

# Global United Technology Services Co., Ltd.

Report No.: GTSE12110140501

# TEST REPORT

Applicant: Dongguan Yuanfeng Technology Co., Ltd.

**Address of Applicant:** No.62, South Fumin Road, Fumin Industrial Park, Dalang

Town, Dongguan City, Guangdong, P.R. China

#### **Equipment Under Test (EUT)**

**Product Name:** Tablet PC

Model No.: MR13-1301, MR13-1302, MR13-1303, MR13-1304,

> MR13-1305, MR13-1306, MR13-1307, MR13-1308, MR13-1309, MR13-1310, MR13-1311, MR13-1312,

MR13-1313, MR13-1314, MR13-1315

FCC ID: YNGMR13-1301

FCC CFR Title 47 Part 15 Subpart B:2011 Applicable standards:

Date of sample receipt: November 28, 2012

**Date of Test:** November 30-December 12, 2012

Date of report issue: December 13, 2012

Test Result: PASS \*

#### Authorized Signature:

binson Lo

Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



## 2 Version

Version No.	Date	Description
00	December 13, 2012	Original

Prepared By:	hank. yan	Date:	December 13, 2012
	Project Engineer		
Check By:	Hans. Hu	Date:	December 13, 2012
	Reviewer	_	



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## 4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	PASS
Radiated Emissions	Part15.109	PASS

PASS: The EUT complies with the essential requirements in the standard.



## **5** General Information

#### 5.1 Client Information

Applicant:	Dongguan Yuanfeng Technology Co., Ltd.	
Address of Applicant:	No.62, South Fumin Road, Fumin Industrial Park, Dalang Town, Dongguan City, Guangdong, P.R. China	
Manufacturer :	Dongguan Yuanfeng Technology Co., Ltd.	
Address of Manufacturer :	No.62, South Fumin Road, Fumin Industrial Park, Dalang Town, Dongguan City, Guangdong, P.R. China	
Factory:	Dongguan Yuanfeng Technology Co., Ltd.	
Address of Factory :	No.62, South Fumin Road, Fumin Industrial Park, Dalang Town, Dongguan City, Guangdong, P.R. China	

## 5.2 General Description of EUT

Product Name:	Tablet PC
Model No.:	MR13-1301, MR13-1302, MR13-1303, MR13-1304, MR13-1305, MR13-1306, MR13-1307, MR13-1308, MR13-1309, MR13-1310, MR13-1311, MR13-1312, MR13-1313, MR13-1314, MR13-1315
Test Model No.:	MR13-1301
Remark:	Since the electrical circuit design, PCB layout, Electrical Parts and Figure are identical to the basic model, except the outer decoration.
Power supply:	Model No. :HNC050250X Input: AC 100-240V 50/60Hz 0.4A MAX Output: DC 5.0V 2.5A Or DC 3.7V Li-ion Battery

### 5.3 Test mode

Test mode:	
Playing mode	Keep the EUT in Playing mode
Video Record mode	Keep the EUT in Video Recording mode
PC mode	Keep the EUT in exchanging data mode.
HDMI mode	Keep the EUT in HDMI output mode.



#### 5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### • CNAS —Registration No.: CNAS L5775

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

#### • FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, July 20, 2010.

#### • Industry Canada (IC)

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

#### 5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen,

China

Tel: 0755-27798480 Fax: 0755-27798960

#### 5.6 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
HP	Printer	CB495A	05257893	DoC
DELL	PC	OPTIPLEX745	GTS312	DoC
DELL	MONITOR	E178FPC	N/A	DoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC
PHILIPS	LCD TV	19PFL3120/T3	AU1A1212002906	DoC



#### 5.7 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna. Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

#### 5.8 Abnormalities from Standard Conditions

None.

### 5.9 Other Information Requested by the Customer

None.



Project No.: GTSE121101405RF

## **6** Test Instruments list

Radi	Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)	
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	Mar. 30 2011	Mar. 29 2013	
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A	
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	Jul. 07 2012	Jul. 06 2013	
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	Mar. 10 2012	Mar. 09 2013	
5	Double -ridged waveguide horn	SCHWARZBECK	9120D	GTS208	Mar. 10 2012	Mar. 09 2013	
6	RF Amplifier	HP	8347A	GTS204	Jul. 07 2012	Jul. 06 2013	
7	Preamplifier	HP	8349B	GTS206	Jul. 07 2012	Jul. 06 2013	
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	
9	Coaxial cable	GTS	N/A	GTS210	Jul. 07 2012	Jul. 06 2013	
10	Coaxial Cable	GTS	N/A	GTS211	Jul. 07 2012	Jul. 06 2013	
11	Thermo meter	N/A	N/A	GTS256	Jul. 06 2012	Jul. 05 2013	

Con	Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)	
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 08 2011	Sep. 07 2013	
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 03 2012	Jul. 02 2013	
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 03 2012	Jul. 02 2013	
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 03 2012	Jul. 02 2013	
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 03 2012	Jul. 02 2013	
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 03 2012	Jul. 02 2013	
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	

Gene	General used equipment:						
Item   Lest Equipment   Manufacturer   Model No						Cal.Due date (dd-mm-yy)	
1	Barometer	ChangChun	DYM3	GTS257	July 10 2012	July 09 2013	



#### **Test Results and Measurement Data** 7

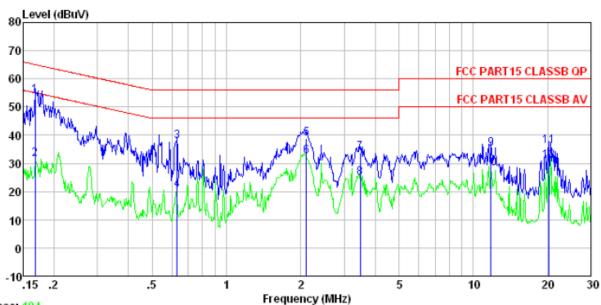
#### 7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107				
Test Method:	ANSI C63.4:2003				
Test Frequency Range:	150KHz to 30MHz				
Class / Severity:	Class B				
•	RBW=9KHz, VBW=30KHz, Sv	veen time-auto			
Receiver setup:	1 12, VBVV=301(12, VBVV	•	IDV/\		
Limit:	Frequency range (MHz)  Limit (dBuV)  Quasi-peak  Average				
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarithm	of the frequency.			
Test setup:	Reference Plane		_		
	AUX Filter AC power Equipment E.U.T Equipment Receiver  Remark  E U.T. Equipment Under Test LISN Line Impedence Stabilization Network  Test table height=0.8m				
Test procedure:	The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.				
	2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).				
	3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.				
Test Instruments:	Refer to section 6 for details				
Test mode:	Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.				
Test results:	Pass				



#### **Measurement Data**

#### Line:



Trace: 104

Condition : FCC PART15 CLASSB QP LISN-2012 LINE

Job No. : 1405RF Test Mode : PC mode Test Engineer: Edward

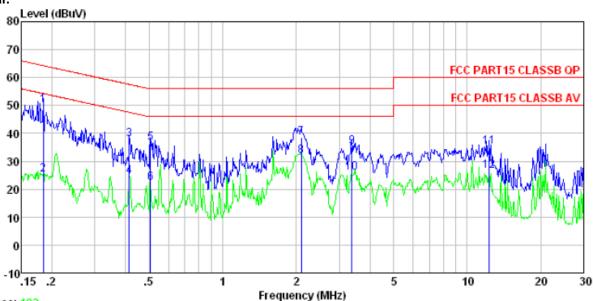
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.168	54.22	-0.26	0.10	54.06	65.08	-11.02	QP
2	0.168	31.55	-0.26	0.10	31.39	55.08	-23.69	Average
3	0.630	37.81	-0.20	0.10	37.71	56.00	-18.29	QP
4 5	0.630	20.56	-0.20	0.10	20.46	46.00	-25.54	Average
5	2.110	38.94	-0.24	0.10	38.80	56.00	-17.20	QP
6	2.110	32.76	-0.24	0.10	32.62	46.00	-13.38	Average
7	3.491	34.15	-0.27	0.10	33.98	56.00	-22.02	QP
8	3.491	25.11	-0.27	0.10	24.94	46.00	-21.06	Average
9	11.807	35.25	-0.44	0.20	35.01	60.00	-24.99	QP
10	11.807	28.49	-0.44	0.20	28. 25	50.00	-21.75	Average
11	20.162	36.52	-0.63	0.21	36.10	60.00	-23.90	QP
12	20.162	31.36	-0.63	0.21	30.94	50.00	-19.06	Average

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### Neutral:



Trace: 102

Condition : FCC PART15 CLASSB QP LISN-2012 NEUTRAL

Job No. : 1405RF Test Mode : PC mode Test Engineer: Edward

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBu₹	dB	dB	dBuV	dBuV	dB	
1 2 3 4 5 6 7	0. 184 0. 184 0. 415 0. 415 0. 507 0. 507 2. 099	50. 16 25. 34 37. 87 24. 40 36. 64 22. 34 38. 59	-0. 09 -0. 09 -0. 08 -0. 08 -0. 08 -0. 08 -0. 11	0.10 0.10 0.10 0.10 0.10 0.10 0.10	50. 17 25. 35 37. 89 24. 42 36. 66 22. 36 38. 58	54. 28 57. 55 47. 55 56. 00 46. 00	-19.66 -23.13 -19.34	Average QP Average QP Average
8 9 10 11 12	2. 099 3. 381 3. 381 12. 318 12. 318	31. 98 35. 24 25. 95 35. 26 26. 63	-0.11 -0.13 -0.13 -0.34 -0.34	0.10 0.10 0.10 0.20 0.20	31. 97 35. 21 25. 92 35. 12 26. 49	46.00 56.00 46.00 60.00	-14.03 -20.79 -20.08 -24.88	Average QP Average

#### Notes

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level = Receiver Read level + LISN Factor + Cable Loss

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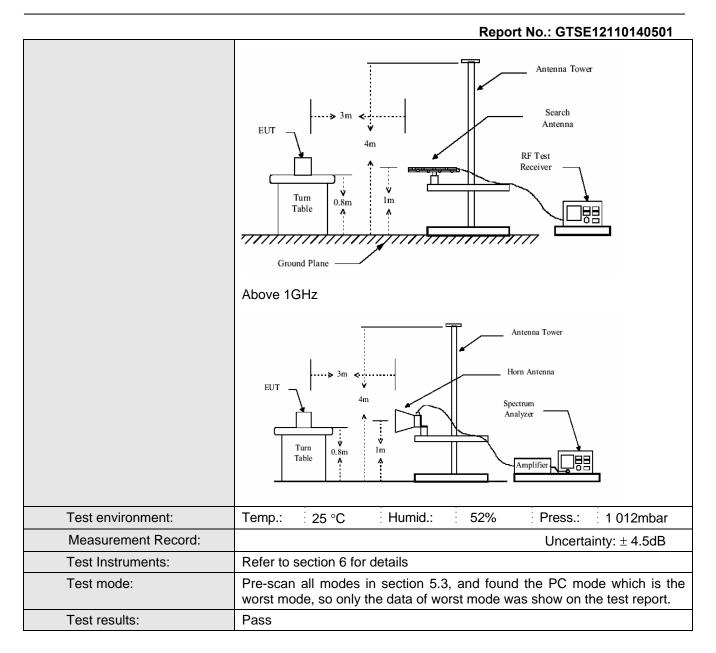
## 7.2 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109								
Test Method:	ANSI C63.4:2003								
Test Frequency Range:	30MHz to 5GHz	30MHz to 5GHz							
Test site:	Measurement D	Distance: 3m	(Semi-Anecho	ic Chambe	r)				
Receiver setup:	Frequency Detector 30MHz- Quasi-pea		RBW k 120kHz	VBW 300kHz	Remark Quasi-peak Value				
	1GHz Above 1GHz	Peak AV	1MHz 1MHz	3MHz 10Hz	Peak Value Average Value				
Limit:									
	Frequency 30MHz-88MHz		Limit (dBuV	/m @3m)	Remark				
			40.0	0	Quasi-peak Value				
	88MHz-2	16MHz	43.5	0	Quasi-peak Value				
	216MHz-9	60MHz	46.0	0	Quasi-peak Value				
	960MHz-	·1GHz	54.0	0	Quasi-peak Value				
	Above 1	GHz	54.0		Average Value				
			74.0	0	Peak Value				
Test Procedure:	The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.      The EUT was set 3 meters away from the interference-receiving								
			•		ole-height antenna				
	ground to de	termine the n	naximum value	e of the field	r meters above the d strength. Both are set to make the				
	4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.								
	5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.								
	6. 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.								
Test setup:	Below 1GHz								

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#### Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

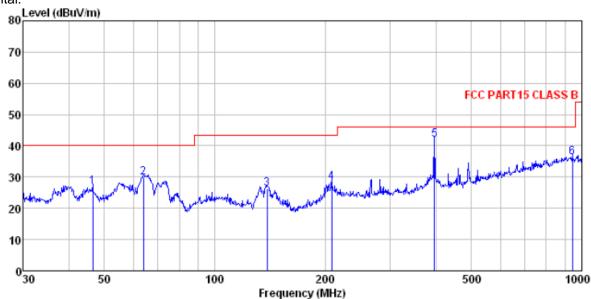
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor



#### **Measurement Data**

Below 1GHz

Horizontal:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163 -2012-05 HORIZONTAL Condition

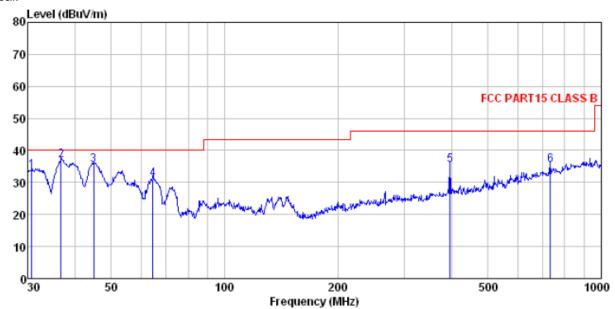
: 1405RF : PC mode Job No. Test Mode Test Engineer: Blue

	Freq		Antenna Factor					Over Limit	Remark
	MHz	dBu∜	dB/m	dB	dB	dBuV/m	dBuV/m	<u>dB</u>	
1	46.503					26.89			
2	63.983	46.00	14.88	0.89	31.92	29.85	40.00	-10.15	QP
3	138.874	45.37	11.40	1.50	31.94	26.33	43.50	-17.17	QP
4	207.850	44.85	13.84	1.89	32.14	28.44	43.50	-15.06	QP
5	396.242	53.84	17.01	2.83	31.90	41.78	46.00	-4.22	QP
6	942.131	38.48	23.95	5.01	31.21	36.23	46.00	-9.77	QΡ

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#### Vertical:



: 3m chamber : FCC PART15 CLASS B 3m VULB9163 -2012-05 VERTICAL : 1405RF : PC mode Condition

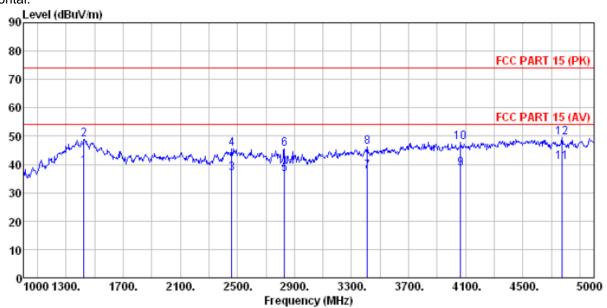
Job No. Test Mode Test Engineer: Blue

	Freq		Antenna Factor					Over Limit	Remark
	MHz	dBu∜	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.745	49.30	15.79	0.56	32.06	33.59	40.00	-6.41	QP
2	36.766	52.01	16.17	0.63	32.06	36.75	40.00	-3.25	QP
3	44.901	50.20	16.56	0.72	32.01	35.47	40.00	-4.53	QP
4	64.433	47.49	14.60	0.90	31.91	31.08	40.00	-8.92	QP
5	396.242	47.55	17.01	2.83	31.90	35.49	46.00	-10.51	QP
6	731.920	40.18	22.24	4.20	31.24	35.38	46.00	-10.62	QP



#### Above 1GHz

#### Horizontal:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL Condition

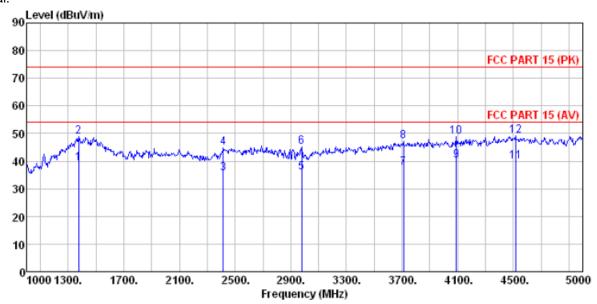
: 1405RF : PC mode Job No. Test mode Test Engineer: Blue

	Freq		Antenna Factor		Preamp Factor		Limit Line	Over Limit	Remark
	MHz	dBu∜	<u>d</u> B/m	āĒ		dBuV/m	dBuV/m	<u>d</u> B	
1	1425.000	31.50	25.47	4.63	22.42	39.18	54.00	-14.82	Average
2	1425.000	41.28	25.47	4.63	22.42	48.96	74.00	-25.04	Peak
3	2460.000	33.79	27.49	5.45	29.99	36.74	54.00	-17.26	Average
4	2460.000	42.66	27.49	5.45	29.99	45.61	74.00	-28.39	Peak
5	2830.000	32.70	28.39	5.78	30.19	36.68	54.00	-17.32	Average
6	2830.000	41.67	28.39	5.78	30.19	45.65	74.00	-28.35	Peak
7	3410.000	30.49	28.64	6.78	28.36	37.55	54.00	-16.45	Average
8	3410.000	38.94	28.64	6.78	28.36	46.00	74.00	-28.00	Peak
9	4065.000	27.10	29.83	7.93	26.37	38.49	54.00	-15.51	Average
10	4065.000	36.43	29.83	7.93	26.37	47.82	74.00	-26.18	Peak
11	4775.000	24.59	31.75	8.58	24.22	40.70	54.00	-13.30	Average
12	4775.000	33.29	31.75	8.58	24.22	49.40	74.00	-24.60	Peak

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#### Vertical:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL Condition

Job No. : 1405RF Test mode : PC mode Test Engineer: Blue

est	Engineer:								
		Read	Ant enna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	•								
	MHz	dBu∀	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
	Julia	ша,	ш, ж			шат, ж	ши, ж		
1	1375.000	30.40	25.65	4.60	21.35	39.30	54.00	-14.70	Average
2	1375.000	40.02	25.65	4.60	21.35	48.92	74.00	-25.08	Peak
3	2415.000	32.60	27.55	5.41	30.12	35.44	54.00	-18.56	Average
4	2415.000	42.09	27.55	5.41	30.12	44.93	74.00	-29.07	Peak
5	2980.000	31.31	28.45	5.91	29.97	35.70	54.00	-18.30	Average
6	2980.000	40.63	28.45	5.91	29.97	45.02	74.00	-28.98	Peak
7	3710.000	28.46	29.25	7.36	27.47	37.60	54.00	-16.40	Average
8	3710.000	37.90	29.25	7.36	27.47	47.04	74.00	-26.96	Peak
9	4090.000	28.55	29.89	7.95	26.26	40.13	54.00	-13.87	Average
10	4090.000	37.37	29.89	7.95	26.26	48.95	74.00	-25.05	Peak
11	4515.000	24.62	31.37	8.36	24.60	39.75	54.00	-14.25	Average
12	4515.000	33.88	31.37	8.36	24.60	49.01	74.00	-24.99	Peak

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