



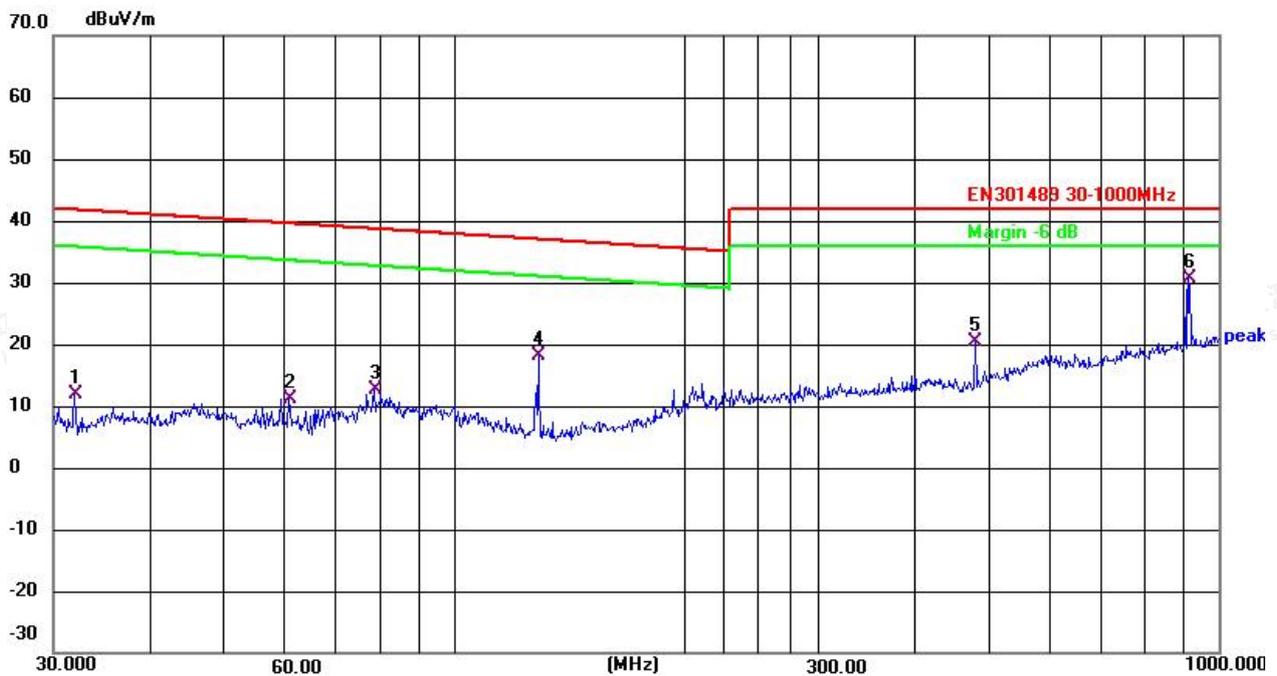
# Appendix A for Emission and Immunity test results

Product Name: BT Magic Bluetooth Module

Test Model: BT Magic

## A.1 Radiated Disturbance

Test Model	BT Magic	Test Mode	TM1
Environmental Conditions	23.9°C, 52.1% RH	Test Engineer	Taylor Hu
Pol.	Horizontal	Detector Function	Quasi-peak
Distance	3m	Test Voltage	DC 5V

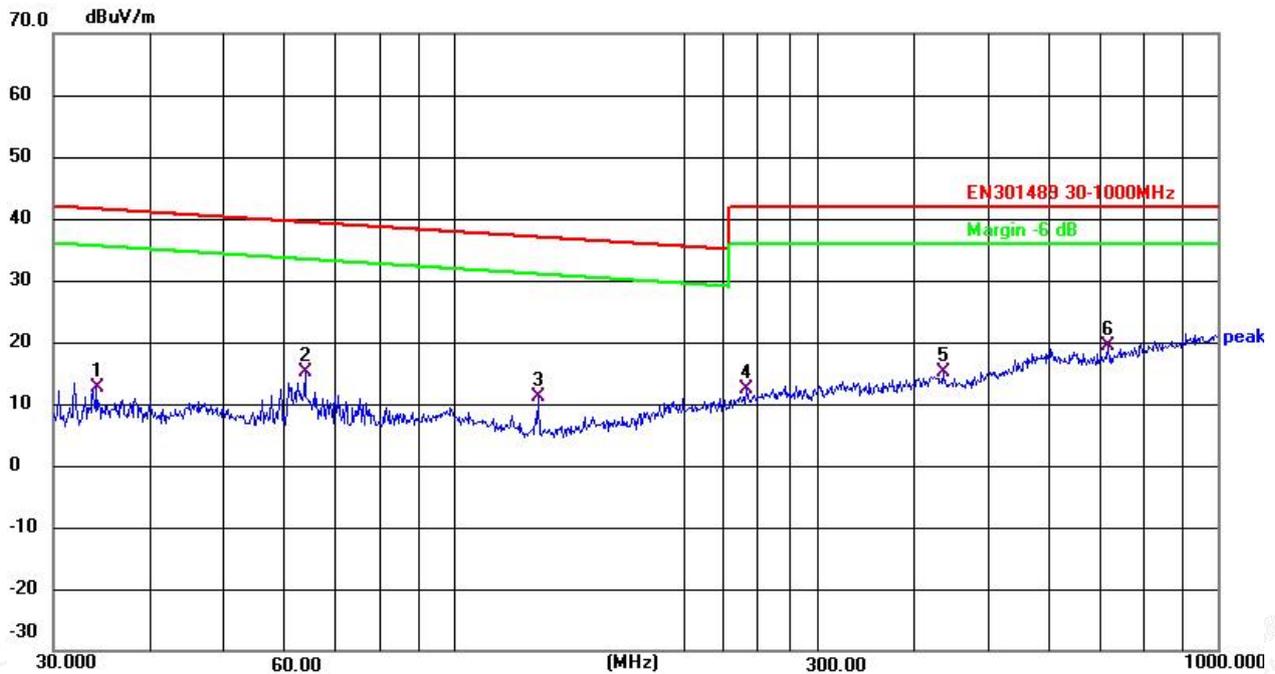


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	31.9545	30.20	-18.20	12.00	41.78	-29.78	QP
2	60.9175	30.04	-18.92	11.12	39.57	-28.45	QP
3	78.6887	32.37	-19.83	12.54	38.69	-26.15	QP
4	129.0145	38.71	-20.50	18.21	36.99	-18.78	QP
5	480.5276	34.66	-14.18	20.48	42.00	-21.52	QP
6	912.8620	38.84	-8.12	30.72	42.00	-11.28	QP





<b>Test Model</b>	BT Magic	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	23.9°C, 52.1% RH	<b>Test Engineer</b>	Taylor Hu
<b>Pol.</b>	Vertical	<b>Detector Function</b>	Quasi-peak
<b>Distance</b>	3m	<b>Test Voltage</b>	DC 5V

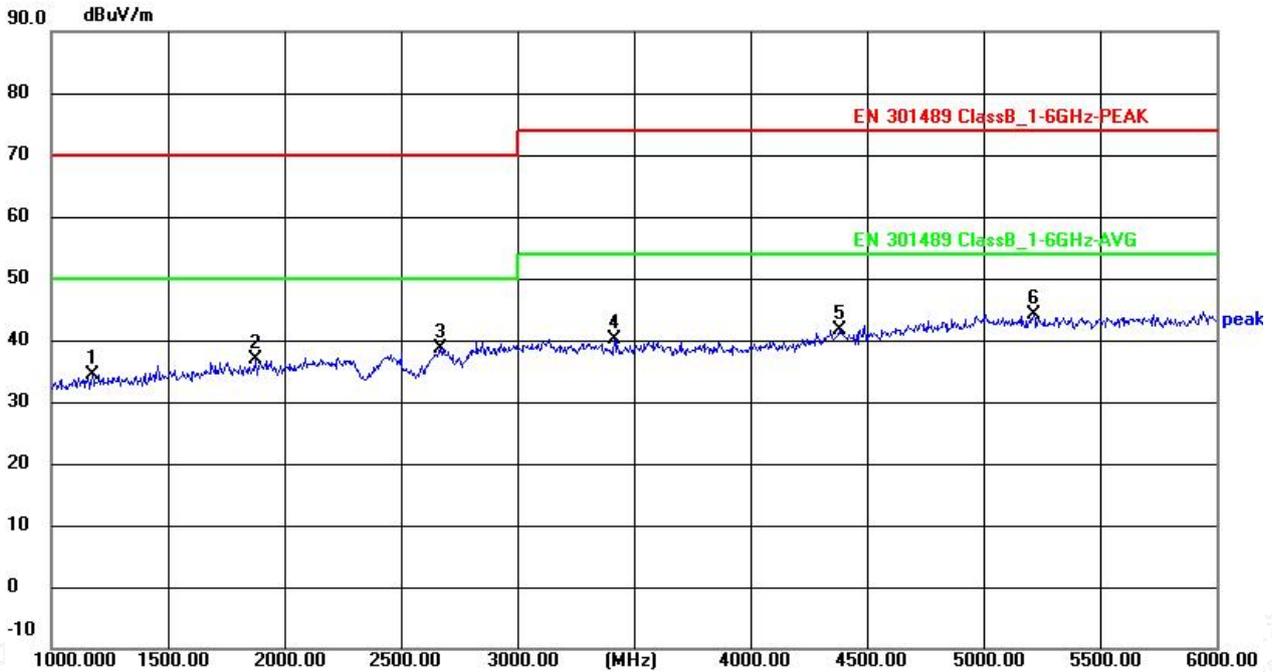


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	34.1561	30.45	-17.91	12.54	41.55	-29.01	QP
2	63.9828	34.32	-19.10	15.22	39.40	-24.18	QP
3	129.0146	31.56	-20.50	11.06	36.99	-25.93	QP
4	241.6763	28.38	-15.99	12.39	42.00	-29.61	QP
5	437.1199	29.48	-14.44	15.04	42.00	-26.96	QP
6	719.1995	30.11	-10.61	19.50	42.00	-22.50	QP





<b>Test Model</b>	BT Magic	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	23.9°C, 52.1% RH	<b>Test Engineer</b>	Taylor Hu
<b>Pol.</b>	Horizontal	<b>Detector Function</b>	Peak+AV
<b>Distance</b>	3m	<b>Test Voltage</b>	DC 5V

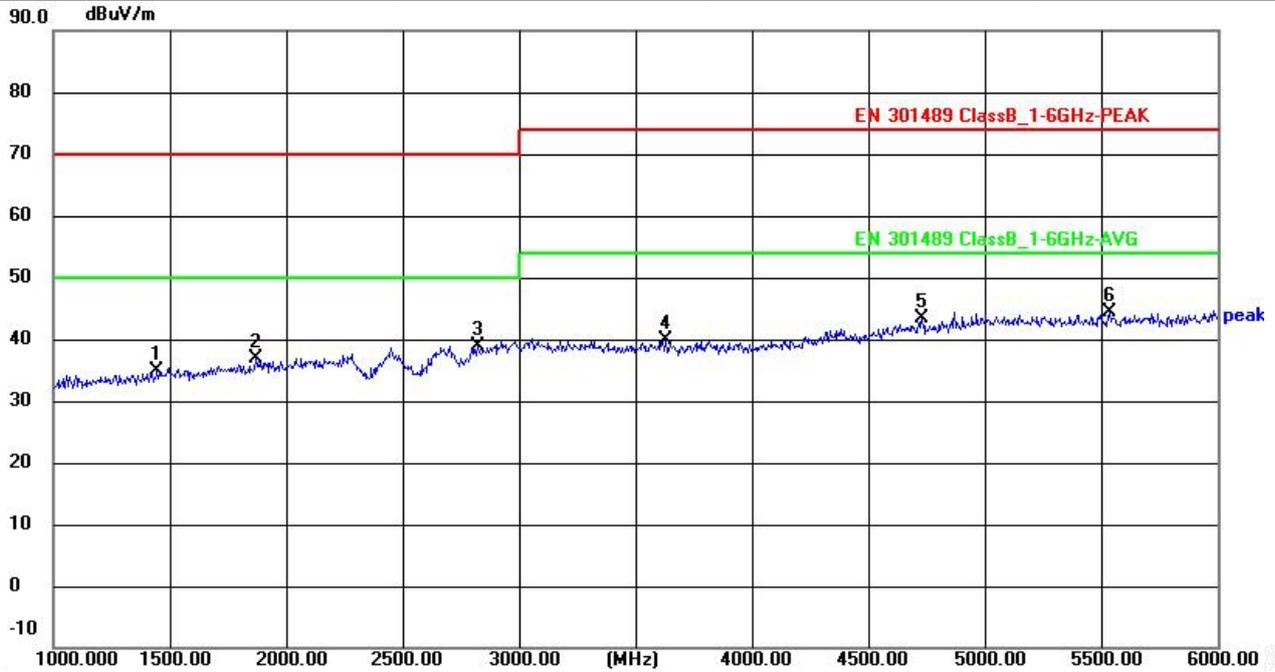


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1175.000	49.57	-15.24	34.33	70.00	-35.67	peak
2	1875.000	50.73	-13.77	36.96	70.00	-33.04	peak
3	2670.000	49.50	-10.75	38.75	70.00	-31.25	peak
4	3415.000	49.69	-9.45	40.24	74.00	-33.76	peak
5	4380.000	48.78	-7.05	41.73	74.00	-32.27	peak
6	5215.000	47.84	-3.72	44.12	74.00	-29.88	peak





<b>Test Model</b>	BT Magic	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	23.9°C, 52.1% RH	<b>Test Engineer</b>	Taylor Hu
<b>Pol.</b>	Vertical	<b>Detector Function</b>	Peak+AV
<b>Distance</b>	3m	<b>Test Voltage</b>	DC 5V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1445.000	49.97	-15.12	34.85	70.00	-35.15	peak
2	1870.000	50.60	-13.79	36.81	70.00	-33.19	peak
3	2820.000	49.07	-10.22	38.85	70.00	-31.15	peak
4	3630.000	49.02	-9.19	39.83	74.00	-34.17	peak
5	4730.000	48.95	-5.45	43.50	74.00	-30.50	peak
6	5535.000	47.68	-3.23	44.45	74.00	-29.55	peak

Note:

1. Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
2. Measurements above show only up to 6 maximum emissions noted.
3. 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.
4. Factor = Antenna Factor + Cable Loss + Amplifier Factor  
 Emission Level = Reading level + Factor  
 Margin = Emission Level - Limit



**A.2 RF Electromagnetic Field (80 MHz - 6000 MHz)**

<b>Test Model</b>	BT Magic	<b>Test Engineer</b>	Taylor Hu
<b>Environmental Conditions</b>	21.6°C, 53.3% RH	<b>Test Voltage</b>	DC 5V

**TM1 Test Result:**

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-6000	3	CT, CR	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	CT, CR	Front, Right, Left, Back	Pass
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass

**TM2 Test Result:**

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass

Note: The EUT performance complied with performance criteria for CT&CR Function and there is no any degradation of performance and function.

During the test, the Maximum Bit Error Ratio was less than 0.001

During the test, the Maximum Block Error Ratio was less than 0.01



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Scan code to check authenticity



### A.3 Electrostatic Discharge

Electrostatic Discharge Test Results			
<b>Standard</b>	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
<b>Applicant</b>	KHADAS TECHNOLOGY CO., LTD		
<b>EUT</b>	BT Magic Bluetooth Module	<b>Temperature</b>	24.2°C
<b>M/N</b>	BT Magic	<b>Humidity</b>	54.3%
<b>Criterion</b>	B	<b>Pressure</b>	1021mbar
<b>Test Mode</b>	TM1-TM2	<b>Test Engineer</b>	Taylor Hu
TEST RESULT OF TM1			
Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	TT, TR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge HCP	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge VCP	TT, TR	Pass
TEST RESULT OF TM2			
Test Voltage	Coupling	Result (Pass/Fail)	
±2KV, ±4kV	Contact Discharge	Pass	
±2KV, ±4kV, ±8kV	Air Discharge	Pass	
±2KV, ±4kV	Indirect Discharge HCP	Pass	
±2KV, ±4kV	Indirect Discharge VCP	Pass	
Note: The EUT performance complied with performance criteria for TT&TR Function and there is no any degradation of performance and function.			



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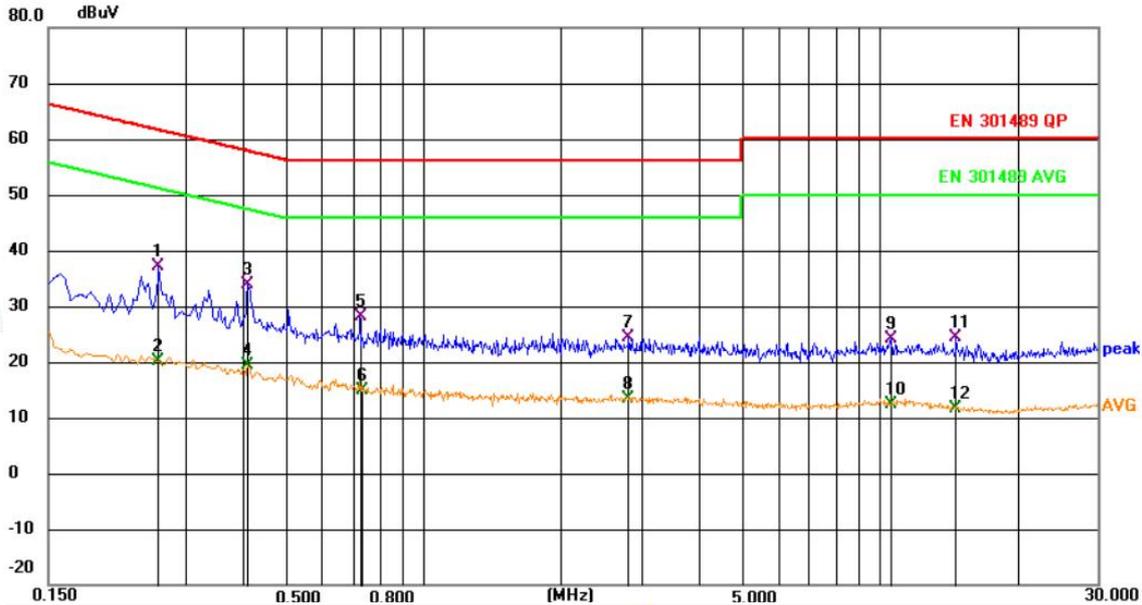
Scan code to check authenticity



### A.4 Line Conducted Emission

\*\*\*Note: For pre-scan, the worst case is TM1, and the test data was shown as follow:

<b>Test Model</b>	BT Magic	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	22.5°C, 53.7% RH	<b>Test Engineer</b>	Taylor Hu
<b>Pol.</b>	Line	<b>Test Voltage</b>	AC 230V/50Hz

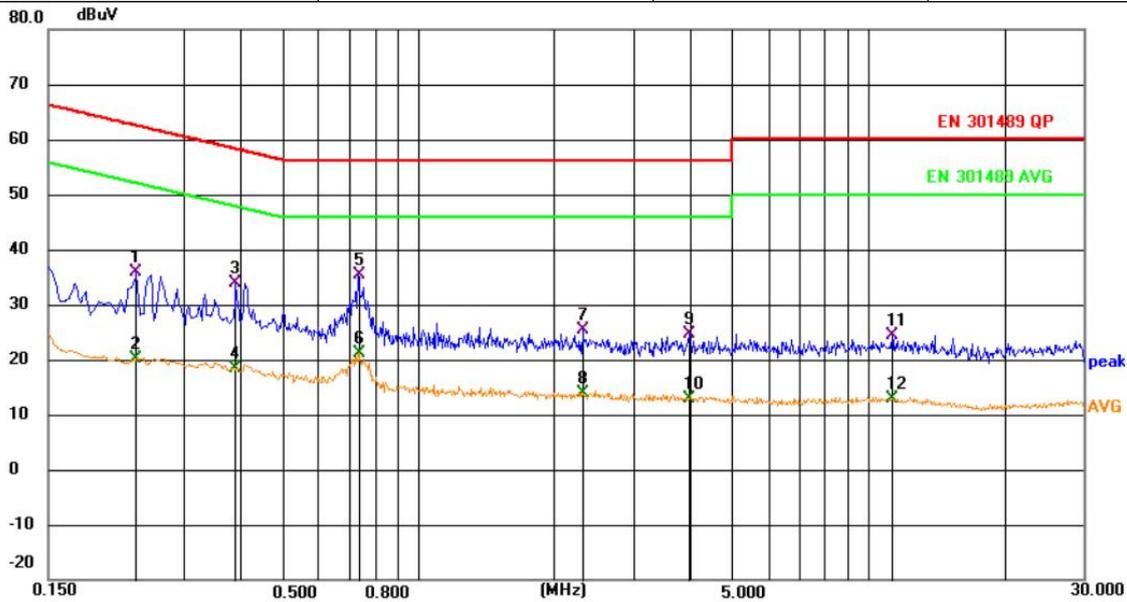


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector
1		0.2626	17.47	19.63	37.10	61.35	-24.25	QP
2		0.2626	0.52	19.63	20.15	51.35	-31.20	AVG
3	*	0.4111	14.32	19.63	33.95	57.63	-23.68	QP
4		0.4111	-0.33	19.63	19.30	47.63	-28.33	AVG
5		0.7261	8.38	19.65	28.03	56.00	-27.97	QP
6		0.7306	-4.67	19.65	14.98	46.00	-31.02	AVG
7		2.8186	4.80	19.68	24.48	56.00	-31.52	QP
8		2.8186	-6.37	19.68	13.31	46.00	-32.69	AVG
9		10.5901	4.32	19.84	24.16	60.00	-35.84	QP
10		10.5901	-7.39	19.84	12.45	50.00	-37.55	AVG
11		14.7481	4.46	19.87	24.33	60.00	-35.67	QP
12		14.7481	-8.20	19.87	11.67	50.00	-38.33	AVG





Test Model	BT Magic	Test Mode	TM1
Environmental Conditions	22.5°C, 53.7% RH	Test Engineer	Taylor Hu
Pol.	Neutral	Test Voltage	AC 230V/50Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector
1		0.2356	16.19	19.63	35.82	62.25	-26.43	QP
2		0.2356	0.44	19.63	20.07	52.25	-32.18	AVG
3		0.3930	14.25	19.63	33.88	58.00	-24.12	QP
4		0.3930	-1.18	19.63	18.45	48.00	-29.55	AVG
5	*	0.7351	15.65	19.65	35.30	56.00	-20.70	QP
6		0.7351	1.43	19.65	21.08	46.00	-24.92	AVG
7		2.3146	5.66	19.70	25.36	56.00	-30.64	QP
8		2.3146	-5.92	19.70	13.78	46.00	-32.22	AVG
9		3.9931	4.89	19.80	24.69	56.00	-31.31	QP
10		3.9931	-6.98	19.80	12.82	46.00	-33.18	AVG
11		11.2876	4.65	19.85	24.50	60.00	-35.50	QP
12		11.2876	-6.98	19.85	12.87	50.00	-37.13	AVG

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

Margin= Reading level + Correct factor – Limit

Correct Factor= Lisn Factor+Cable Factor

