

1) Through Pre-scan transmitter mode with all kind of modulation and all kind of data type, find the 1-DH5 of data type is the worse case of GFSK modulation type, the 2-DH5 of data type is the worse case of $\pi/4DQPSK$ modulation type, the 3-DH5 of data type is the worse case of 8DPSK modulation type in charge + transmitter mode.

2) As shown in this section, the field strength limits are based on average limits. However, the peak field





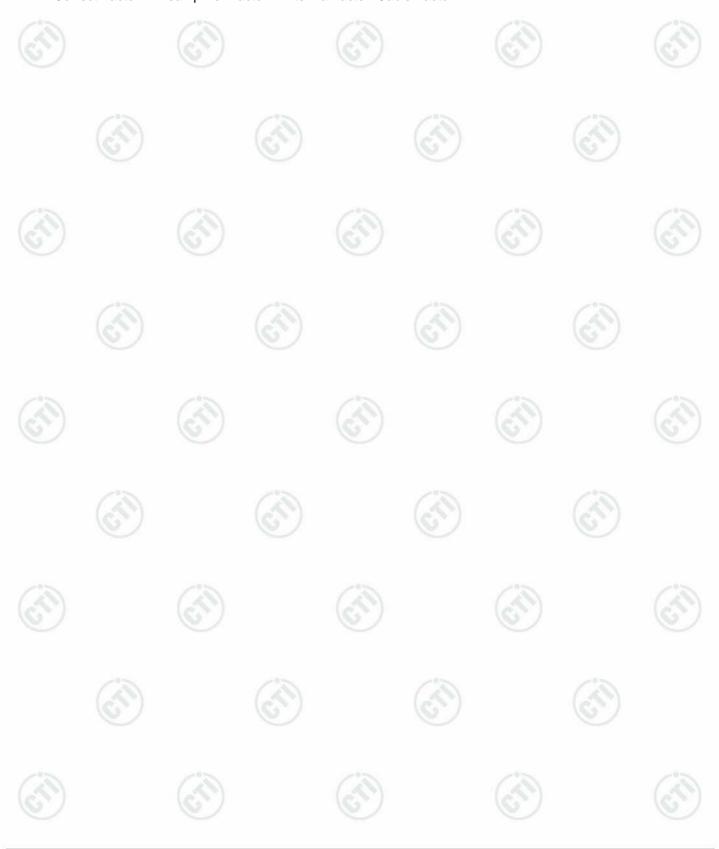


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Report No. : EED32I00251301

strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak values are measured.
3) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading -Correct Factor

Correct Factor = Preamplifier Factor – Antenna Factor–Cable Factor



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Appendix L): Radiated Spurious Emissions

Receiver Setup:	(GT)		51		61	
	Frequency	Detector	RBW	VBW	Remark	
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak	
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average	13
•)	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	68
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak	
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average	
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak	
0		Peak	1MHz	3MHz	Peak	
	Above 1GHz	Peak	1MHz	10Hz	Average	

Test Procedure:

Below 1GHz test procedure as below:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
- h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.

Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBµV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
26)	0.490MHz-1.705MHz	24000/F(kHz)	- (<u>-</u>	30
	1.705MHz-30MHz	30	- 3	9.	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
6	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
(E	applicable to the	otherwise specified 3 above the maxim equipment under te vel radiated by the o	um permitte st. This pea	d average emi	ission limit

j. Repeat above procedures until all frequencies measured was complete.

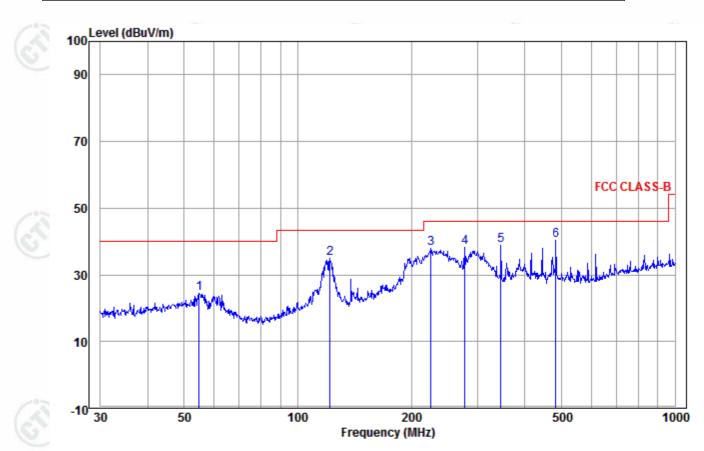






Radiated Spurious Emissions test Data: Radiated Emission below 1GHz

Test mode:	Transmitting	Horizontal



	Freq		Cable Loss			Limit Line		Pol/Phase	Remark
	MHz	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	54.835	14.44	1.42	8.54	24.40	40.00	-15.60	Horizontal	
2	121.976	11.49	1.57	22.05	35.11	43.50	-8.39	Horizontal	
3	225.308	12.03	2.28	23.59	37.90	46.00	-8.10	Horizontal	
4	277.094	13.02	2.37	22.88	38.27	46.00	-7.73	Horizontal	
5	345.595	14.69	2.68	21.44	38.81	46.00	-7.19	Horizontal	
6 pp	483.910	18.00	3.09	19.29	40.38	46.00	-5.62	Horizontal	











Transmitting Test mode: Vertical 100 Level (dBuV/m) 90 70 FCC CLASS-B 50 3 30 10 -10¹30 100 200 50 500 1000 Frequency (MHz) Ant Cable Read Limit 0ver Freq Factor Loss Level Line Limit Pol/Phase Remark Level MHz dBuV dBuV/m dBuV/m dB/m dB dB 13.70 60.280 1.43 21.27 36.40 40.00 -3.60 Vertical 1 pp 1.58 2 138.387 10.40 20.44 32.42 43.50 -11.08 Vertical 3 172.599 10.63 1.89 22.75 35.27 43.50 -8.23 Vertical 4 345.595 14.69 2.68 18.82 36.19 46.00 -9.81 Vertical 5 483.910 18.00 3.09 17.33 38.42 46.00 -7.58 Vertical 3.23 18.03 6 552.883 18.61 39.87 46.00 -6.13 Vertical







Worse case	mode:	GFSK(1-D	H5)	Test cha	nnel:	Lowest	Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1192.011	30.21	2.51	34.97	46.35	44.10	74.00	-29.90	Pass	CH)
1491.300	30.85	2.82	34.68	46.48	45.47	74.00	-28.53	Pass	Ĥ
4804.000	34.69	5.11	34.35	38.79	44.24	74.00	-29.76	Pass	Н
5821.207	35.77	7.03	34.30	41.95	50.45	74.00	-23.55	Pass	Н
7206.000	36.42	6.66	34.90	37.98	46.16	74.00	-27.84	Pass	Н
9608.000	37.88	7.73	35.08	37.55	48.08	74.00	-25.92	Pass	Н
1167.982	30.15	2.48	35.00	46.64	44.27	74.00	-29.73	Pass	V
1487.509	30.85	2.82	34.68	45.85	44.84	74.00	-29.16	Pass	V
4804.000	34.69	5.11	34.35	42.74	48.19	74.00	-25.81	Pass	V
5865.832	35.80	7.13	34.30	41.70	50.33	74.00	-23.67	Pass	V
7206.000	36.42	6.66	34.90	37.88	46.06	74.00	-27.94	Pass	V
9608.000	37.88	7.73	35.08	37.82	48.35	74.00	-25.65	Pass	V

Worse case	mode:	GFSK(1-D	H5)	Test char	nnel:	Middle	Remark: Peak		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1182.943	30.18	2.50	34.98	45.65	43.35	74.00	-30.65	Pass	н
1651.146	31.15	2.96	34.55	44.27	43.83	74.00	-30.17	Pass	ŚН
4882.000	34.85	5.08	34.33	37.84	43.44	74.00	-30.56	Pass	Н
6331.329	36.07	7.10	34.51	40.94	49.60	74.00	-24.40	Pass	Н
7323.000	36.43	6.77	34.90	36.70	45.00	74.00	-29.00	Pass	Н
9764.000	38.05	7.60	35.05	35.35	45.95	74.00	-28.05	Pass	Н
1179.935	30.18	2.49	34.99	45.91	43.59	74.00	-30.41	Pass	V
1495.101	30.86	2.82	34.68	45.85	44.85	74.00	-29.15	Pass	V
4882.000	34.85	5.08	34.33	40.07	45.67	74.00	-28.33	Pass	V
5776.922	35.73	6.93	34.30	42.01	50.37	74.00	-23.63	Pass	V
7323.000	36.43	6.77	34.90	37.23	45.53	74.00	-28.47	Pass	V
9764.000	38.05	7.60	35.05	37.38	47.98	74.00	-26.02	Pass	V









Worse case	mode:	GFSK(1-D	H5)	Test chan	nel:	Highest	Remark: P	eak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1165.013	30.14	2.47	35.00	46.20	43.81	74.00	-30.19	Pass	~ <u>H</u>
1659.574	31.16	2.97	34.54	45.94	45.53	74.00	-28.47	Pass	(H)
4960.000	35.02	5.05	34.31	38.54	44.30	74.00	-29.70	Pass	Ĥ
5821.207	35.77	7.03	34.30	41.96	50.46	74.00	-23.54	Pass	н
7440.000	36.45	6.88	34.90	37.88	46.31	74.00	-27.69	Pass	Н
9920.000	38.22	7.47	35.02	38.16	48.83	74.00	-25.17	Pass	н
1333.284	30.53	2.66	34.83	46.34	44.70	74.00	-29.30	Pass	V
1663.803	31.17	2.97	34.54	45.65	45.25	74.00	-28.75	Pass	V
4960.000	35.02	5.05	34.31	39.27	45.03	74.00	-28.97	Pass	V
5850.919	35.79	7.10	34.30	41.64	50.23	74.00	-23.77	Pass	V
7440.000	36.45	6.88	34.90	37.50	45.93	74.00	-28.07	Pass	V
9920.000	38.22	7.47	35.02	37.71	48.38	74.00	-25.62	Pass	V

Worse case	mode:	π/4DQPSk	((2-DH5)	Test char	nnel:	Lowest	Remark: P	eak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1185.958	30.19	2.50	34.98	46.59	44.30	74.00	-29.70	Pass	Н
1487.509	30.85	2.82	34.68	46.13	45.12	74.00	-28.88	Pass	H
1953.211	31.63	3.20	34.33	45.73	46.23	74.00	-27.77	Pass	¥.
4804.000	34.69	5.11	34.35	38.49	43.94	74.00	-30.06	Pass	Н
7206.000	36.42	6.66	34.90	39.50	47.68	74.00	-26.32	Pass	н
9608.000	37.88	7.73	35.08	38.05	48.58	74.00	-25.42	Pass	Н
1182.943	30.18	2.50	34.98	47.22	44.92	74.00	-29.08	Pass	V
1498.912	30.87	2.83	34.67	46.10	45.13	74.00	-28.87	Pass	V
1832.785	31.45	3.11	34.41	45.99	46.14	74.00	-27.86	Pass	V
4804.000	34.69	5.11	34.35	40.92	46.37	74.00	-27.63	Pass	V
7206.000	36.42	6.66	34.90	39.15	47.33	74.00	-26.67	Pass	V
9608.000	37.88	7.73	35.08	37.55	48.08	74.00	-25.92	Pass	v











Worse case mode: π/4DQPSK(2-DH5) Test channel: Middle Remark: Peak Preamp Read Antenna Frequency Cable Level Limit Line Over Antenna Factor Result Gain Level (MHz) Loss (dB) (dBµV/m) (dBµV/m) Limit (dB) Polaxis (dB/m)(dB) (dBµV) 1159.096 30.13 2.47 35.01 46.80 44.39 74.00 -29.61 Pass Н 1502.732 30.88 2.83 34.67 46.00 45.04 74.00 -28.96 Pass Н Н 4882.000 34.85 5.08 34.33 40.42 46.02 74.00 -27.98 Pass 5836.044 35.78 7.07 34.30 41.70 74.00 Pass Н 50.25 -23.75 Н 7323.000 6.77 34.90 37.89 46.19 74.00 -27.81 Pass 36.43 9764.000 Pass Н 38.05 7.60 35.05 37.65 48.25 74.00 -25.75 1182.943 74.00 Pass V 30.18 2.50 34.98 45.63 43.33 -30.67 V 1659.574 31.16 2.97 34.54 45.29 44.88 74.00 -29.12 Pass 74.00 V 4882.000 34.85 5.08 34.33 40.33 45.93 -28.07 Pass 5791.646 35.74 6.97 34.30 42.16 74.00 Pass V 50.57 -23.43 7323.000 36.43 6.77 34.90 37.59 45.89 74.00 -28.11 Pass V 74.00 V 9764.000 38.05 7.60 35.05 36.39 46.99 -27.01 Pass

Worse case	mode:	π/4DQPSk	(2-DH5)	Test char	nnel:	Highest	Remark: P	eak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1173.943	30.16	2.48	34.99	46.32	43.97	74.00	-30.03	Pass	Н
1659.574	31.16	2.97	34.54	45.31	44.90	74.00	-29.10	Pass	Н
4960.000	35.02	5.05	34.31	38.52	44.28	74.00	-29.72	Pass	SH/
5821.207	35.77	7.03	34.30	42.08	50.58	74.00	-23.42	Pass	Н
7440.000	36.45	6.88	34.90	37.80	46.23	74.00	-27.77	Pass	Н
9920.000	38.22	7.47	35.02	38.60	49.27	74.00	-24.73	Pass	Н
1179.935	30.18	2.49	34.99	45.58	43.26	74.00	-30.74	Pass	V
1479.955	30.83	2.81	34.69	45.90	44.85	74.00	-29.15	Pass	V
4960.000	35.02	5.05	34.31	38.14	43.90	74.00	-30.10	Pass	V
5865.832	35.80	7.13	34.30	41.79	50.42	74.00	-23.58	Pass	V
7440.000	36.45	6.88	34.90	37.66	46.09	74.00	-27.91	Pass	V
9920.000	38.22	7.47	35.02	38.37	49.04	74.00	-24.96	Pass	V











			10 million 100		107		- Jac 8 14		
Worse case	mode:	8DPSK(3-[DH5)	Test chan	nel:	Lowest Remark: Peak		eak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1333.284	30.53	2.66	34.83	45.70	44.06	74.00	-29.94	Pass	<u> </u>
1663.803	31.17	2.97	34.54	46.23	45.83	74.00	-28.17	Pass	с н)
4804.000	34.69	5.11	34.35	38.56	44.01	74.00	-29.99	Pass	Ĥ
5865.832	35.80	7.13	34.30	42.09	50.72	74.00	-23.28	Pass	Н
7206.000	36.42	6.66	34.90	38.36	46.54	74.00	-27.46	Pass	Н
9608.000	37.88	7.73	35.08	37.27	47.80	74.00	-26.20	Pass	Н
1185.958	30.19	2.50	34.98	45.48	43.19	74.00	-30.81	Pass	V
1506.563	30.88	2.83	34.67	46.13	45.17	74.00	-28.83	Pass	V
4804.000	34.69	5.11	34.35	41.29	46.74	74.00	-27.26	Pass	V
6219.512	36.02	7.21	34.44	41.23	50.02	74.00	-23.98	Pass	V
7206.000	36.42	6.66	34.90	38.11	46.29	74.00	-27.71	Pass	V
9608.000	37.88	7.73	35.08	38.56	49.09	74.00	-24.91	Pass	V

Worse case	mode:	8DPSK(3-[DH5)	Test chani	nel:	Middle	Remark: P	eak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1188.980	30.20	2.50	34.98	45.60	43.32	74.00	-30.68	Pass	Н
1502.732	30.88	2.83	34.67	45.87	44.91	74.00	-29.09	Pass	H
4882.000	34.85	5.08	34.33	38.78	44.38	74.00	-29.62	Pass	Sн/
5956.109	35.87	7.33	34.30	41.12	50.02	74.00	-23.98	Pass	Н
7323.000	36.43	6.77	34.90	37.62	45.92	74.00	-28.08	Pass	н
9764.000	38.05	7.60	35.05	37.19	47.79	74.00	-26.21	Pass	н
1179.935	30.18	2.49	34.99	46.44	44.12	74.00	-29.88	Pass	V
1651.146	31.15	2.96	34.55	45.34	44.90	74.00	-29.10	Pass	V
4882.000	34.85	5.08	34.33	39.03	44.63	74.00	-29.37	Pass	V
5865.832	35.80	7.13	34.30	41.67	50.30	74.00	-23.70	Pass	V
7323.000	36.43	6.77	34.90	37.94	46.24	74.00	-27.76	Pass	V
9764.000	38.05	7.60	35.05	37.31	47.91	74.00	-26.09	Pass	V











285			100	20					
Worse case	mode:	8DPSK(3-E	DH5)	Test channel:		Highest	Remark: P	eak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBµV)	Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Result	Antenna Polaxis
1188.980	30.20	2.50	34.98	46.21	43.93	74.00	-30.07	Pass	- H
1659.574	31.16	2.97	34.54	45.23	44.82	74.00	-29.18	Pass	H)
4960.000	35.02	5.05	34.31	39.52	45.28	74.00	-28.72	Pass	Ч
5821.207	35.77	7.03	34.30	41.63	50.13	74.00	-23.87	Pass	Н
7440.000	36.45	6.88	34.90	37.37	45.80	74.00	-28.20	Pass	Н
9920.000	38.22	7.47	35.02	38.12	48.79	74.00	-25.21	Pass	Н
1329.894	30.52	2.66	34.83	46.97	45.32	74.00	-28.68	Pass	V
1676.558	31.19	2.98	34.53	46.16	45.80	74.00	-28.20	Pass	V
4960.000	35.02	5.05	34.31	38.88	44.64	74.00	-29.36	Pass	V
5821.207	35.77	7.03	34.30	41.89	50.39	74.00	-23.61	Pass	V
7440.000	36.45	6.88	34.90	37.45	45.88	74.00	-28.12	Pass	V
9920.000	38.22	7.47	35.02	37.36	48.03	74.00	-25.97	Pass	V

Note:

1) Through Pre-scan transmitter mode with all kind of modulation and all kind of data type, find the 1-DH5 of data type is the worse case of GFSK modulation type, the 2-DH5 of data type is the worse case of π /4DQPSK modulation type, the 3-DH5 of data type is the worse case of 8DPSK modulation type in charge + transmitter mode.

2) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. H owever, the peak field strength of any emission shall not exceed the maximum permitted average limits specifie d above by more than 20 dB under any condition of modulation. So, only the peak values are measured.

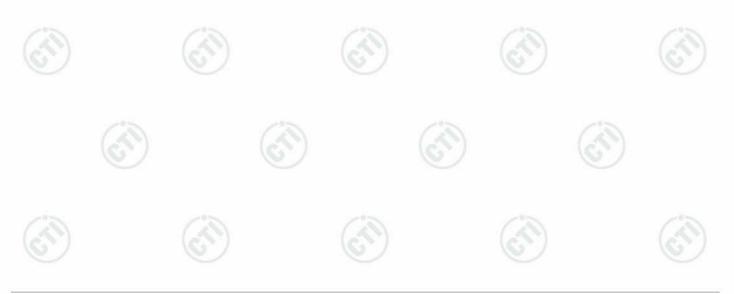
3) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic

equation with a sample calculation is as follows:

Final Test Level =Receiver Reading -Correct Factor

Correct Factor = Preamplifier Factor – Antenna Factor – Cable Factor

4) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

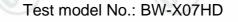






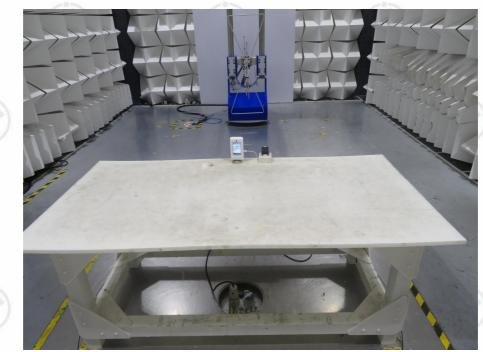
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PHOTOGRAPHS OF TEST SETUP





Radiated spurious emission Test Setup-1(Below 30MHz)



Radiated spurious emission Test Setup-2(30MHz - 1GHz)











APPENDIX 2 PHOTOGRAPHS OF EUT

Test model No.: BW-X07HD











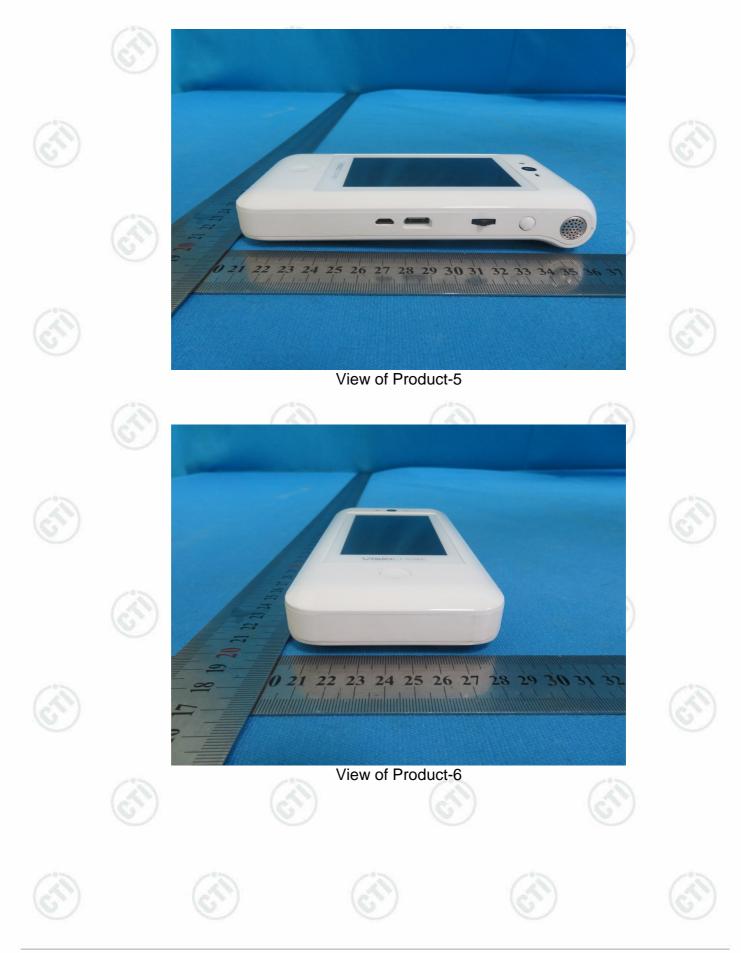
































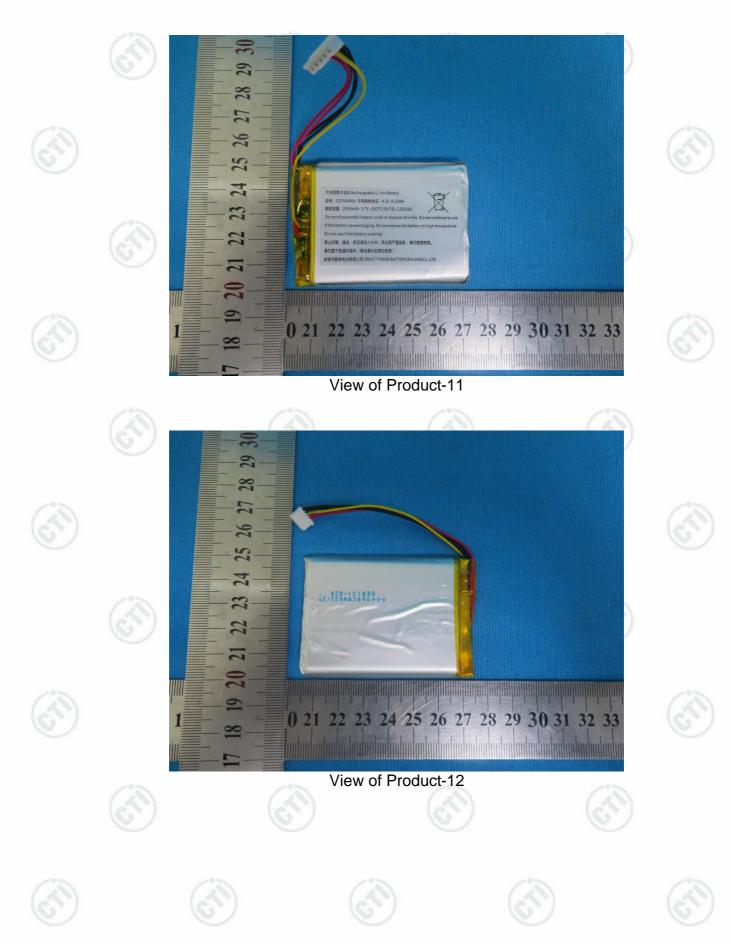
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