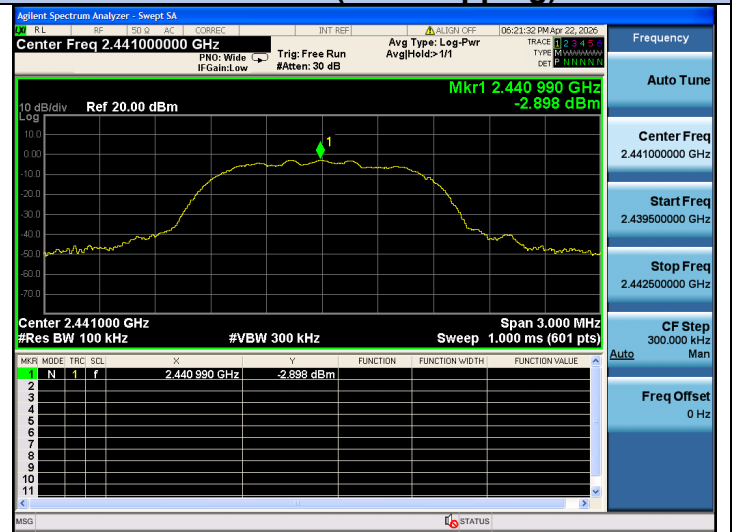




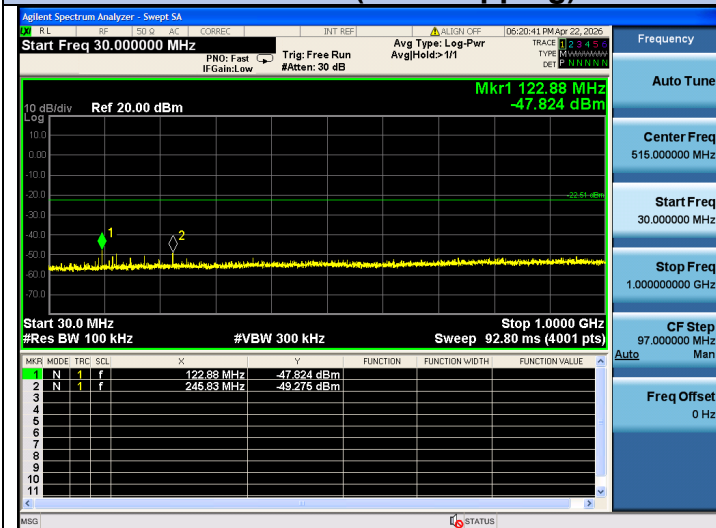
8-DPSK_3-DH5_Ant1_CH00 2402MHz Reference (Non-Hopping)



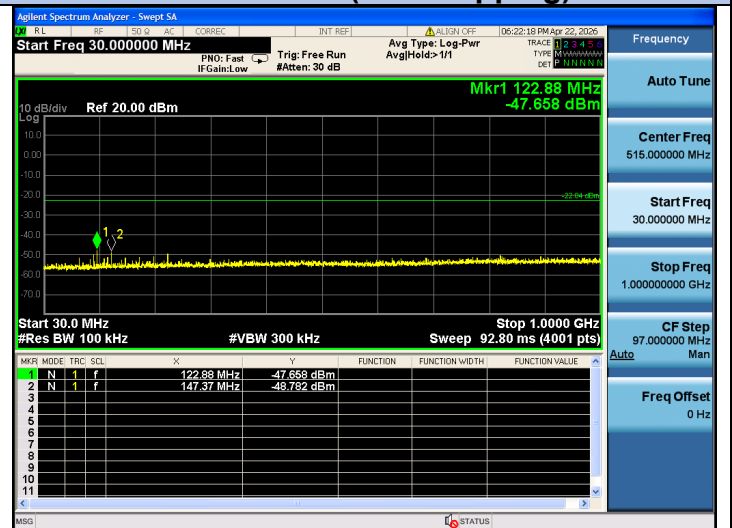
8-DPSK_3-DH5_Ant1_CH39 2441MHz Reference (Non-Hopping)



8-DPSK_3-DH5_Ant1_CH00 2402MHz 30-1000MHz (Non-Hopping)



8-DPSK_3-DH5_Ant1_CH39 2441MHz 30-1000MHz (Non-Hopping)

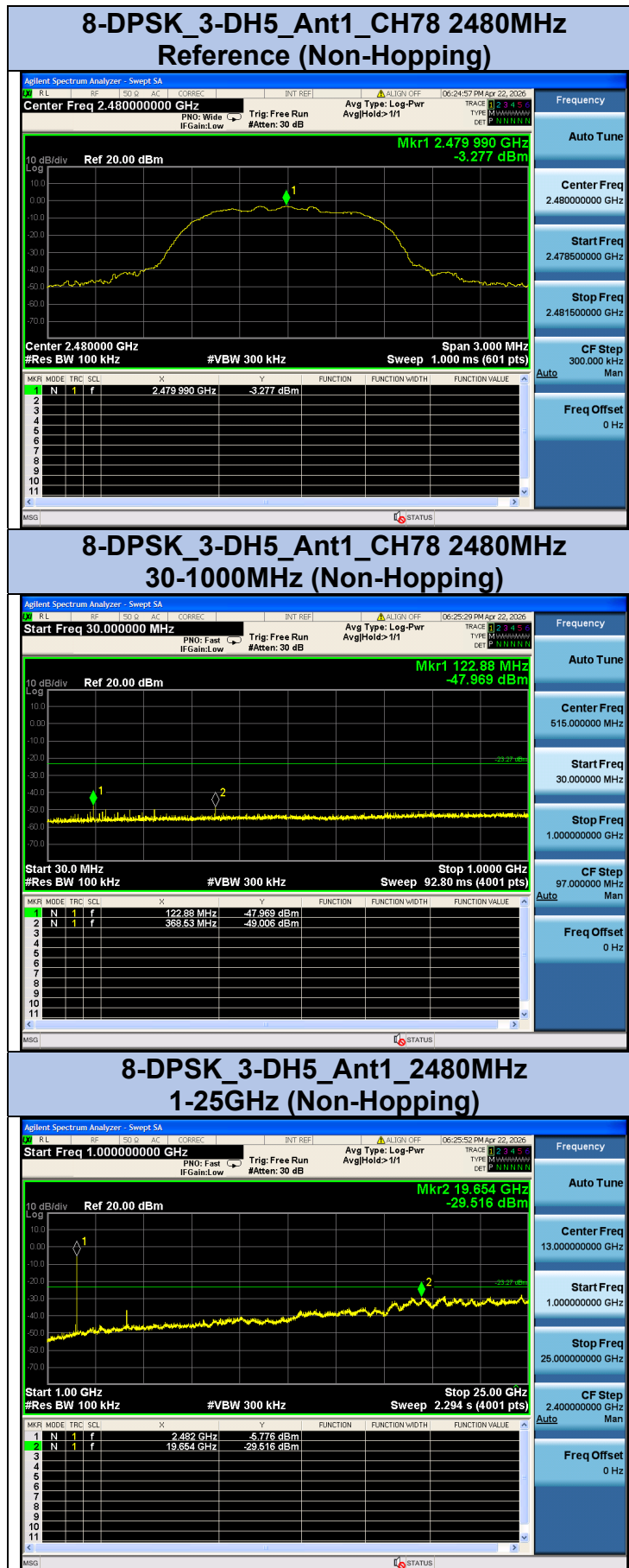


8-DPSK_3-DH5_Ant1_CH00 2402MHz 1-25GHz (Non-Hopping)



8-DPSK_3-DH5_Ant1_CH39 2441MHz 1-25GHz (Non-Hopping)





10. RADIATED SPURIOUS EMISSIONS AND BAND EDGE

10.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band			
MHZ	MHz	MHZ	GHZ
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)

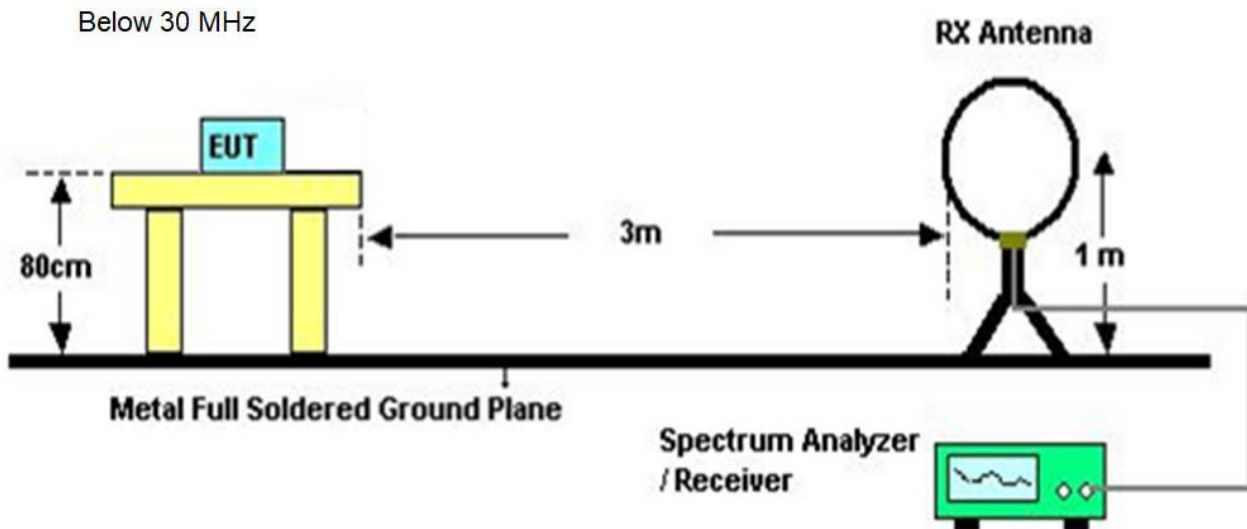
15.209 Limit		
Frequency (MHz)	Field Strength($\mu\text{V/m}$)	Distance(m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

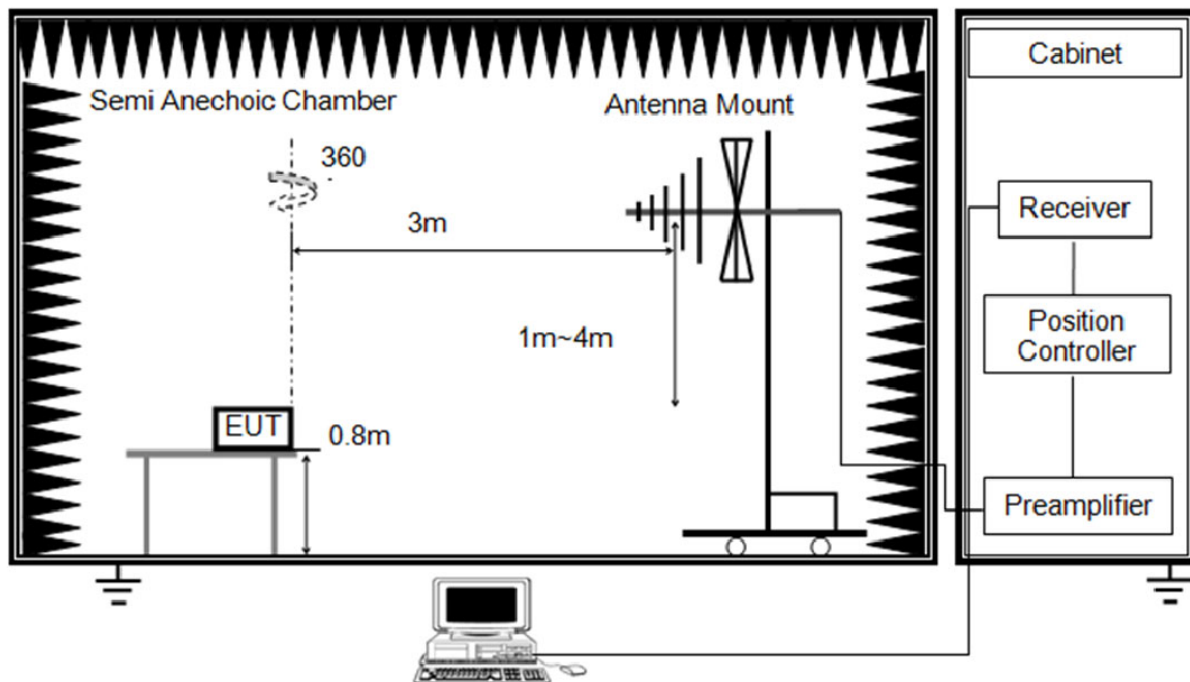
- (1) Emission level $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$.
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

10.2. Test Setup

(A) Radiated Emission Test Set-Up, Frequency Below 30MHz

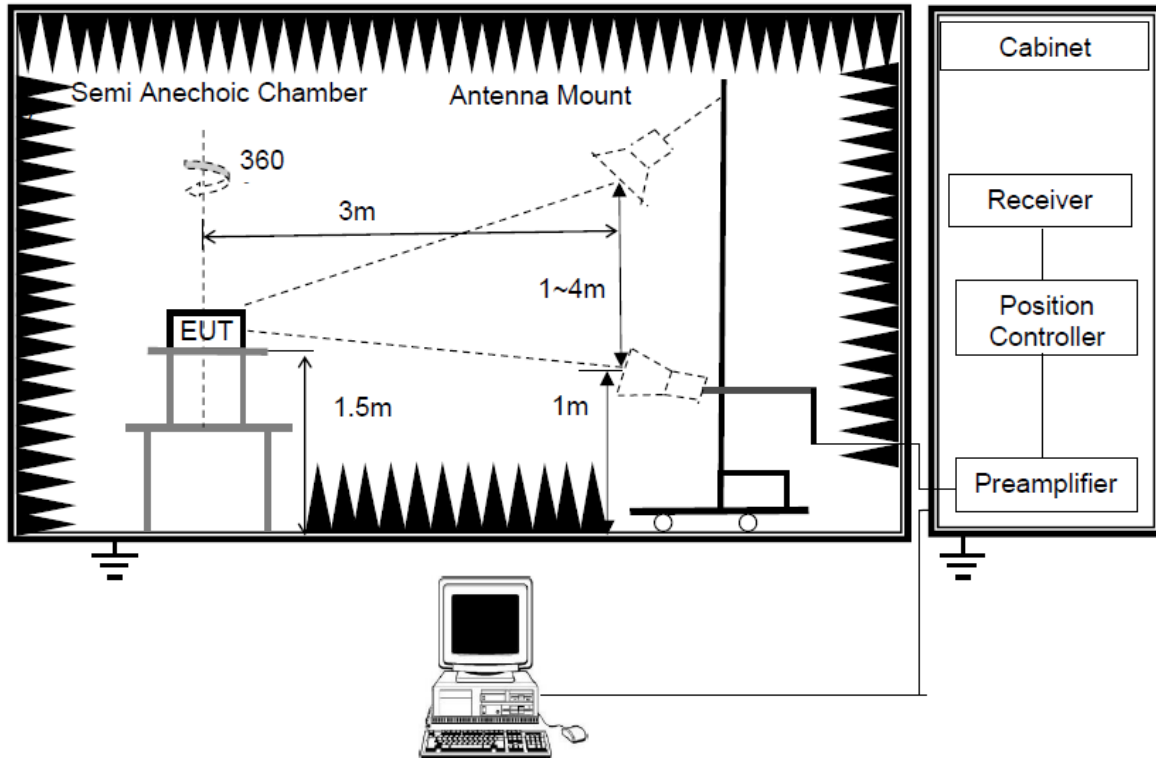


(B) Radiated Emission Test Set-Up, Frequency below 1000MHz Below 1 GHz and above 30 MHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz

Above 1GHz



10.3. Spectrum Analyzer Setting

For 9KHz-150KHz	
Spectrum Parameters	Setting
RBW	300Hz (for Peak&AVG)/CISPR 200Hz (for QP)
VBW	300Hz (for Peak&AVG)/CISPR 200Hz (for QP)
Start frequency	9KHz
Stop frequency	150KHz
Sweep Time	Auto
Detector	PEAK/QP/AVG
Trace Mode	Max Hold

Note: For 9KHz-90KHz&110KHz-150KHz,the detector is average,other frequency is CISPR QP detector.

For 150KHz-30MHz	
Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

Note: For 150KHz-490KHz,the detector is average,other frequency is CISPR QP detector.

For 30MHz-1GHz	
Spectrum Parameters	Setting
RBW	120KHz
VBW	300KHz
Start frequency	30MHz
Stop frequency	1GHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

For Above 1GHz		
Spectrum Parameters	Setting	
RBW	1MHz	
VBW	PEAK Measurement	AVG Measurement
	3MHz	Duty cycle $\geq$ 98%, VBW=10Hz
		Duty cycle $<$ 98%,VBW $\geq$ 1/T
Start frequency	1GHz	
Stop frequency	40GHz	
Sweep Time	Auto	
Detector	PEAK	
Trace Mode	Max Hold	

Note: T is the on-time time of the duty cycle, when EUT transmit continuously with maximum output power, unit is seconds. reference section 3 for the on-time time.

10.4. Test Procedure

- a. EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 meter high above ground for above 1GHz test.
- b. The diameter of the turntable is 2 meters. The EUT is located at the center of the edge of the test support table. Since the turntable is large enough, the EUT is placed at the center of the edge of the test support table as well as at the center of the turntable.
- c. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
- d. Set the EUT transmit continuously with maximum output power.
- e. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
- f. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.
- g. Spectrum analyzer setting parameters in accordance with section 10.3.
- h. Repeat above procedures until all channels and test modes were measured.
- i. Record the results in the test report.

Note:

1. For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.
2. The frequency 2402MHz, 2441MHz and 2480MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.
3. For 30-1000MHz Radiation emissions, GFSK, $\pi/4$ -DQPSK and 8-DPSK mode all have been tested, it was conducted under both AC 120V/60Hz and AC 240V/50Hz input voltages, there was no significant change in radiation emission. Only worse case: 8-DPSK mode with CH78 2480MHz with AC 120V/60Hz voltage is reported.
4. Radiated emission test from 9KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9KHz to 30MHz and not Recorded in this report.
5. The amplitude of-18GHz to 25GHz spurious emission-that-is attenuated by more than 20dB below the-permissible-limit has no need-to-be-reported.

10.5. Test Result

Radiated Emissions 30-1000MHz

EUT: Computer Speaker

M/N: ST520

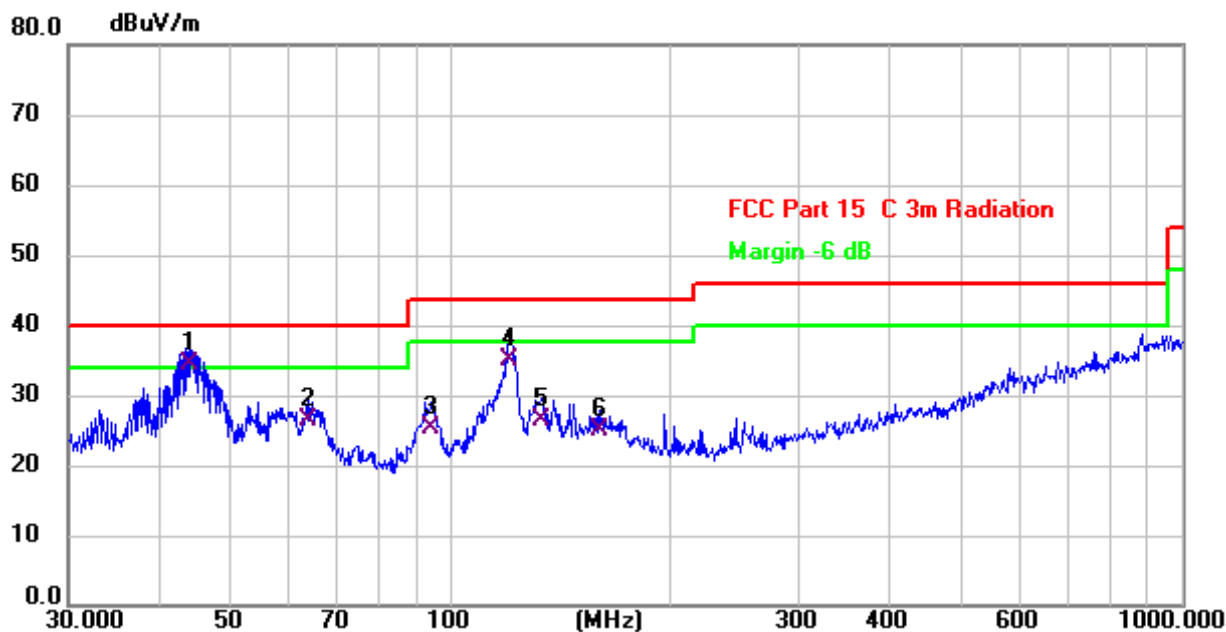
Test Voltage: DC 5V from Notebook PC, Input: AC 120V/60Hz

Ant. Pol.: Vertical

Test Mode: TX Mode

Note: only worse case: 8-DPSK mode with CH78 2480MHz is reported

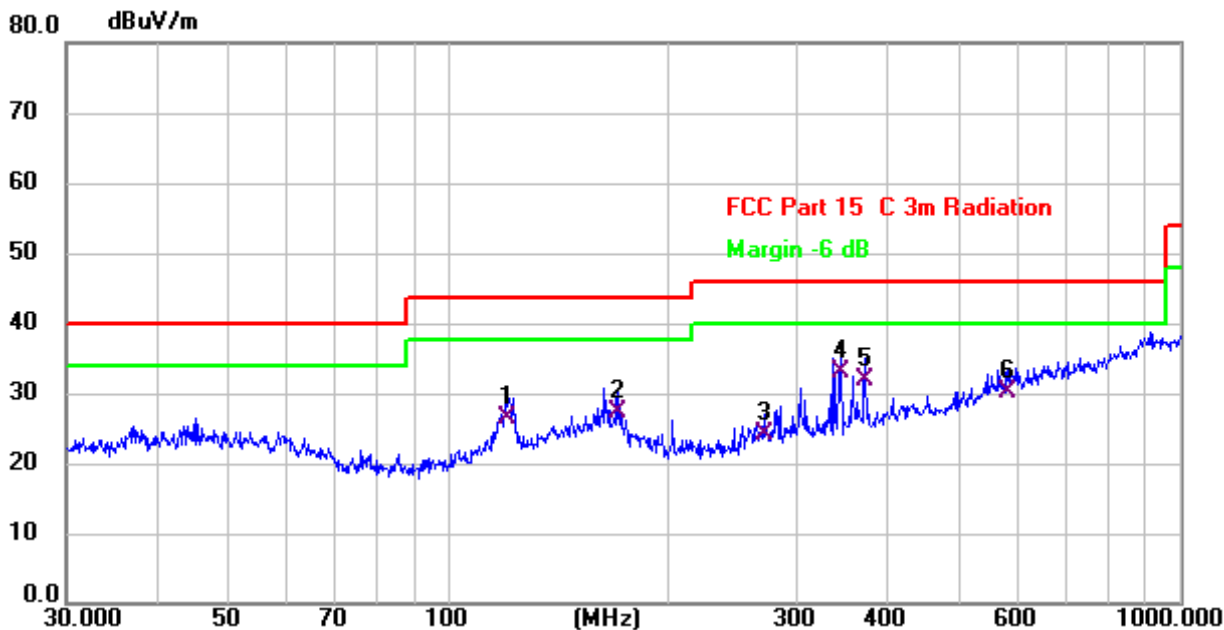
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	44.120	14.63	19.76	34.39	40.00	-5.61	QP			P	
2	63.759	8.74	17.62	26.36	40.00	-13.64	QP			P	
3	94.098	9.44	15.94	25.38	43.50	-18.12	QP			P	
4	120.699	16.74	18.34	35.08	43.50	-8.42	QP			P	
5	133.151	7.16	19.41	26.57	43.50	-16.93	QP			P	
6	159.784	4.83	20.15	24.98	43.50	-18.52	QP			P	

Remarks: 1). Level (dBμV/m) = Reading (dBμV/m) + Factor (dB/m)
 2). Factor(dB/m) =Antenna Factor (dB/m) + Cable loss (dB)
 3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)

EUT: Computer Speaker
M/N: ST520
Test Voltage: DC 5V from Notebook PC, Input: AC 120V/60Hz
Ant. Pol.: Horizontal
Test Mode: TX Mode
Note: only worse case: 8-DPSK mode with CH78 2480MHz is reported
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	120.277	7.97	18.34	26.31	43.50	-17.19	QP			P	
2	170.195	7.91	19.44	27.35	43.50	-16.15	QP			P	
3	270.375	5.49	18.63	24.12	46.00	-21.88	QP			P	
4 *	343.180	11.52	21.44	32.96	46.00	-13.04	QP			P	
5	370.702	10.04	21.89	31.93	46.00	-14.07	QP			P	
6	580.703	3.52	26.70	30.22	46.00	-15.78	QP			P	

Remarks: 1). Level (dBuV/m) = Reading (dBuV/m) + Factor (dB/m)
2). Factor(dB/m) = Antenna Factor (dB/m) + Cable loss (dB)
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

Radiated Emissions Above 1GHz - GFSK

GFSK-CH00 2402MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1091.746	42.23	-25.60	74.0	31.77	Peak	216.00	150	Vertical	Pass
1**	1091.746	30.54	-25.60	54.0	23.46	AV	216.00	150	Vertical	Pass
2	4732.000	48.48	-10.72	74.0	25.52	Peak	360.00	150	Vertical	Pass
2**	4732.000	39.55	-10.72	54.0	14.45	AV	360.00	150	Vertical	Pass
3	4804.750	45.93	-11.06	74.0	28.07	Peak	360.00	150	Vertical	Pass
3**	4804.750	38.47	-11.06	54.0	15.53	AV	360.00	150	Vertical	Pass
4	7205.250	49.55	-6.88	74.0	24.45	Peak	288.00	150	Vertical	Pass
4**	7205.250	41.45	-6.88	54.0	12.55	AV	288.00	150	Vertical	Pass
5	7941.750	52.08	-6.05	74.0	21.92	Peak	288.00	150	Vertical	Pass
5**	7941.750	42.39	-6.05	54.0	11.61	AV	288.00	150	Vertical	Pass
6	17927.000	52.89	1.41	74.0	21.11	Peak	360.00	150	Vertical	Pass
6**	17927.000	43.58	1.41	54.0	10.42	AV	360.00	150	Vertical	Pass

GFSK-CH00 2402MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1111.856	43.54	-25.28	74.0	30.46	Peak	36.00	150	Horizontal	Pass
1**	1111.856	30.46	-25.28	54.0	23.54	AV	36.00	150	Horizontal	Pass
2	4779.000	48.61	-10.48	74.0	25.39	Peak	108.00	150	Horizontal	Pass
2**	4779.000	40.05	-10.48	54.0	13.95	AV	108.00	150	Horizontal	Pass
3	4804.000	46.00	-11.07	74.0	28.00	Peak	360.00	150	Horizontal	Pass
3**	4804.000	39.00	-11.07	54.0	15.00	AV	360.00	150	Horizontal	Pass
4	7205.000	49.05	-6.88	74.0	24.95	Peak	108.00	150	Horizontal	Pass
4**	7205.000	42.31	-6.88	54.0	11.69	AV	108.00	150	Horizontal	Pass
5	7934.500	52.41	-5.96	74.0	21.59	Peak	252.00	150	Horizontal	Pass
5**	7934.500	43.41	-5.96	54.0	10.59	AV	252.00	150	Horizontal	Pass
6	17938.000	51.89	1.55	74.0	22.11	Peak	324.00	150	Horizontal	Pass
6**	17938.000	44.35	1.55	54.0	9.65	AV	324.00	150	Horizontal	Pass

GFSK-CH39 2441MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1089.145	42.72	-25.61	74.0	31.28	Peak	216.00	150	Vertical	Pass
1**	1089.145	31.77	-25.61	54.0	22.23	AV	216.00	150	Vertical	Pass
2	4767.000	48.70	-10.55	74.0	25.30	Peak	324.00	150	Vertical	Pass
2**	4767.000	39.31	-10.55	54.0	14.69	AV	324.00	150	Vertical	Pass
3	4882.000	46.12	-10.72	74.0	27.88	Peak	108.00	150	Vertical	Pass
3**	4882.000	40.41	-10.72	54.0	13.59	AV	108.00	150	Vertical	Pass
4	7323.000	50.15	-6.78	74.0	23.85	Peak	360.00	150	Vertical	Pass
4**	7323.000	41.90	-6.78	54.0	12.10	AV	360.00	150	Vertical	Pass
5	7894.250	52.26	-6.10	74.0	21.74	Peak	324.00	150	Vertical	Pass
5**	7894.250	42.73	-6.10	54.0	11.27	AV	324.00	150	Vertical	Pass
6	17931.000	52.45	1.64	74.0	21.55	Peak	144.00	150	Vertical	Pass
6**	17931.000	43.95	1.64	54.0	10.05	AV	144.00	150	Vertical	Pass

GFSK-CH39 2441MHz (Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1113.657	42.95	-25.26	74.0	31.05	Peak	324.00	150	Horizontal	Pass
1**	1113.657	32.11	-25.26	54.0	21.89	AV	324.00	150	Horizontal	Pass
2	4728.500	48.91	-10.76	74.0	25.09	Peak	252.00	150	Horizontal	Pass
2**	4728.500	39.56	-10.76	54.0	14.44	AV	252.00	150	Horizontal	Pass
3	4882.000	45.17	-10.72	74.0	28.83	Peak	360.00	150	Horizontal	Pass
3**	4882.000	40.66	-10.72	54.0	13.34	AV	360.00	150	Horizontal	Pass
4	7323.000	48.18	-6.78	74.0	25.82	Peak	36.00	150	Horizontal	Pass
4**	7323.000	42.23	-6.78	54.0	11.77	AV	36.00	150	Horizontal	Pass
5	7947.750	52.35	-6.20	74.0	21.65	Peak	252.00	150	Horizontal	Pass
5**	7947.750	42.69	-6.20	54.0	11.31	AV	252.00	150	Horizontal	Pass
6	17924.000	52.63	1.18	74.0	21.37	Peak	360.00	150	Horizontal	Pass
6**	17924.000	43.67	1.18	54.0	10.33	AV	360.00	150	Horizontal	Pass

GFSK-CH78 2480MHz (Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1103.352	43.72	-25.45	74.0	30.28	Peak	324.00	150	Horizontal	Pass
1**	1103.352	30.99	-25.45	54.0	23.01	AV	324.00	150	Horizontal	Pass
2	4768.000	48.57	-10.55	74.0	25.43	Peak	288.00	150	Horizontal	Pass
2**	4768.000	39.50	-10.55	54.0	14.50	AV	288.00	150	Horizontal	Pass
3	4960.500	47.92	-10.87	74.0	26.08	Peak	360.00	150	Horizontal	Pass
3**	4960.500	40.90	-10.87	54.0	13.10	AV	360.00	150	Horizontal	Pass
4	7440.250	49.86	-6.78	74.0	24.14	Peak	252.00	150	Horizontal	Pass
4**	7440.250	41.89	-6.78	54.0	12.11	AV	252.00	150	Horizontal	Pass
5	7763.750	52.87	-6.40	74.0	21.13	Peak	216.00	150	Horizontal	Pass
5**	7763.750	41.56	-6.40	54.0	12.44	AV	216.00	150	Horizontal	Pass
6	17934.500	53.38	1.61	74.0	20.62	Peak	108.00	150	Horizontal	Pass
6**	17934.500	44.65	1.61	54.0	9.35	AV	108.00	150	Horizontal	Pass

GFSK-CH78 2480MHz (Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1075.738	43.40	-25.11	74.0	30.60	Peak	180.00	150	Vertical	Pass
1**	1075.738	30.63	-25.11	54.0	23.37	AV	180.00	150	Vertical	Pass
2	4812.250	49.10	-10.99	74.0	24.90	Peak	72.00	150	Vertical	Pass
2**	4812.250	39.29	-10.99	54.0	14.71	AV	72.00	150	Vertical	Pass
3	4959.750	47.14	-10.88	74.0	26.86	Peak	144.00	150	Vertical	Pass
3**	4959.750	38.98	-10.88	54.0	15.02	AV	144.00	150	Vertical	Pass
4	7440.250	50.04	-6.78	74.0	23.96	Peak	288.00	150	Vertical	Pass
4**	7440.250	42.39	-6.78	54.0	11.61	AV	288.00	150	Vertical	Pass
5	7698.000	52.32	-6.41	74.0	21.68	Peak	180.00	150	Vertical	Pass
5**	7698.000	43.15	-6.41	54.0	10.85	AV	180.00	150	Vertical	Pass
6	17937.500	52.75	1.56	74.0	21.25	Peak	36.00	150	Vertical	Pass
6**	17937.500	44.99	1.56	54.0	9.01	AV	36.00	150	Vertical	Pass

Radiated Emissions Above 1GHz - $\pi/4$ -DQPSK

$\pi/4$ -DQPSK-CH00 2402MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1104.252	43.01	-25.43	74.0	30.99	Peak	360.00	150	Horizontal	Pass
1**	1104.252	30.96	-25.43	54.0	23.04	AV	360.00	150	Horizontal	Pass
2	4723.250	48.35	-10.83	74.0	25.65	Peak	144.00	150	Horizontal	Pass
2**	4723.250	39.14	-10.83	54.0	14.86	AV	144.00	150	Horizontal	Pass
3	4803.250	47.26	-11.07	74.0	26.74	Peak	324.00	150	Horizontal	Pass
3**	4803.250	38.24	-11.07	54.0	15.76	AV	324.00	150	Horizontal	Pass
4	7205.250	48.78	-6.88	74.0	25.22	Peak	216.00	150	Horizontal	Pass
4**	7205.250	42.22	-6.88	54.0	11.78	AV	216.00	150	Horizontal	Pass
5	7895.250	51.97	-6.12	74.0	22.03	Peak	324.00	150	Horizontal	Pass
5**	7895.250	44.04	-6.12	54.0	9.96	AV	324.00	150	Horizontal	Pass
6	17948.000	52.64	1.20	74.0	21.36	Peak	324.00	150	Horizontal	Pass
6**	17948.000	44.03	1.20	54.0	9.97	AV	324.00	150	Horizontal	Pass

$\pi/4$ -DQPSK-CH00 2402MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1096.548	44.52	-25.57	74.0	29.48	Peak	360.00	150	Vertical	Pass
1**	1096.548	31.62	-25.57	54.0	22.38	AV	360.00	150	Vertical	Pass
2	4309.500	48.17	-12.53	74.0	25.83	Peak	216.00	150	Vertical	Pass
2**	4309.500	39.57	-12.53	54.0	14.43	AV	216.00	150	Vertical	Pass
3	4803.250	46.47	-11.07	74.0	27.53	Peak	360.00	150	Vertical	Pass
3**	4803.250	38.68	-11.07	54.0	15.32	AV	360.00	150	Vertical	Pass
4	7205.500	50.29	-6.87	74.0	23.71	Peak	180.00	150	Vertical	Pass
4**	7205.500	42.47	-6.87	54.0	11.53	AV	180.00	150	Vertical	Pass
5	7947.000	52.81	-6.18	74.0	21.19	Peak	180.00	150	Vertical	Pass
5**	7947.000	42.76	-6.18	54.0	11.24	AV	180.00	150	Vertical	Pass
6	17935.999	53.04	1.58	74.0	20.96	Peak	288.00	150	Vertical	Pass
6**	17935.999	43.95	1.58	54.0	10.05	AV	288.00	150	Vertical	Pass

$\pi/4$ -DQPSK-CH 38 2441MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1107.554	43.17	-25.36	74.0	30.83	Peak	216.00	150	Horizontal	Pass
1**	1107.554	29.12	-25.36	54.0	24.88	AV	216.00	150	Horizontal	Pass
2	4762.500	49.21	-10.56	74.0	24.79	Peak	360.00	150	Horizontal	Pass
2**	4762.500	38.91	-10.56	54.0	15.09	AV	360.00	150	Horizontal	Pass
3	4882.000	46.79	-10.72	74.0	27.21	Peak	360.00	150	Horizontal	Pass
3**	4882.000	39.42	-10.72	54.0	14.58	AV	360.00	150	Horizontal	Pass
4	7323.000	48.37	-6.78	74.0	25.63	Peak	36.00	150	Horizontal	Pass
4**	7323.000	42.23	-6.78	54.0	11.77	AV	36.00	150	Horizontal	Pass
5	7891.500	52.19	-6.06	74.0	21.81	Peak	180.00	150	Horizontal	Pass
5**	7891.500	43.05	-6.06	54.0	10.95	AV	180.00	150	Horizontal	Pass
6	17932.501	52.83	1.62	74.0	21.17	Peak	360.00	150	Horizontal	Pass
6**	17932.501	45.09	1.62	54.0	8.91	AV	360.00	150	Horizontal	Pass

$\pi/4$ -DQPSK-CH39 2441MHz (Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1099.850	44.08	-25.53	74.0	29.92	Peak	108.00	150	Vertical	Pass
1**	1099.850	32.97	-25.53	54.0	21.03	AV	108.00	150	Vertical	Pass
2	4787.000	49.24	-10.53	74.0	24.76	Peak	216.00	150	Vertical	Pass
2**	4787.000	39.44	-10.53	54.0	14.56	AV	216.00	150	Vertical	Pass
3	4882.000	45.95	-10.72	74.0	28.05	Peak	216.00	150	Vertical	Pass
3**	4882.000	39.05	-10.72	54.0	14.95	AV	216.00	150	Vertical	Pass
4	7323.000	47.93	-6.78	74.0	26.07	Peak	36.00	150	Vertical	Pass
4**	7323.000	41.94	-6.78	54.0	12.06	AV	36.00	150	Vertical	Pass
5	7956.500	52.95	-6.38	74.0	21.05	Peak	360.00	150	Vertical	Pass
5**	7956.500	42.60	-6.38	54.0	11.40	AV	360.00	150	Vertical	Pass
6	17935.499	52.65	1.59	74.0	21.35	Peak	144.00	150	Vertical	Pass
6**	17935.499	43.79	1.59	54.0	10.21	AV	144.00	150	Vertical	Pass

 $\pi/4$ -DQPSK-CH78 2480MHz (Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1100.150	44.71	-25.53	74.0	29.29	Peak	252.00	150	Vertical	Pass
1**	1100.150	35.45	-25.53	54.0	18.55	AV	252.00	150	Vertical	Pass
2	4764.500	50.11	-10.56	74.0	23.89	Peak	288.00	150	Vertical	Pass
2**	4764.500	41.17	-10.56	54.0	12.83	AV	288.00	150	Vertical	Pass
3	4959.250	47.67	-10.89	74.0	26.33	Peak	108.00	150	Vertical	Pass
3**	4959.250	39.27	-10.89	54.0	14.73	AV	108.00	150	Vertical	Pass
4	7439.500	50.18	-6.78	74.0	23.82	Peak	144.00	150	Vertical	Pass
4**	7439.500	42.28	-6.78	54.0	11.72	AV	144.00	150	Vertical	Pass
5	7725.250	51.92	-6.31	74.0	22.08	Peak	72.00	150	Vertical	Pass
5**	7725.250	42.39	-6.31	54.0	11.61	AV	72.00	150	Vertical	Pass
6	17952.000	52.67	0.96	74.0	21.33	Peak	360.00	150	Vertical	Pass
6**	17952.000	42.99	0.96	54.0	11.01	AV	360.00	150	Vertical	Pass

 $\pi/4$ -DQPSK-CH78 2480MHz (Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1145.673	42.95	-25.06	74.0	31.05	Peak	180.00	150	Horizontal	Pass
1**	1145.673	32.67	-25.06	54.0	21.33	AV	180.00	150	Horizontal	Pass
2	3402.000	54.76	-16.66	74.0	19.24	Peak	72.00	150	Horizontal	Pass
2**	3402.000	48.55	-16.66	54.0	5.45	AV	72.00	150	Horizontal	Pass
3	4959.750	48.50	-10.88	74.0	25.50	Peak	72.00	150	Horizontal	Pass
3**	4959.750	40.19	-10.88	54.0	13.81	AV	72.00	150	Horizontal	Pass
4	7439.750	49.24	-6.77	74.0	24.76	Peak	144.00	150	Horizontal	Pass
4**	7439.750	42.88	-6.77	54.0	11.12	AV	144.00	150	Horizontal	Pass
5	7824.750	52.13	-6.27	74.0	21.87	Peak	252.00	150	Horizontal	Pass
5**	7824.750	42.63	-6.27	54.0	11.37	AV	252.00	150	Horizontal	Pass
6	17930.500	52.98	1.64	74.0	21.02	Peak	288.00	150	Horizontal	Pass
6**	17930.500	44.54	1.64	54.0	9.46	AV	288.00	150	Horizontal	Pass

Radiated Emissions Above 1GHz - 8-DPSK

8-DPSK-CH00 2402MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1094.447	44.43	-25.58	74.0	29.57	Peak	288.00	150	Vertical	Pass
1**	1094.447	33.63	-25.58	54.0	20.37	AV	288.00	150	Vertical	Pass
2	4777.500	48.36	-10.49	74.0	25.64	Peak	360.00	150	Vertical	Pass
2**	4777.500	39.19	-10.49	54.0	14.81	AV	360.00	150	Vertical	Pass
3	4804.500	46.06	-11.06	74.0	27.94	Peak	288.00	150	Vertical	Pass
3**	4804.500	38.65	-11.06	54.0	15.35	AV	288.00	150	Vertical	Pass
4	7205.750	48.49	-6.87	74.0	25.51	Peak	288.00	150	Vertical	Pass
4**	7205.750	42.17	-6.87	54.0	11.83	AV	288.00	150	Vertical	Pass
5	7940.500	52.61	-6.02	74.0	21.39	Peak	180.00	150	Vertical	Pass
5**	7940.500	43.70	-6.02	54.0	10.30	AV	180.00	150	Vertical	Pass
6	17938.000	53.92	1.55	74.0	20.08	Peak	144.00	150	Vertical	Pass
6**	17938.000	44.36	1.55	54.0	9.64	AV	144.00	150	Vertical	Pass

8-DPSK-CH00 2402MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1103.552	42.80	-25.45	74.0	31.20	Peak	180.00	150	Horizontal	Pass
1**	1103.552	31.21	-25.45	54.0	22.79	AV	180.00	150	Horizontal	Pass
2	4279.000	48.85	-12.31	74.0	25.15	Peak	252.00	150	Horizontal	Pass
2**	4279.000	39.26	-12.31	54.0	14.74	AV	252.00	150	Horizontal	Pass
3	4804.250	46.84	-11.06	74.0	27.16	Peak	360.00	150	Horizontal	Pass
3**	4804.250	39.08	-11.06	54.0	14.92	AV	360.00	150	Horizontal	Pass
4	7206.250	49.76	-6.86	74.0	24.24	Peak	360.00	150	Horizontal	Pass
4**	7206.250	41.84	-6.86	54.0	12.16	AV	360.00	150	Horizontal	Pass
5	7836.000	52.81	-6.16	74.0	21.19	Peak	180.00	150	Horizontal	Pass
5**	7836.000	43.45	-6.16	54.0	10.55	AV	180.00	150	Horizontal	Pass
6	17937.500	53.43	1.56	74.0	20.57	Peak	144.00	150	Horizontal	Pass
6**	17937.500	44.03	1.56	54.0	9.97	AV	144.00	150	Horizontal	Pass

8-DPSK-CH39 2441MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1098.549	44.16	-25.55	74.0	29.84	Peak	36.00	150	Vertical	Pass
1**	1098.549	31.77	-25.55	54.0	22.23	AV	36.00	150	Vertical	Pass
2	4786.500	48.64	-10.53	74.0	25.36	Peak	360.00	150	Vertical	Pass
2**	4786.500	40.21	-10.53	54.0	13.79	AV	360.00	150	Vertical	Pass
3	4882.000	45.77	-10.72	74.0	28.23	Peak	288.00	150	Vertical	Pass
3**	4882.000	40.87	-10.72	54.0	13.13	AV	288.00	150	Vertical	Pass
4	7323.000	49.22	-6.78	74.0	24.78	Peak	36.00	150	Vertical	Pass
4**	7323.000	42.59	-6.78	54.0	11.41	AV	36.00	150	Vertical	Pass
5	7717.000	52.29	-6.32	74.0	21.71	Peak	72.00	150	Vertical	Pass
5**	7717.000	43.38	-6.32	54.0	10.62	AV	72.00	150	Vertical	Pass
6	17939.499	52.52	1.53	74.0	21.48	Peak	324.00	150	Vertical	Pass
6**	17939.499	44.08	1.53	54.0	9.92	AV	324.00	150	Vertical	Pass

8-DPSK-CH39 2441MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1110.655	43.73	-25.30	74.0	30.27	Peak	288.00	150	Horizontal	Pass
1**	1110.655	29.75	-25.30	54.0	24.25	AV	288.00	150	Horizontal	Pass
2	4335.750	49.00	-12.04	74.0	25.00	Peak	36.00	150	Horizontal	Pass
2**	4335.750	39.29	-12.04	54.0	14.71	AV	36.00	150	Horizontal	Pass
3	4882.000	45.41	-10.72	74.0	28.59	Peak	324.00	150	Horizontal	Pass
3**	4882.000	40.21	-10.72	54.0	13.79	AV	324.00	150	Horizontal	Pass
4	7323.000	48.69	-6.78	74.0	25.31	Peak	360.00	150	Horizontal	Pass
4**	7323.000	42.45	-6.78	54.0	11.55	AV	360.00	150	Horizontal	Pass
5	7831.000	52.41	-6.10	74.0	21.59	Peak	288.00	150	Horizontal	Pass
5**	7831.000	43.83	-6.10	54.0	10.17	AV	288.00	150	Horizontal	Pass
6	17938.000	53.45	1.55	74.0	20.55	Peak	252.00	150	Horizontal	Pass
6**	17938.000	43.90	1.55	54.0	10.10	AV	252.00	150	Horizontal	Pass

8-DPSK-CH78 2480MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1106.153	42.93	-25.39	74.0	31.07	Peak	360.00	150	Horizontal	Pass
1**	1106.153	31.10	-25.39	54.0	22.90	AV	360.00	150	Horizontal	Pass
2	4326.750	48.99	-12.14	74.0	25.01	Peak	0.00	150	Horizontal	Pass
2**	4326.750	39.97	-12.14	54.0	14.03	AV	0.00	150	Horizontal	Pass
3	4959.500	48.27	-10.89	74.0	25.73	Peak	72.00	150	Horizontal	Pass
3**	4959.500	40.47	-10.89	54.0	13.53	AV	72.00	150	Horizontal	Pass
4	7439.000	49.56	-6.78	74.0	24.44	Peak	252.00	150	Horizontal	Pass
4**	7439.000	42.64	-6.78	54.0	11.36	AV	252.00	150	Horizontal	Pass
5	7960.250	52.32	-6.46	74.0	21.68	Peak	36.00	150	Horizontal	Pass
5**	7960.250	43.13	-6.46	54.0	10.87	AV	36.00	150	Horizontal	Pass
6	17934.000	52.92	1.61	74.0	21.08	Peak	360.00	150	Horizontal	Pass
6**	17934.000	44.56	1.61	54.0	9.44	AV	360.00	150	Horizontal	Pass

8-DPSK-CH78 2480MHz (Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1095.648	44.42	-25.57	74.0	29.58	Peak	36.00	150	Vertical	Pass
1**	1095.648	33.46	-25.57	54.0	20.54	AV	36.00	150	Vertical	Pass
2	4319.500	48.87	-12.19	74.0	25.13	Peak	144.00	150	Vertical	Pass
2**	4319.500	38.99	-12.19	54.0	15.01	AV	144.00	150	Vertical	Pass
3	4960.000	46.56	-10.88	74.0	27.44	Peak	108.00	150	Vertical	Pass
3**	4960.000	39.36	-10.88	54.0	14.64	AV	108.00	150	Vertical	Pass
4	7439.750	49.45	-6.77	74.0	24.55	Peak	180.00	150	Vertical	Pass
4**	7439.750	41.81	-6.77	54.0	12.19	AV	180.00	150	Vertical	Pass
5	7881.250	52.63	-6.02	74.0	21.37	Peak	36.00	150	Vertical	Pass
5**	7881.250	43.01	-6.02	54.0	10.99	AV	36.00	150	Vertical	Pass
6	17939.499	52.83	1.53	74.0	21.17	Peak	144.00	150	Vertical	Pass
6**	17939.499	43.90	1.53	54.0	10.10	AV	144.00	150	Vertical	Pass

Note:

1. Results (dBuV/m) = Raw Value (dBuV) + Factor (dB/m)
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Pre-amplifier
3. Margin value = Limit - Results.

Radiated Band Edge – GFSK (Non-Hopping)

GFSK-CH00 2402MHz-Low Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2317.480	41.84	-19.43	74.0	32.16	Peak	252.00	150	Horizontal	Pass
1**	2317.480	29.96	-19.43	54.0	24.04	AV	252.00	150	Horizontal	Pass
2	2389.970	38.70	-19.56	74.0	35.30	Peak	36.00	150	Horizontal	Pass
2**	2389.970	30.05	-19.56	54.0	23.95	AV	36.00	150	Horizontal	Pass
3	2399.980	38.96	-19.64	74.0	35.04	Peak	360.00	150	Horizontal	Pass
3**	2399.980	29.63	-19.64	54.0	24.37	AV	360.00	150	Horizontal	Pass

GFSK-CH00 2402MHz-Low Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2321.440	41.57	-19.48	74.0	32.43	Peak	216.00	150	Vertical	Pass
1**	2321.440	30.37	-19.48	54.0	23.63	AV	216.00	150	Vertical	Pass
2	2389.970	39.57	-19.56	74.0	34.43	Peak	360.00	150	Vertical	Pass
2**	2389.970	29.49	-19.56	54.0	24.51	AV	360.00	150	Vertical	Pass
3	2399.980	39.79	-19.64	74.0	34.21	Peak	144.00	150	Vertical	Pass
3**	2399.980	29.56	-19.64	54.0	24.44	AV	144.00	150	Vertical	Pass

GFSK-CH78 2480MHz-High Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.78	-19.50	74.0	34.22	Peak	36.00	150	Vertical	Pass
1**	2483.485	30.39	-19.50	54.0	23.61	AV	36.00	150	Vertical	Pass
2	2484.625	41.69	-19.50	74.0	32.31	Peak	252.00	150	Vertical	Pass
2**	2484.625	30.84	-19.50	54.0	23.16	AV	252.00	150	Vertical	Pass
3	2494.360	41.92	-19.49	74.0	32.08	Peak	144.00	150	Vertical	Pass
3**	2494.360	30.36	-19.49	54.0	23.64	AV	144.00	150	Vertical	Pass

GFSK-CH78 2480MHz-High Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	41.10	-19.50	74.0	32.90	Peak	108.00	150	Horizontal	Pass
1**	2483.485	30.53	-19.50	54.0	23.47	AV	108.00	150	Horizontal	Pass
2	2489.320	43.76	-19.51	74.0	30.24	Peak	180.00	150	Horizontal	Pass
2**	2489.320	31.63	-19.51	54.0	22.37	AV	180.00	150	Horizontal	Pass
3	2494.285	42.45	-19.49	74.0	31.55	Peak	144.00	150	Horizontal	Pass
3**	2494.285	30.50	-19.49	54.0	23.50	AV	144.00	150	Horizontal	Pass

Radiated Band Edge – $\pi/4$ -DQPSK (Non-Hopping) $\pi/4$ -DQPSK-CH00 2402MHz-Low Band Edge-(Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2353.560	42.15	-19.67	74.0	31.85	Peak	360.00	150	Vertical	Pass
1**	2353.560	30.06	-19.67	54.0	23.94	AV	360.00	150	Vertical	Pass
2	2389.970	38.98	-19.56	74.0	35.02	Peak	360.00	150	Vertical	Pass
2**	2389.970	29.88	-19.56	54.0	24.12	AV	360.00	150	Vertical	Pass
3	2399.980	40.23	-19.64	74.0	33.77	Peak	180.00	150	Vertical	Pass
3**	2399.980	29.67	-19.64	54.0	24.33	AV	180.00	150	Vertical	Pass

 $\pi/4$ -DQPSK-CH002402MHz-Low Band Edge-(Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2370.170	41.57	-19.67	74.0	32.43	Peak	72.00	150	Horizontal	Pass
1**	2370.170	29.74	-19.67	54.0	24.26	AV	72.00	150	Horizontal	Pass
2	2389.970	39.36	-19.56	74.0	34.64	Peak	144.00	150	Horizontal	Pass
2**	2389.970	30.12	-19.56	54.0	23.88	AV	144.00	150	Horizontal	Pass
3	2399.980	39.01	-19.64	74.0	34.99	Peak	36.00	150	Horizontal	Pass
3**	2399.980	29.89	-19.64	54.0	24.11	AV	36.00	150	Horizontal	Pass

 $\pi/4$ -DQPSK-CH78 2480MHz-High Band Edge-(Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.44	-19.50	74.0	34.56	Peak	180.00	150	Horizontal	Pass
1**	2483.485	30.54	-19.50	54.0	23.46	AV	180.00	150	Horizontal	Pass
2	2489.275	43.40	-19.51	74.0	30.60	Peak	252.00	150	Horizontal	Pass
2**	2489.275	31.15	-19.51	54.0	22.85	AV	252.00	150	Horizontal	Pass
3	2497.045	41.70	-19.48	74.0	32.30	Peak	252.00	150	Horizontal	Pass
3**	2497.045	31.07	-19.48	54.0	22.93	AV	252.00	150	Horizontal	Pass

 $\pi/4$ -DQPSK-CH78 2480MHz-High Band Edge-(Non-Hopping)

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.86	-19.50	74.0	34.14	Peak	288.00	150	Vertical	Pass
1**	2483.485	30.45	-19.50	54.0	23.55	AV	288.00	150	Vertical	Pass
2	2489.125	42.22	-19.51	74.0	31.78	Peak	216.00	150	Vertical	Pass
2**	2489.125	30.41	-19.51	54.0	23.59	AV	216.00	150	Vertical	Pass
3	2491.195	41.72	-19.50	74.0	32.28	Peak	216.00	150	Vertical	Pass
3**	2491.195	30.41	-19.50	54.0	23.59	AV	216.00	150	Vertical	Pass

Radiated Band Edge – 8-DPSK (Non-Hopping)

8-DPSK-CH00 2402MHz-Low Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2327.765	41.49	-19.56	74.0	32.51	Peak	324.00	150	Horizontal	Pass
1**	2327.765	30.24	-19.56	54.0	23.76	AV	324.00	150	Horizontal	Pass
2	2389.970	39.36	-19.56	74.0	34.64	Peak	72.00	150	Horizontal	Pass
2**	2389.970	29.92	-19.56	54.0	24.08	AV	72.00	150	Horizontal	Pass
3	2399.980	40.34	-19.64	74.0	33.66	Peak	72.00	150	Horizontal	Pass
3**	2399.980	29.60	-19.64	54.0	24.40	AV	72.00	150	Horizontal	Pass

8-DPSK-CH00 2402MHz-Low Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2313.795	41.76	-19.40	74.0	32.24	Peak	324.00	150	Vertical	Pass
1**	2313.795	30.39	-19.40	54.0	23.61	AV	324.00	150	Vertical	Pass
2	2389.970	39.59	-19.56	74.0	34.41	Peak	360.00	150	Vertical	Pass
2**	2389.970	29.73	-19.56	54.0	24.27	AV	360.00	150	Vertical	Pass
3	2399.980	39.54	-19.64	74.0	34.46	Peak	216.00	150	Vertical	Pass
3**	2399.980	30.16	-19.64	54.0	23.84	AV	216.00	150	Vertical	Pass

8-DPSK-CH78 2480MHz-High Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.89	-19.50	74.0	34.11	Peak	252.00	150	Vertical	Pass
1**	2483.485	30.69	-19.50	54.0	23.31	AV	252.00	150	Vertical	Pass
2	2487.025	41.83	-19.50	74.0	32.17	Peak	324.00	150	Vertical	Pass
2**	2487.025	30.41	-19.50	54.0	23.59	AV	324.00	150	Vertical	Pass
3	2495.380	41.87	-19.48	74.0	32.13	Peak	36.00	150	Vertical	Pass
3**	2495.380	30.56	-19.48	54.0	23.44	AV	36.00	150	Vertical	Pass

8-DPSK-CH78 2480MHz-High Band Edge-(Non-Hopping)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.62	-19.50	74.0	34.38	Peak	36.00	150	Horizontal	Pass
1**	2483.485	30.48	-19.50	54.0	23.52	AV	36.00	150	Horizontal	Pass
2	2489.305	44.24	-19.51	74.0	29.76	Peak	360.00	150	Horizontal	Pass
2**	2489.305	31.16	-19.51	54.0	22.84	AV	360.00	150	Horizontal	Pass
3	2492.155	42.07	-19.50	74.0	31.93	Peak	216.00	150	Horizontal	Pass
3**	2492.155	30.62	-19.50	54.0	23.38	AV	216.00	150	Horizontal	Pass

Radiated Band Edge – GFSK (Hopping On)

GFSK-Low Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2328.590	42.53	-19.57	74.0	31.47	Peak	360.00	150	Horizontal	Pass
1**	2328.590	30.41	-19.57	54.0	23.59	AV	360.00	150	Horizontal	Pass
2	2389.970	39.35	-19.56	74.0	34.65	Peak	36.00	150	Horizontal	Pass
2**	2389.970	29.77	-19.56	54.0	24.23	AV	36.00	150	Horizontal	Pass
3	2399.980	39.25	-19.64	74.0	34.75	Peak	108.00	150	Horizontal	Pass
3**	2399.980	29.81	-19.64	54.0	24.19	AV	108.00	150	Horizontal	Pass

GFSK-Low Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2330.625	41.42	-19.59	74.0	32.58	Peak	216.00	150	Vertical	Pass
1**	2330.625	30.34	-19.59	54.0	23.66	AV	216.00	150	Vertical	Pass
2	2389.970	39.01	-19.56	74.0	34.99	Peak	180.00	150	Vertical	Pass
2**	2389.970	29.88	-19.56	54.0	24.12	AV	180.00	150	Vertical	Pass
3	2399.980	38.81	-19.64	74.0	35.19	Peak	180.00	150	Vertical	Pass
3**	2399.980	29.69	-19.64	54.0	24.31	AV	180.00	150	Vertical	Pass

GFSK-High Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.51	-19.50	74.0	34.49	Peak	72.00	150	Vertical	Pass
1**	2483.485	30.46	-19.50	54.0	23.54	AV	72.00	150	Vertical	Pass
2	2486.905	42.33	-19.50	74.0	31.67	Peak	360.00	150	Vertical	Pass
2**	2486.905	30.66	-19.50	54.0	23.34	AV	360.00	150	Vertical	Pass
3	2499.100	41.89	-19.47	74.0	32.11	Peak	108.00	150	Vertical	Pass
3**	2499.100	30.51	-19.47	54.0	23.49	AV	108.00	150	Vertical	Pass

GFSK-High Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.82	-19.50	74.0	34.18	Peak	252.00	150	Horizontal	Pass
1**	2483.485	30.53	-19.50	54.0	23.47	AV	252.00	150	Horizontal	Pass
2	2489.485	42.99	-19.51	74.0	31.01	Peak	288.00	150	Horizontal	Pass
2**	2489.485	30.62	-19.51	54.0	23.38	AV	288.00	150	Horizontal	Pass
3	2495.200	42.60	-19.48	74.0	31.40	Peak	216.00	150	Horizontal	Pass
3**	2495.200	31.06	-19.48	54.0	22.94	AV	216.00	150	Horizontal	Pass

Radiated Band Edge – $\pi/4$ -DQPSK (Hopping On)

$\pi/4$ -DQPSK-Low Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2336.015	41.74	-19.63	74.0	32.26	Peak	72.00	150	Vertical	Pass
1**	2336.015	30.31	-19.63	54.0	23.69	AV	72.00	150	Vertical	Pass
2	2389.970	39.14	-19.56	74.0	34.86	Peak	108.00	150	Vertical	Pass
2**	2389.970	29.72	-19.56	54.0	24.28	AV	108.00	150	Vertical	Pass
3	2399.980	38.74	-19.64	74.0	35.26	Peak	324.00	150	Vertical	Pass
3**	2399.980	29.72	-19.64	54.0	24.28	AV	324.00	150	Vertical	Pass

$\pi/4$ -DQPSK-Low Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2328.370	41.46	-19.57	74.0	32.54	Peak	216.00	150	Horizontal	Pass
1**	2328.370	30.50	-19.57	54.0	23.50	AV	216.00	150	Horizontal	Pass
2	2389.970	38.37	-19.56	74.0	35.63	Peak	72.00	150	Horizontal	Pass
2**	2389.970	29.60	-19.56	54.0	24.40	AV	72.00	150	Horizontal	Pass
3	2399.980	39.79	-19.64	74.0	34.21	Peak	36.00	150	Horizontal	Pass
3**	2399.980	29.70	-19.64	54.0	24.30	AV	36.00	150	Horizontal	Pass

$\pi/4$ -DQPSK-High Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	40.71	-19.50	74.0	33.29	Peak	108.00	150	Horizontal	Pass
1**	2483.485	30.13	-19.50	54.0	23.87	AV	108.00	150	Horizontal	Pass
2	2489.050	43.76	-19.51	74.0	30.24	Peak	288.00	150	Horizontal	Pass
2**	2489.050	30.48	-19.51	54.0	23.52	AV	288.00	150	Horizontal	Pass
3	2494.675	42.48	-19.49	74.0	31.52	Peak	72.00	150	Horizontal	Pass
3**	2494.675	31.29	-19.49	54.0	22.71	AV	72.00	150	Horizontal	Pass

$\pi/4$ -DQPSK-High Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.75	-19.50	74.0	34.25	Peak	144.00	150	Vertical	Pass
1**	2483.485	30.27	-19.50	54.0	23.73	AV	144.00	150	Vertical	Pass
2	2484.535	42.40	-19.50	74.0	31.60	Peak	360.00	150	Vertical	Pass
2**	2484.535	30.35	-19.50	54.0	23.65	AV	360.00	150	Vertical	Pass
3	2490.160	42.43	-19.51	74.0	31.57	Peak	324.00	150	Vertical	Pass
3**	2490.160	30.12	-19.51	54.0	23.88	AV	324.00	150	Vertical	Pass

Radiated Band Edge – 8-DPSK (Hopping On)

8-DPSK-Low Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2318.525	41.50	-19.44	74.0	32.50	Peak	108.00	150	Horizontal	Pass
1**	2318.525	30.09	-19.44	54.0	23.91	AV	108.00	150	Horizontal	Pass
2	2389.970	38.86	-19.56	74.0	35.14	Peak	216.00	150	Horizontal	Pass
2**	2389.970	30.03	-19.56	54.0	23.97	AV	216.00	150	Horizontal	Pass
3	2399.980	39.28	-19.64	74.0	34.72	Peak	360.00	150	Horizontal	Pass
3**	2399.980	29.72	-19.64	54.0	24.28	AV	360.00	150	Horizontal	Pass

8-DPSK-Low Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2319.735	41.98	-19.46	74.0	32.02	Peak	360.00	150	Vertical	Pass
1**	2319.735	30.34	-19.46	54.0	23.66	AV	360.00	150	Vertical	Pass
2	2389.970	38.91	-19.56	74.0	35.09	Peak	216.00	150	Vertical	Pass
2**	2389.970	29.72	-19.56	54.0	24.28	AV	216.00	150	Vertical	Pass
3	2399.980	39.38	-19.64	74.0	34.62	Peak	180.00	150	Vertical	Pass
3**	2399.980	29.93	-19.64	54.0	24.07	AV	180.00	150	Vertical	Pass

8-DPSK-High Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	39.43	-19.50	74.0	34.57	Peak	360.00	150	Vertical	Pass
1**	2483.485	30.51	-19.50	54.0	23.49	AV	360.00	150	Vertical	Pass
2	2489.395	41.62	-19.51	74.0	32.38	Peak	216.00	150	Vertical	Pass
2**	2489.395	30.43	-19.51	54.0	23.57	AV	216.00	150	Vertical	Pass
3	2491.375	41.88	-19.50	74.0	32.12	Peak	324.00	150	Vertical	Pass
3**	2491.375	30.31	-19.50	54.0	23.69	AV	324.00	150	Vertical	Pass

8-DPSK-High Band Edge-(Hopping On)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.485	40.30	-19.50	74.0	33.70	Peak	144.00	150	Horizontal	Pass
1**	2483.485	30.48	-19.50	54.0	23.52	AV	144.00	150	Horizontal	Pass
2	2489.635	42.97	-19.51	74.0	31.03	Peak	252.00	150	Horizontal	Pass
2**	2489.635	30.61	-19.51	54.0	23.39	AV	252.00	150	Horizontal	Pass
3	2495.905	43.43	-19.48	74.0	30.57	Peak	144.00	150	Horizontal	Pass
3**	2495.905	31.12	-19.48	54.0	22.88	AV	144.00	150	Horizontal	Pass

Note:

1. Results (dBuV/m) = Raw Value (dBuV) + Factor (dB/m)
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Pre-amplifier
3. Margin value = Limit - Results.

11. AC POWER LINE CONDUCTED EMISSIONS

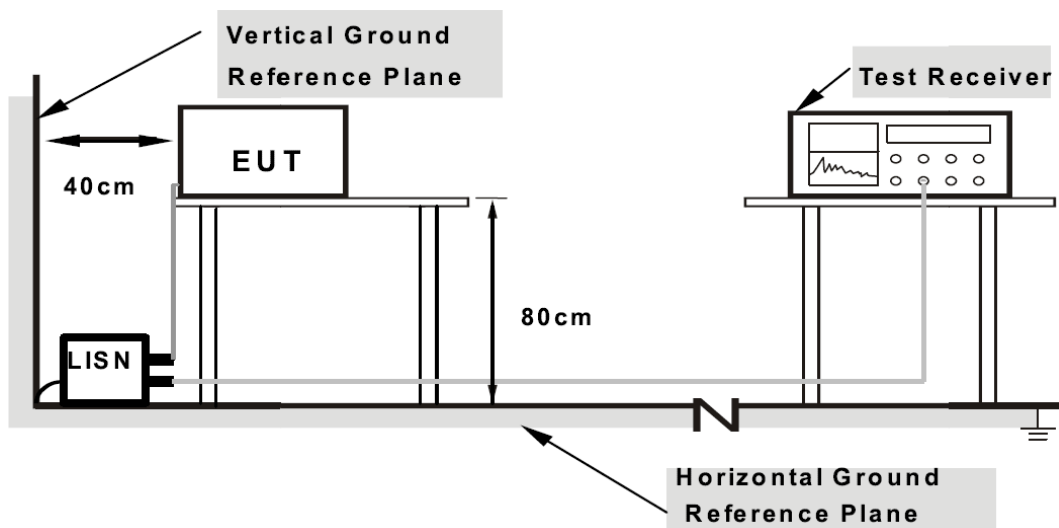
11.1. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note:

1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

11.2. Test Setup



11.3. Spectrum Analyzer Setting

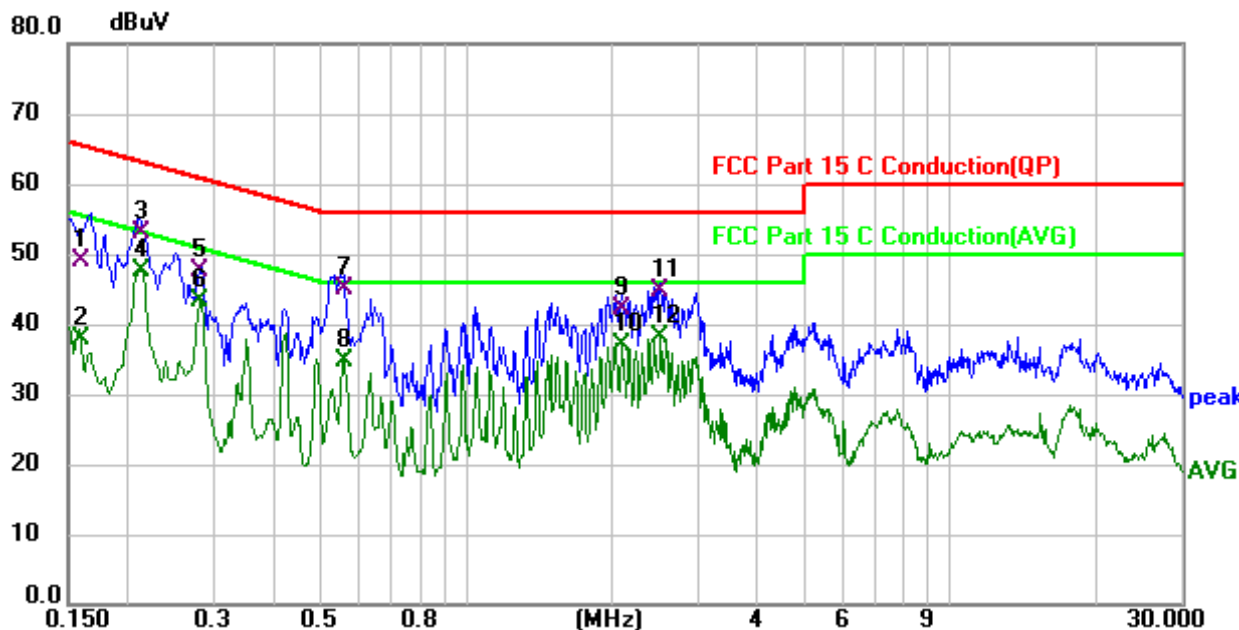
Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP/AVG
Trace Mode	Max Hold

11.4. Test Procedure

- a. The EUT was placed on a non-metallic table, 80cm above the ground plane.
- b. The EUT Power connected to the power mains through a line impedance stabilization network.
- c. Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
- d. Set the EUT transmit continuously with maximum output power.
- e. Spectrum analyzer setting parameters in accordance with section 11.3.
- f. The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10:2020 on Conducted Emission Test.
- g. It was conducted under both AC 120V/60Hz and AC 240V/50Hz input voltages, there was no significant change in radiation emission. Only worse case: 8-DPSK mode with CH78 2480MHz with AC 120V/60Hz voltage is reported.

11.5. Test Result

EUT: Computer Speaker
M/N: ST520
Test Voltage: DC 5V from Notebook PC, Input: AC 120V/60Hz
Phase: Live
Test Mode: TX Mode
Note: only worse case: 8-DPSK mode with CH78 2480MHz is reported
Detailed results are shown below

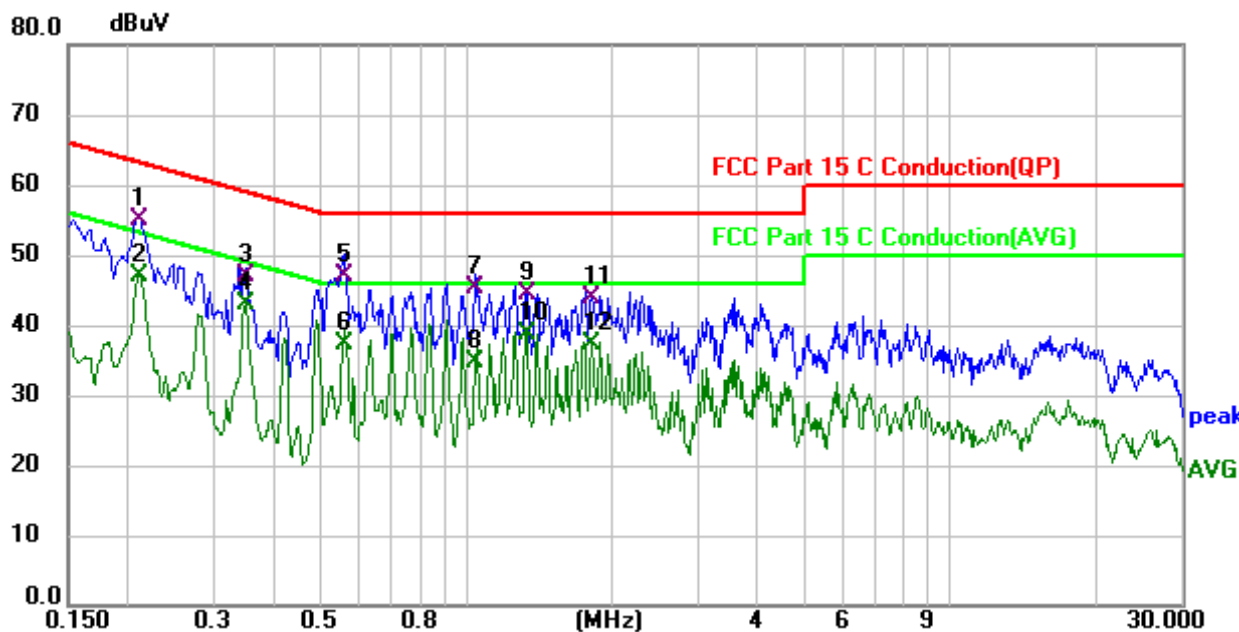


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.160	28.51	20.56	49.07	65.46	-16.39	QP	P	
2	0.160	17.19	20.56	37.75	55.46	-17.71	AVG	P	
3	0.213	32.35	20.56	52.91	63.09	-10.18	QP	P	
4 *	0.213	27.06	20.56	47.62	53.09	-5.47	AVG	P	
5	0.282	27.00	20.54	47.54	60.76	-13.22	QP	P	
6	0.282	22.66	20.54	43.20	50.76	-7.56	AVG	P	
7	0.558	24.33	20.54	44.87	56.00	-11.13	QP	P	
8	0.558	14.19	20.54	34.73	46.00	-11.27	AVG	P	
9	2.102	21.43	20.74	42.17	56.00	-13.83	QP	P	
10	2.102	16.16	20.74	36.90	46.00	-9.10	AVG	P	
11	2.522	23.98	20.74	44.72	56.00	-11.28	QP	P	
12	2.522	17.30	20.74	38.04	46.00	-7.96	AVG	P	

Remark: The test Result=Reading+ Lisn+ Cab L.

If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

EUT: Computer Speaker
M/N: ST520
Test Voltage: DC 5V from Notebook PC, Input: AC 120V/60Hz
Phase: Neutral
Test Mode: TX Mode
Note: only worse case: 8-DPSK mode with CH78 2480MHz is reported
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.210	34.42	20.53	54.95	63.21	-8.26	QP	P	
2	0.210	26.61	20.53	47.14	53.21	-6.07	AVG	P	
3	0.350	26.52	20.53	47.05	58.96	-11.91	QP	P	
4 *	0.350	22.53	20.53	43.06	48.96	-5.90	AVG	P	
5	0.558	26.50	20.53	47.03	56.00	-8.97	QP	P	
6	0.558	16.69	20.53	37.22	46.00	-8.78	AVG	P	
7	1.046	24.77	20.61	45.38	56.00	-10.62	QP	P	
8	1.046	14.15	20.61	34.76	46.00	-11.24	AVG	P	
9	1.334	23.68	20.62	44.30	56.00	-11.70	QP	P	
10	1.334	18.03	20.62	38.65	46.00	-7.35	AVG	P	
11	1.818	23.10	20.63	43.73	56.00	-12.27	QP	P	
12	1.818	16.68	20.63	37.31	46.00	-8.69	AVG	P	

Remark: The test Result=Reading+ Lisn+ Cab L.

If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

12. ANTENNA REQUIREMENTS

12.1. Limit

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

12.2. Test Result

The antennas used for this product is internal antenna (PCB Antenna), so compliance with antenna requirements. (Please refer to the **Annex B. EUT Internal Photos** for details)

13.APPENDIX

"EUT of External Photos, EUT Internal Photos & Test Setup Photos" Please refer to the Annex A, Annex B& Annex C document.

CTSL2610330031E Annex A. EUT External Photos

CTSL2610330031E Annex B. EUT Internal Photos

CTSL2610330031E Annex C. Test Setup Photos

-----**End of Test Report**-----