Declaration of Compliance

CFR 47 Part 15 Subpart B

Test Report File No.	13-IST-0218	■ Basic	☐ Alternate
Date of Receipt	February 20, 2013	Begin of test date	February 26, 2013
Date of Issue	March 27, 2013	End of test date	March 12, 2013

Kind of Product	Portable Multimedia Player
Basic Model(s)	ITQ700
FCCID	QDMITQ700

Applicant	IRIVER LIMITED.
Address	iriverhouse, 902-5, Bangbae-dong, Seocho-gu, Seoul, Korea
Manufacturer	IRIVER LIMITED.
Address	iriverhouse, 902-5, Bangbae-dong, Seocho-gu, Seoul, Korea

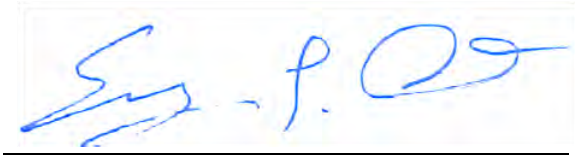
Standard	**Section 15.107, Section 15.109 [Class B Equipment]**

Test Result ■ **Positive** ☐ **Negative**

Tested By

B.O. KO.

Reviewed By



S.J.CHO

Comment(s)

- Investigations requested : Measurement to the relevant clauses of FCC rules and regulations Part 15 Subpart B – Unintentional Radiators, Class B.
- The test report with appendix consists of 17 pages.
- The test result only responds to the tested sample.
- It is not allowed to copy this report even partly without the allowance of IST EMC Laboratory.
- This equipment as for has been shown to be capable of continued compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4

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INFORMATIONS OF TEST LABORATORY

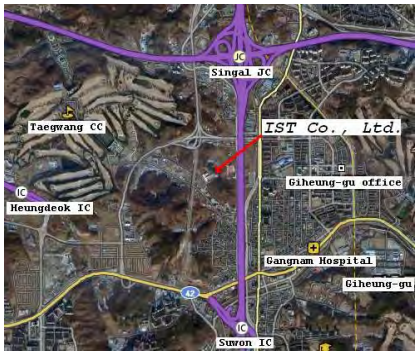
EMC LABORATORY of IST Co., Ltd.

400-19, Singal-dong, Giheung-gu, Yongin-si,

Kyonggi-Do, 446-599, Korea

TEL : +82 31 326 6700 FAX : +82 31 326 6797

KOLAS Testing No. : KT118
RRA & FCC(DoC) Designation No. : KR0018
FCC Registration No. : 400603
VCCI Member No. : 1739



Measurement Uncertainty

Conducted Emissions	U = 2.98 [dB] (Confidence level approximately 95 %, k = 2)
Radiated Emissions (Antenna - Horizontal)	U = 3.83 [dB] (Confidence level approximately 95 %, k = 2)
Radiated Emissions (Antenna - Verical)	U = 4.50 [dB] (Confidence level approximately 95 %, k = 2)

PRODUCT INFORMATION

Portable Multimedia Player

		7inch
Product	Denomination	NA
	Region	Korea
Chipset	CPU	NVIDIA T30L Quad-core Cortex-A9 1.3/1.2GHz
	Audio Codec	Yes
OS	Android	Android 4.1 Jelly Bean
Memory	DRAM	1GB DDR3L
	eMMC	8GB/16GB
Display & TP module	LCD size & resolution	7" 1280x800 WXGA IPS
	TP Type	Capactive
	Multi-touch	Yes, 5-points gesture
Camera	Front	2M (Fixed Focus)
	Rear	N/A

Audio I/O	Microphone	Yes
	Speakers	Stereo, built-in
Connectivity	WiFi	Yes, 802.11b/g/n, TI WL1281
	Bluetooth	Yes, BT4.0 BLE, TI WL1281
	GPS	Yes, TI WL1281
	3G/LTE	Optional
Sensors	Ambient Light Sensor	No
	Proximity	No
	3-axis Accelerometer	Yes, ST LSM303D
	e-Compass	Yes, ST LSM303D
	Gyroscope	No
Codec	Audio	Check T30L Codec sheet
	Image	
	Video	
Buttons	Physical Buttons	Power, Volume Up, Volume Down
	Virtual Key (labeled on TP)	No
Battery	Capacity	4000mAH Li-Polymer (base on ID)
SIM Card	SIM Card Socket	Yes, for 3G model
External Interfaces	MicroSD slot	Yes, up to 32GB microSDHC
	Earphone jack	Yes, 3.5mm
	DC-Jack (charging)	No
	MicroUSB	Yes. Slave, support charging thru USB adapter
	Mini HDMI	Yes
	System Docking Connector	No
Certifications	CE	Yes
	FCC	Yes
	RoHS	Yes
	GMS	No
Service	OTA update	Yes

- EMC suppression device is not used during the test.
- Please refer to user's manual.

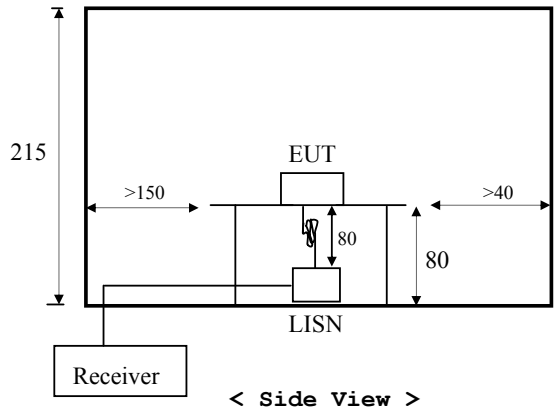
DESCRIPTIONS OF TEST

Conducted Emissions:

The measurement were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω/50uH LISN as the input transducer to a Spectrum Analyzer or a Field Intensity Meter. The measurements were made with the detector set for "Peak" amplitude within a bandwidth of 10KHz or for "quasi-peak" & "Average" within a bandwidth of 9 KHz.

-Procedure of Test

The line-conducted facility is located inside a shielded room No.1. A 1 m X 1.5 m wooden table 80 cm height is placed 40 cm away from the vertical wall and 1.5 m away from the other wall of the shielded room. The R/S ESH3-Z5 and Hyup-Rip KNW-407 LISN are bonded to bottom of the shielded room. The EUT is located on the wooden table with distance more than 80 cm from the LISN and powered from the Hyup-Rip LISN. The peripheral equipment is powered from the other LISN. Power to the LISNs are filtered by a noise cut power line filters. All electrical cables are shielded by braided tinned steel tubing with inner ϕ 1.2 cm. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply lines will be connected to the Hyup-Rip LISN. All interconnected cables more than 1 m were shortened by non-inductive bundling to a 1 m length. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating conditions. The RF output of the LISN was connected to the R/S receiver to determine the frequency producing the maximum emission from the EUT. The frequency producing the maximum level was reexamined using Quasi-Peak mode by manual measurement, after scanned by automatic Peak mode for frequency range from 0.15 to 30 MHz. The bandwidth of the receiver was set to 10 kHz. The EUT, peripheral equipment, and interconnecting cables were arranged and manipulated to maximize each EME emission.



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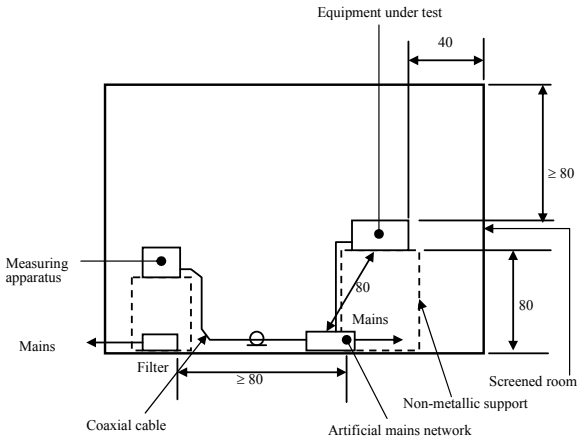


< Concept Drawing >

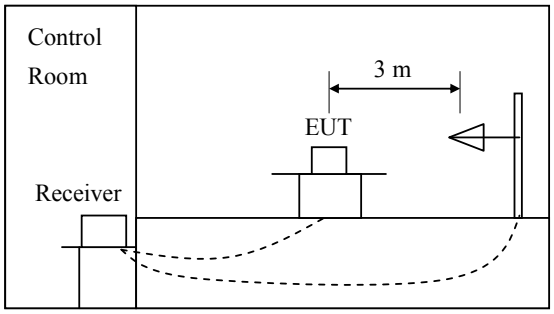
DESCRIPTION OF TEST

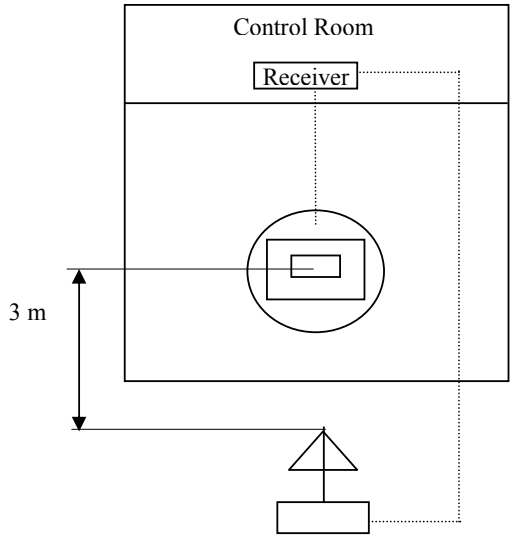
Radiated Emissions:

The measurement was performed over the frequency range of 30 MHz to 1 GHz using antenna as the input transducer to a Spectrum analyzer or a Field Intensity Meter. The measurement was made with the detector set for "quasi-peak" within a bandwidth of 120 KHz.

-Procedure of Test

Preliminary measurements were made at 3 meter using bi-log antennas, and spectrum analyzer to determine the frequency producing the max. emission in anechoic chamber. Appropriate precaution was taken to ensure that all emission from the EUT were maximized and investigated. The system configuration, mode of operation, turn-table azimuth and height with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 MHz to 1000 MHz using S/B bi-log antenna. Above 1 GHz, linearly polarized double ridge horn antennas were used. Final measurements were made at open site with 3-meters test distance using S/B bi-log antenna. The OATS have been verified in regular for its normalized site attenuation. The test equipment was placed on a wooden table. Sufficient time for the EUT, peripheral equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined by manual. The detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120 kHz or 1 MHz depending on the frequency of type of signal. The EUT, peripheral equipment and interconnecting cables were re-configured to the set-up producing the max. emission for the frequency and were placed on top of a 0.8-meter high nonmetallic 1 x 1.5 meter table. The EUT, peripheral equipment, and interconnecting cables were re-arranged and manipulated to maximize each emission. The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying the mode of operation to the EUT and/or peripheral equipment and changing the polarity of the antenna, whichever determined the worst-case emission.





Equipment Under Test

EUT Type :

■ Table-Top. ☐ Floor-Standing.
☐ Table-Top and Floor-Standing(Combination).

Operation – mode of the E.U.T. :

The equipment under test was operated during the measurement under following conditions :

☐ Standby Mode
■ Operational Condition : File up/down mode, Operation mode

Configuration of the equipment under test :

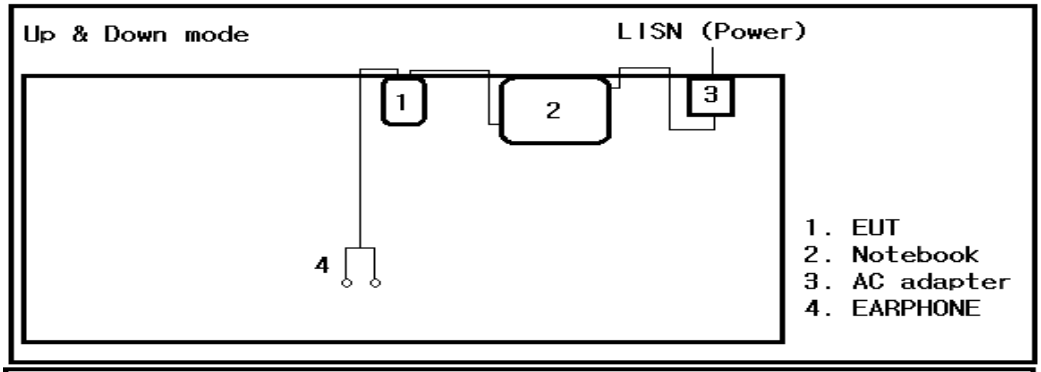
Following peripheral devices and interface cables were connected during the measurement :

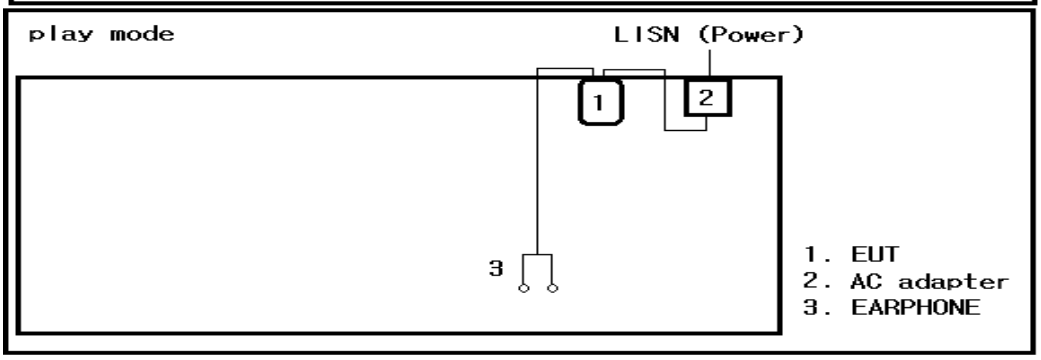
Equipment	Type	Brand	Serial No.
ITQ700	ITQ700	IRIVER LIMITED	N/A
AC Adapter	KSAPK011050020OHO	KUANTECH(BEIHAI)	N/A
Notebook PC	XNote R510	LG.	904QTBR02037
Earphone	N/A	N/A	N/A
AC Adapter	PA-1900-08	LG.	9302466702
Micro SD Memory	N/A	SanDisk	N/A

Connecting Interface Cables :
- Unshielded AC Power Cable : 1.8m (unshielded)
- Earphone cable : 1.3m (unshielded)
- USB cable : 1.0m (unshielded)

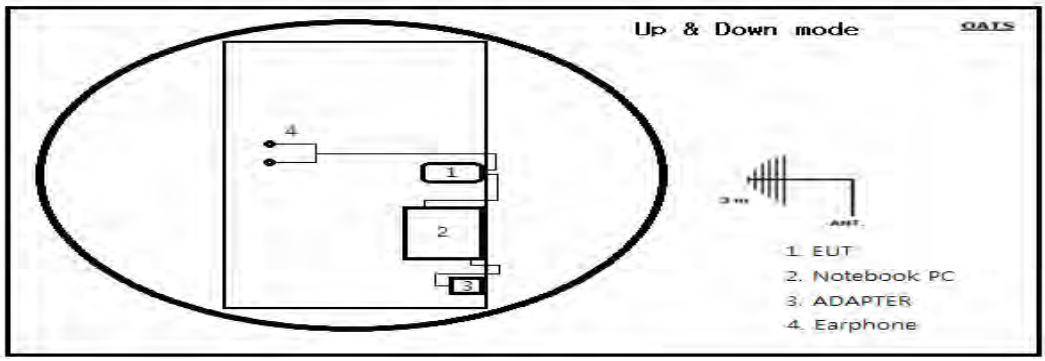
Note :

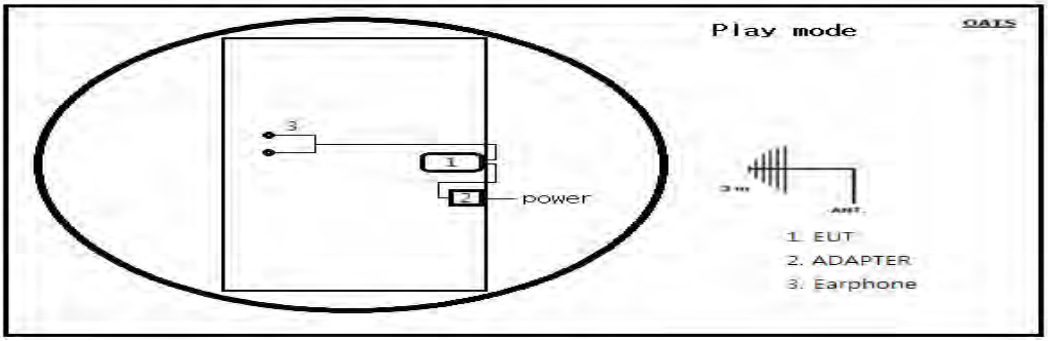
Test Set-Up





Conducted Emissions





Radiated Emissions

SUMMARY

Emissions

■ Conducted Emission

The requirements are	● MET ○ Not MET
Minimum limit margin	3.13 dB at 23.338 MHz
Maximum limit exceeding	

Remarks : Limits are kept with more than 3 dB margin.

■ Radiated Emission

The requirements are	● MET ○ Not MET
Minimum limit margin	13.14 dB at 76.562 MHz
Maximum limit exceeding	

Remarks : Limits are kept with more than 3 dB margin.

Sample Calculation

Conducted Emission

Sample Signal Strength Calculation

S(Result) = Measurement + IL + CL
Margin = Limit – S(Result)

S(Result) = Signal Strength
Measurement = Voltage at the Receiver
IL = LISN Insertion Loss
CL = Cable Loss

For example at 15.402 MHz if the measured voltage is 45.35 dBuV, the Cable loss is 0.15 dB, the insertion loss is 0.74 dB, the signal strength would be calculated:

S(Result) = 45.35 + 0.15 + 0.74 = 46.24 dBuV
Margin = 60 dBuV – 46.24 dBuV = 13.76 dB

Radiated Emission

Sample Field Strength Calculation

FS(Result) = Reading + AF + CL
Margin = Limit – FS(Result)

FS(Result) = Field Strength
Reading = Measured Voltage at the Receiver
AF = Antenna Factor
CL = Cable Loss

For example at 240.000 MHz if the measured voltage is 21.70 dBuV with an antenna Distance of 3 meters, the field intensity would be calculated:

Limit[dBuV/m] = 200[uV/m] = 20log(200) = 46.00 dBuV/m

FS(Result) = 21.70 + 10.71 + 2.28 = 34.69 dBuV/m
Margin = 46.00 dBuV/m – 34.69 dBuV/m = 11.31 dB

TEST CONDITIONS AND DATA

Conducted Emissions

[Applicable]

◆ Test Equipment Used

Model Name	Description	Manufacture	Due Calibration	Serial No.
ESCI	Test Receiver	Rohde & Schwarz	May 11, 2013	100374
ESH2-Z5	LISN	Rohde & Schwarz	May 11, 2013	842966/007
ESH3-Z2	Pulse Limiter	Rohde & Schwarz	May 11, 2013	357.8810.52

◆ Test Accessories Used

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

◆ Environmental Conditions

Temperature	(17.8 ± 0.2) ℃
Humidity	(47.7 ± 0.2) % R.H.
Atmosphere pressure	1016 mbar

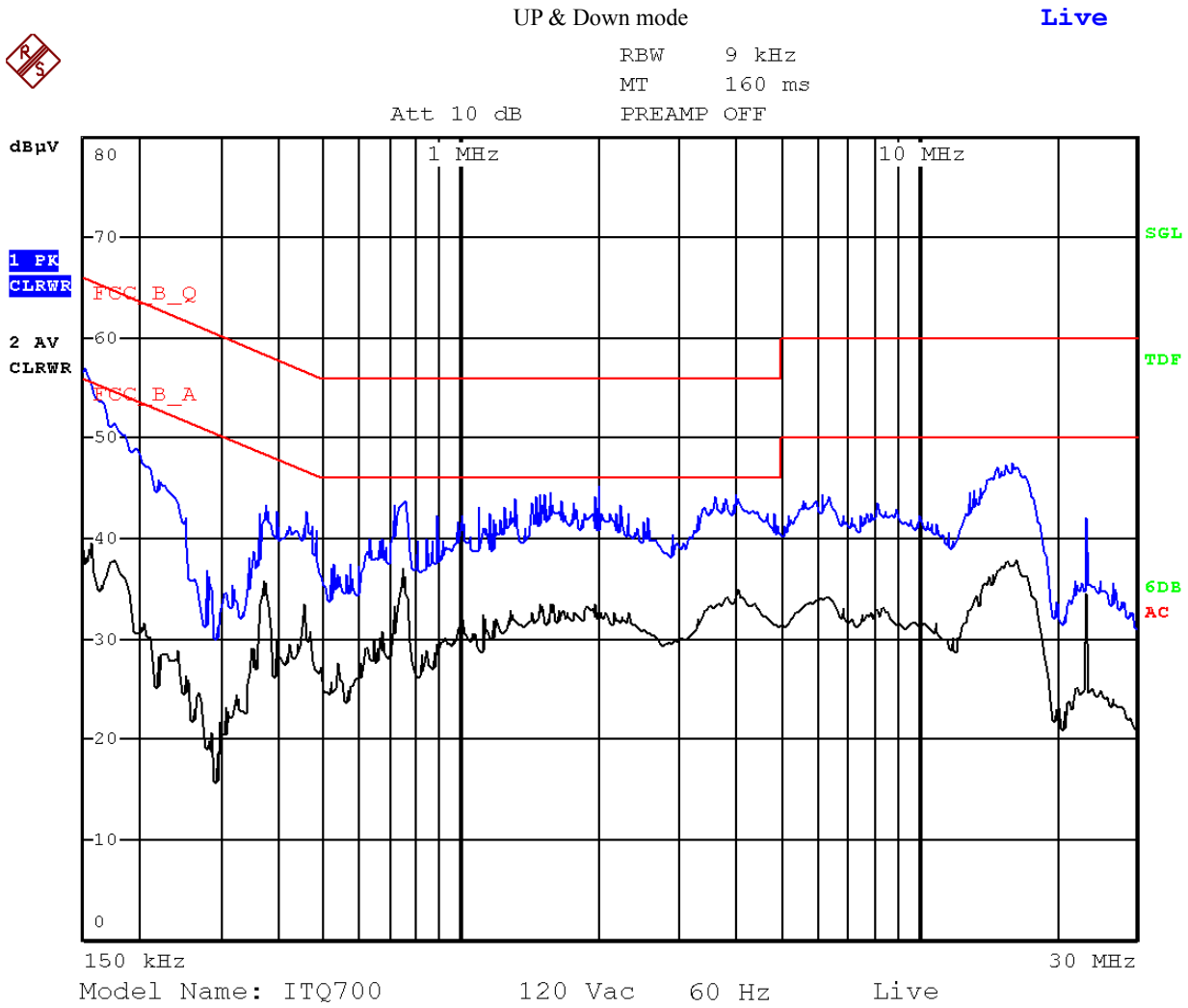
◆ Test Program — See the operation mode on page 6

◆ Test Area — Conducted Room #2

◆ Test Date — February 26, 2013

Note :

Conducted Emissions

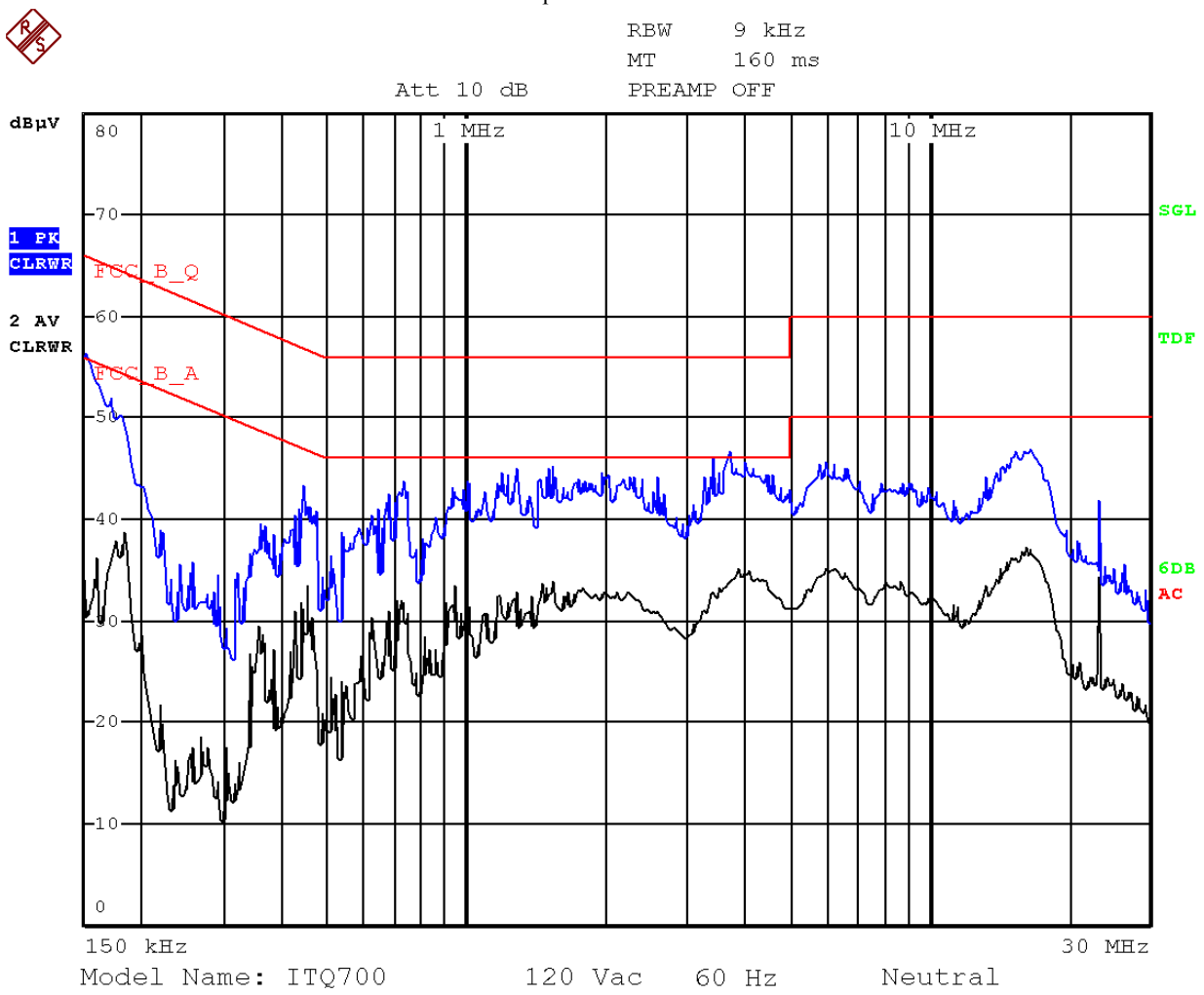


Freq. [MHz]	Measurement [dB µV]		Limit [dB µV]		Insertion Loss	Cable Loss	Result [dB µV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB]	Q-peak	Average	Q-peak	Average
0.150	54.23	39.04	66.00	56.00	0.15	0.03	54.41	39.22	11.59	16.78
0.374	41.04	36.65	58.41	48.41	0.16	0.04	41.24	36.85	17.17	11.56
0.758	40.92	37.16	56.00	46.00	0.18	0.05	41.15	37.39	14.85	8.61
2.002	37.65	32.54	56.00	46.00	0.23	0.07	37.95	32.84	18.05	13.16
16.126	42.47	37.13	60.00	50.00	0.22	0.17	42.86	37.52	17.14	12.48
23.346	40.12	35.61	60.00	50.00	0.06	0.20	40.38	35.87	19.62	14.13

Note : *File up/down mode.*

Conducted Emissions

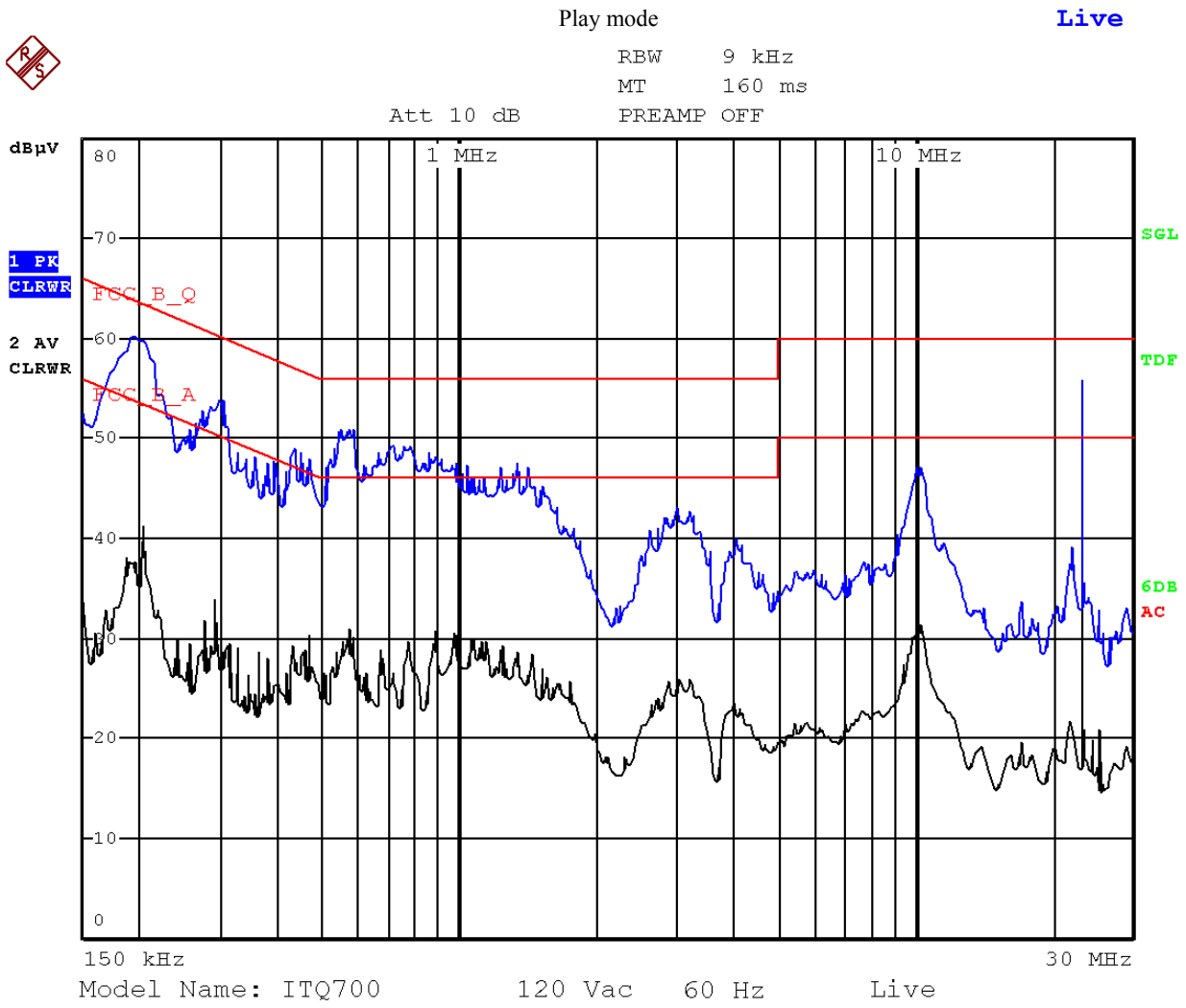
Up & Down mode **Neutral**



Freq. [MHz]	Measurement [dB µV]		Limit [dB µV]		Insertion Loss	Cable Loss	Result [dB µV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB]	Q-peak	Average	Q-peak	Average
0.150	53.37	36.85	66.00	56.00	0.12	0.03	53.52	37.00	12.48	19.00
0.442	36.51	29.56	57.02	47.02	0.13	0.04	36.68	29.73	20.34	17.29
1.542	37.86	31.95	56.00	46.00	0.18	0.07	38.11	32.20	17.89	13.80
3.698	39.19	33.63	56.00	46.00	0.27	0.10	39.56	34.00	16.44	12.00
16.654	42.27	37.08	60.00	50.00	0.22	0.18	42.67	37.48	17.33	12.52
23.350	38.94	32.17	60.00	50.00	0.14	0.20	39.27	32.50	20.73	17.50

Note *: File up/down mode.*

Conducted Emissions

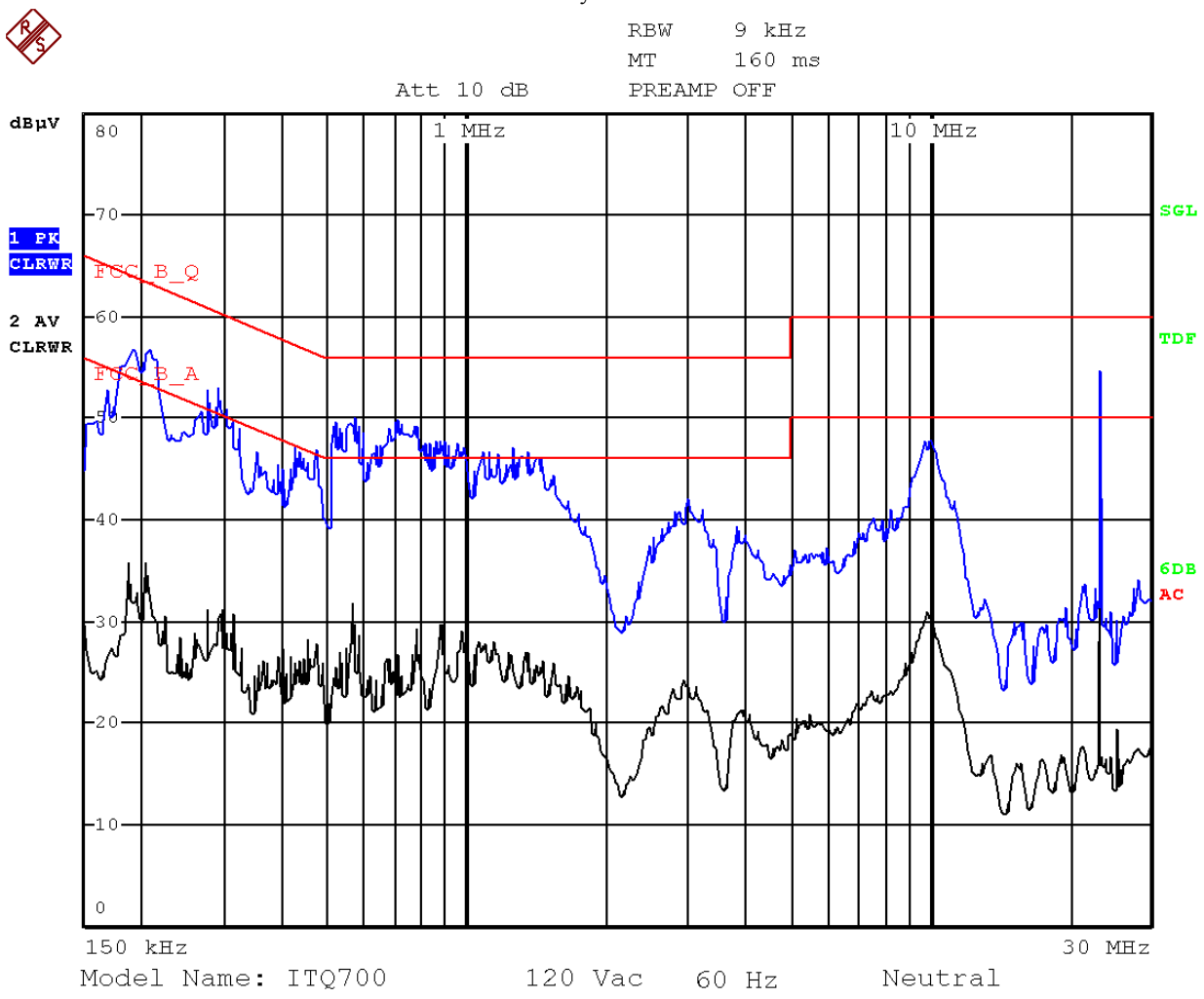


Freq. [MHz]	Measurement [dB µV]		Limit [dB µV]		Insertion Loss	Cable Loss	Result [dB µV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB]	Q-peak	Average	Q-peak	Average
0.194	54.54	36.57	63.86	53.86	0.16	0.02	54.72	36.75	9.14	17.11
0.302	47.03	30.12	60.19	50.19	0.16	0.03	47.22	30.31	12.97	19.88
0.574	46.92	31.25	56.00	46.00	0.17	0.03	47.12	31.45	8.88	14.55
2.994	35.75	24.38	56.00	46.00	0.27	0.07	36.09	24.72	19.91	21.28
10.326	39.12	28.24	60.00	50.00	0.47	0.14	39.73	28.85	20.27	21.15
23.338	56.61	44.63	60.00	50.00	0.06	0.20	56.87	44.89	3.13	5.11

Note : *Play mode.*

Conducted Emissions

Play mode **Neutral**



Freq. [MHz]	Measurement [dB µV]		Limit [dB µV]		Insertion Loss	Cable Loss	Result [dB µV]		Margin [dB]	
	Q-peak	Average	Q-peak	Average	[dB]	[dB]	Q-peak	Average	Q-peak	Average
0.190	52.76	33.29	64.04	54.04	0.12	0.02	52.90	33.43	11.14	20.61
0.290	46.17	30.32	60.52	50.52	0.13	0.03	46.33	30.48	14.20	20.05
0.574	46.91	31.25	56.00	46.00	0.14	0.03	47.08	31.42	8.92	14.58
3.006	35.12	22.41	56.00	46.00	0.24	0.07	35.43	22.72	20.57	23.28
9.994	41.66	29.06	60.00	50.00	0.46	0.14	42.26	29.66	17.74	20.34
23.338	55.43	44.92	60.00	50.00	0.14	0.20	55.76	45.25	4.24	4.75

Note *: play mode.*

TEST CONDITIONS AND DATA

Radiated Emission

[Applicable]

◆ Test Equipment Used

Model Name	Description	Manufacture	Due Calibration	Serial No.
ESCS30	Test Receiver	Rohde & Schwarz	May 10, 2013	100171
VULB 9160	Antenna	Schwarzbeck	July 19, 2013	3071
ESCI7	Test Receiver	Rohde & Schwarz	Jul. 16, 2013	100872
8449B OPT H02	Pre Amplifier	HP	Oct. 11, 2013	3008A0530
3115	Horn Ant.	EMCO	Nov. 21, 2013	9012-3602

◆ Test Accessories Used

Type	Manufacturer
Aneroid Barometer	Sato
Hygrometer	Sato

◆ Environmental Conditions

Temperature	(12.3 ± 0.2) ℃
Humidity	(53.2 ± 0.2) % R.H.
Atmosphere pressure	1016 mbar

◆ Test Program See the operational condition page 6.

◆ Test Area Full-Anechoic Room (3 m)

◆ Test Date March 05, 2013

Note :

Radiated Emissions

Below 1GHz

[Applicable]

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB/m]	Cable Loss [dB]	Polar. [H/V]	Limit [dBuV/m]	Result [dBuV/m]	Margin [dB]
36.793	7.60	11.35	1.02	V	40.00	19.97	-20.03
76.562	17.10	8.30	1.46	H	40.00	26.86	-13.14
165.805	9.80	12.58	2.15	H	43.50	24.53	-18.97
239.521	10.90	10.67	2.63	H	46.00	24.20	-21.80
257.953	13.20	11.38	2.72	V	46.00	27.30	-18.70
297.726	12.10	12.83	2.89	H	46.00	27.82	-18.18
475.231	9.40	17.31	3.70	V	46.00	30.41	-15.59

[File up/down mode]

Freq. [MHz]	Reading [dBuV]	Antenna Factor [dB/m]	Cable Loss [dB]	Polar. [H/V]	Limit [dBuV/m]	Result [dBuV/m]	Margin [dB]
30.352	13.50	11.38	1.05	V	40.00	21.33	-18.67
42.613	8.20	10.62	1.80	V	43.50	21.92	-21.58
60.075	7.80	12.18	2.16	H	43.50	24.94	-18.56
84.321	8.10	9.78	2.53	H	46.00	24.01	-21.99
146.405	7.60	10.67	2.63	H	46.00	27.70	-18.30
169.682	5.80	14.49	3.19	H	46.00	30.28	-15.72
476.201	12.10	15.96	3.46	V	46.00	28.22	-17.78

[play mode]

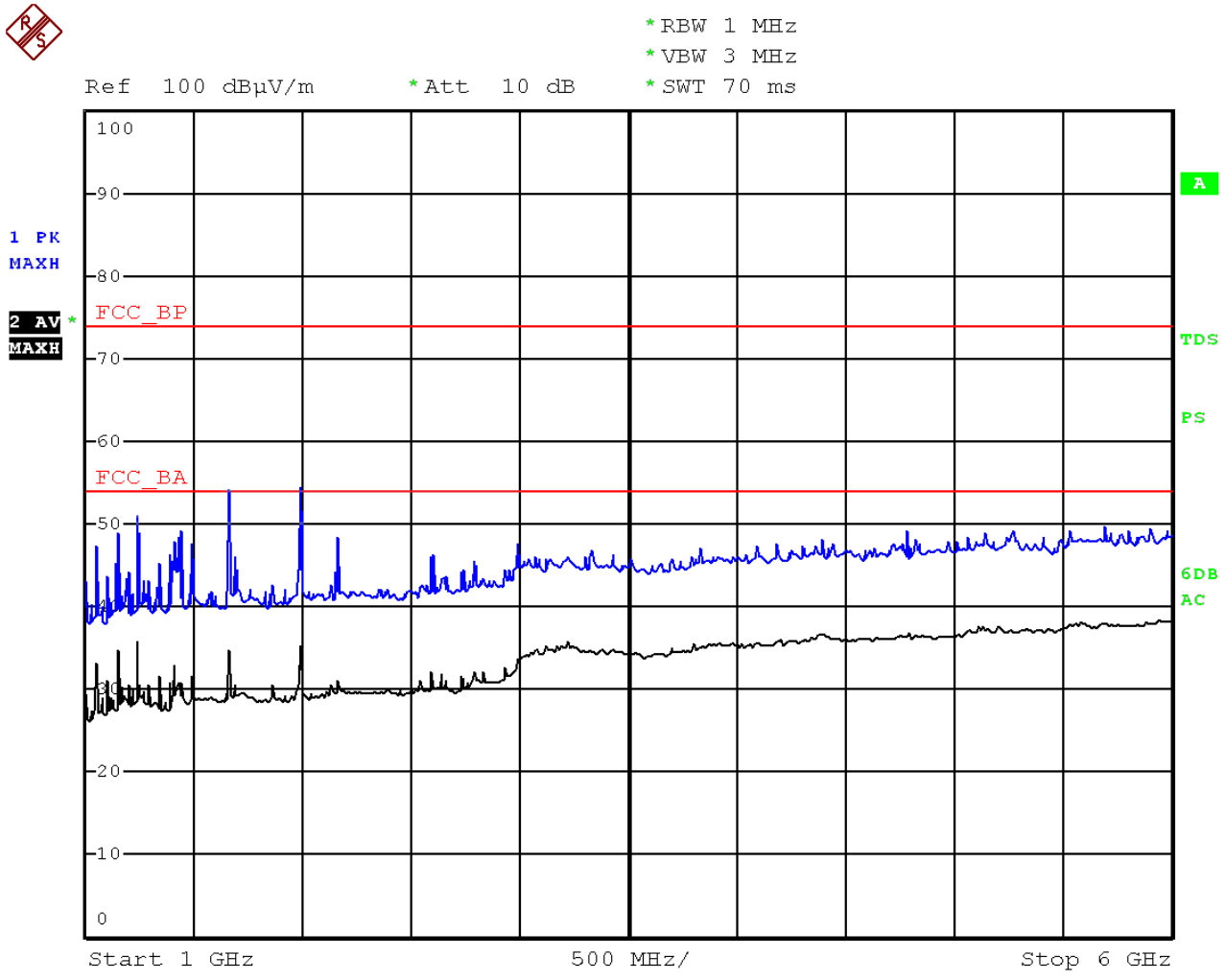
Note : Limits Below 1 GHz (3 m method)

Radiated Emissions

Above 1GHz

UP & Down mode

Vertical



Model Name: ITQ-700 120 Vac 60 Hz Vertical

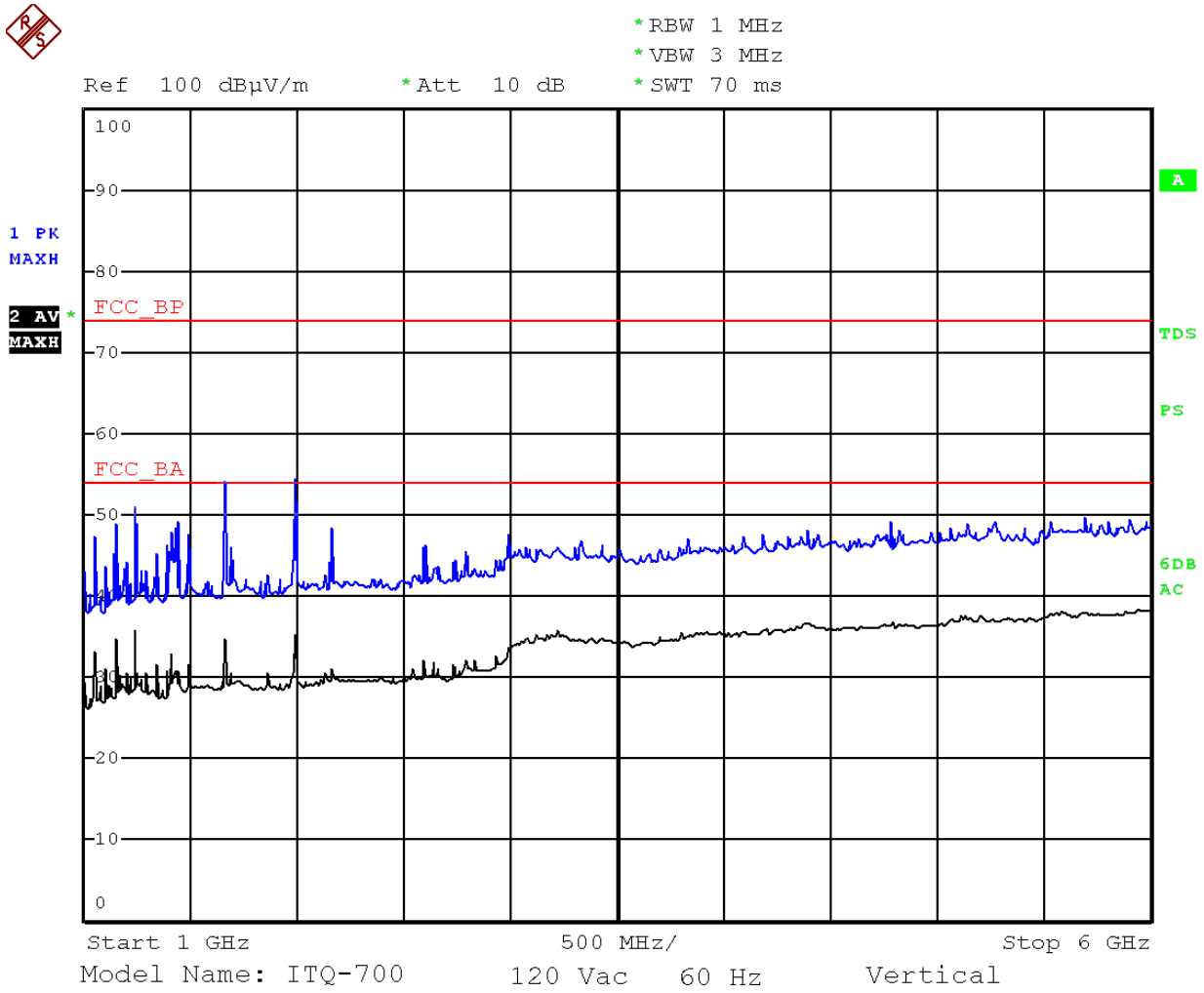
Freq. (GHz)	Reading (dBuV/m)		Ant. (cm)	Limits (dBuV/m)		Margin (dB)		Result
	Peak	Average		Peak	Average	Peak	Average	
1.052	47.26	33.23	100.00	74.00	54.00	22.74	16.77	Pass
1.154	49.09	35.18	100.00	74.00	54.00	20.91	14.82	Pass
1.243	51.17	35.86	100.00	74.00	54.00	18.83	14.14	Pass
1.662	54.19	34.73	100.00	74.00	54.00	15.81	15.27	Pass
1.993	54.42	35.30	100.00	74.00	54.00	15.58	14.70	Pass
4.784	49.26	36.41	100.00	74.00	54.00	24.74	17.59	Pass

Radiated Emissions

Above 1GHz

UP & Down mode

Horizontal



Model Name: ITQ-700 120 Vac 60 Hz Vertical

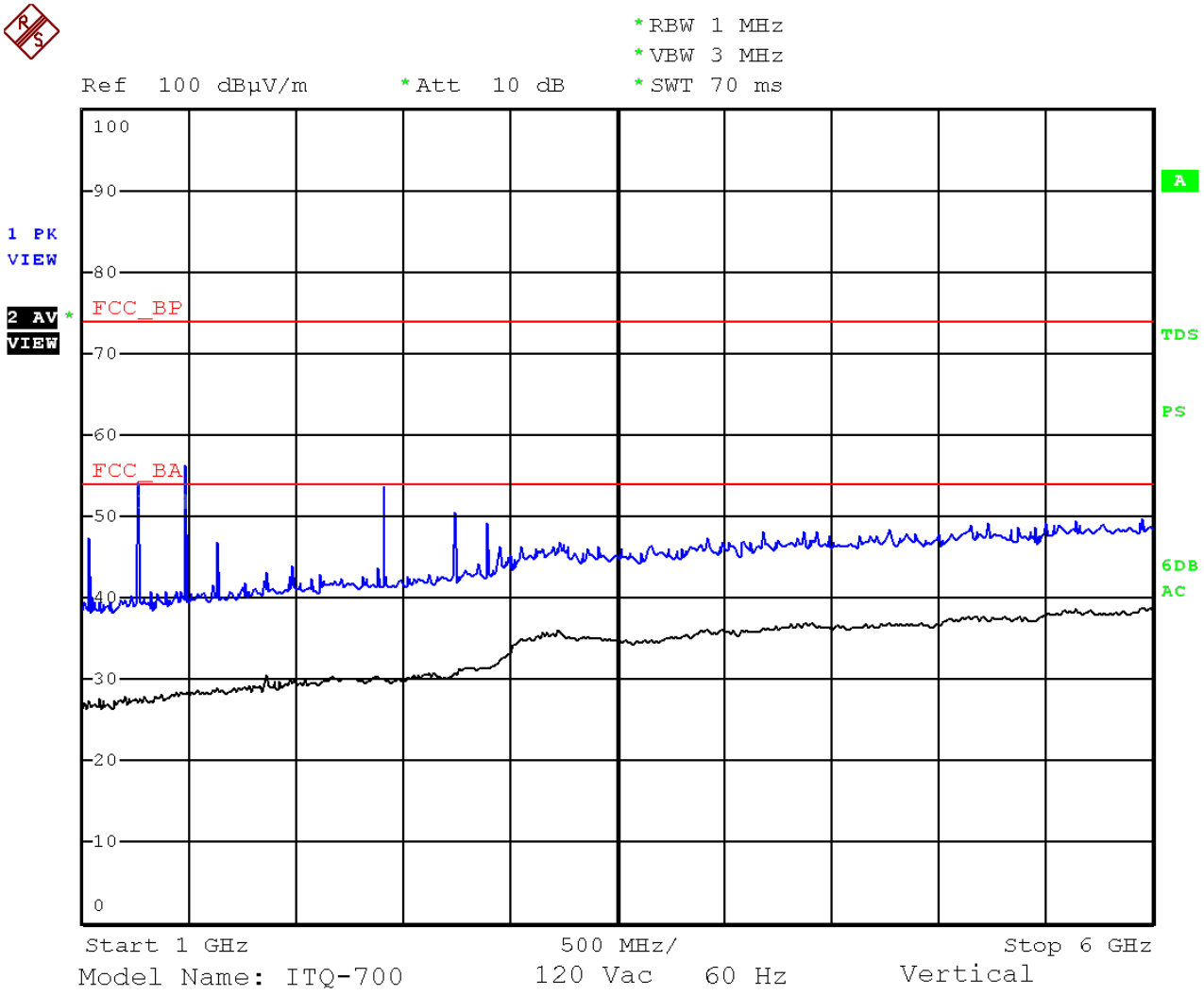
Freq. (GHz)	Reading (dBuV/m)		Ant. (cm)	Limits (dBuV/m)		Margin (dB)		Result
	Peak	Average		Peak	Average	Peak	Average	
1.053	46.58	32.91	100.00	74.00	54.00	23.42	17.09	Pass
1.152	45.61	32.26	100.00	74.00	54.00	24.39	17.74	Pass
1.241	47.72	33.28	100.00	74.00	54.00	22.28	16.72	Pass
1.344	47.31	32.92	100.00	74.00	54.00	22.69	17.08	Pass
1.863	47.80	34.79	100.00	74.00	54.00	22.20	15.21	Pass
1.991	49.96	32.80	100.00	74.00	54.00	20.04	17.20	Pass

Radiated Emissions

Above 1GHz

Play mode

Vertical



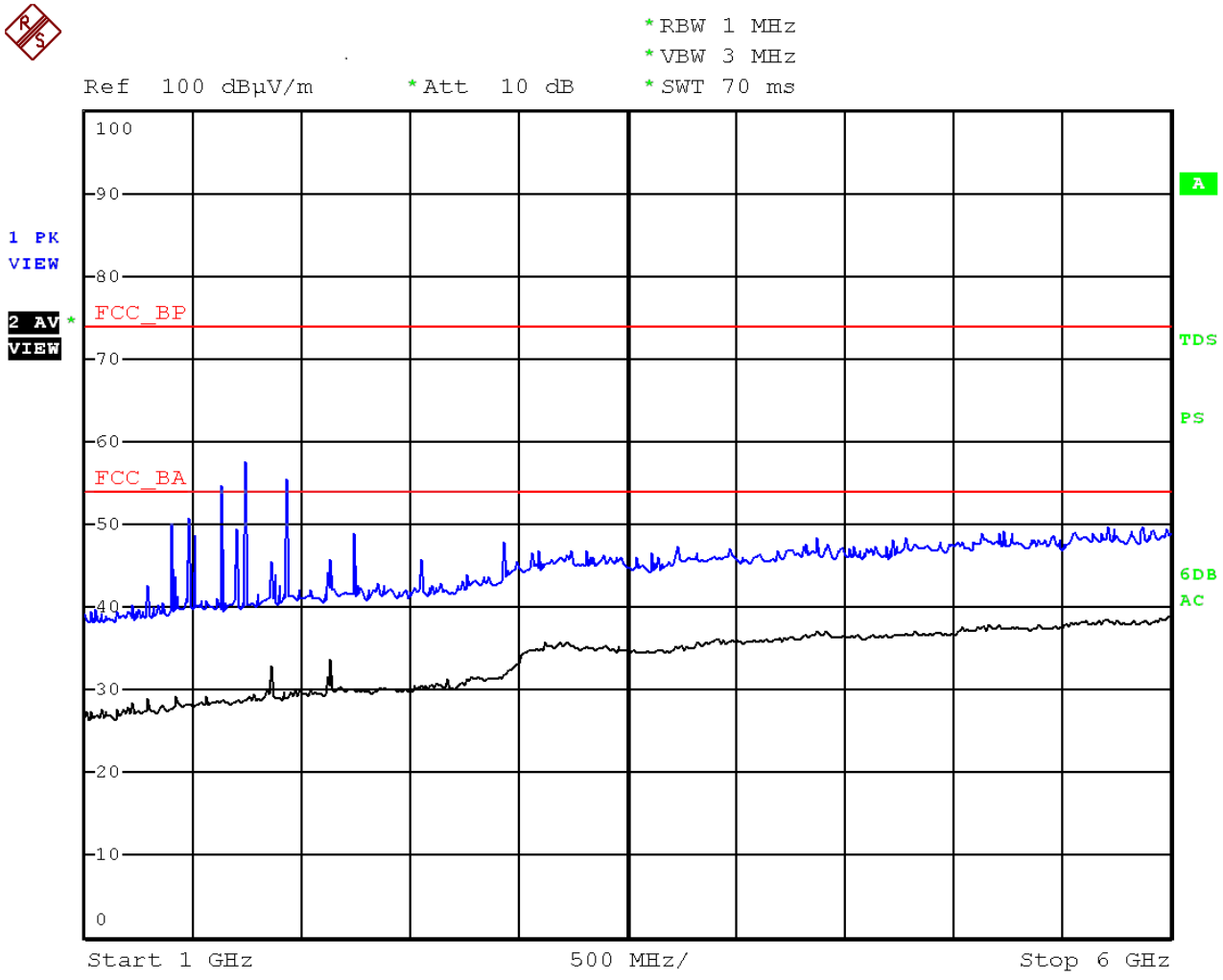
Freq. (GHz)	Reading (dBuV/m)		Ant. (cm)	Limits (dBuV/m)		Margin (dB)		Result
	Peak	Average		Peak	Average	Peak	Average	
1.032	47.28	27.37	100.00	74.00	54.00	22.72	22.63	Pass
1.264	54.02	27.23	100.00	74.00	54.00	15.98	22.77	Pass
1.481	56.25	28.18	100.00	74.00	54.00	13.75	21.82	Pass
1.632	46.95	28.89	100.00	74.00	54.00	23.05	21.11	Pass
2.743	50.42	30.81	100.00	74.00	54.00	19.58	19.19	Pass
4.774	48.35	36.81	100.00	74.00	54.00	25.65	17.19	Pass

Radiated Emissions

Above 1GHz

Play mode

Horizontal



Model Name: ITQ-700 120 Vac 60 Hz Horizontal

Freq. (GHz)	Reading (dBuV/m)		Ant. (cm)	Limits (dBuV/m)		Margin (dB)		Result
	Peak	Average		Peak	Average	Peak	Average	
1.402	50.07	27.57	100.00	74.00	54.00	19.93	22.43	Pass
1.481	50.68	28.23	100.00	74.00	54.00	19.32	21.77	Pass
1.633	54.82	29.08	100.00	74.00	54.00	15.18	20.92	Pass
1.744	57.63	28.71	100.00	74.00	54.00	12.37	21.29	Pass
1.935	55.38	29.09	100.00	74.00	54.00	14.62	20.91	Pass
2.241	48.99	30.13	100.00	74.00	54.00	21.01	19.87	Pass