TEST REPORT

Report Number: HK12030610-1

Application
for
Original Grant of 47 CFR Part 15 Certification

3 Lines Desk Phone with HD Voice

FCC ID: MZVIP-120

Prepared and Checked by:

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Location: Intertek Testing Services Hong Kong Ltd

Nip Ming Fung, Melvin
Senior Supervisor
April 05, 2012

GENERAL INFORMATION

Applicant Name:	Telefield Ltd.
Applicant Address:	Flat D, 2/F., Valiant Industrial Centre, 2-12 Au Pui Wan Street, Fo Tan, N.T., Hong Kong.
FCC Specification Standard:	FCC Part 15, October 1, 2010 Edition
FCC ID:	MZVIP-120
FCC Model(s):	IP110, IP110XXX-X, IP110-TC, IP110-TCXXX-X, IP120, IP120XXX-X, IP120-TC, IP120-TCXXX-X
Type of EUT:	Class B Personal Computers and Peripherals
Description of EUT:	3 Lines Desk Phone with HD Voice
Serial Number:	N/A
Sample Receipt Date:	January 18, 2012
Date of Test:	January 31 - February 03, 2012
Report Date:	April 05, 2012
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

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EXHIBIT 1
TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.0 Test Results Summary & Statement of Compliance

1.1 Summary of Test Results

Test Items	FCC Part 15 Section	Results	Details see section
Radiated Emission	15.109	Pass	4.2
Radiated Emission from Class B Personal Computers and Peripherals	15.109	Pass	4.2
AC Power Line Conducted Emission	15.107	Pass	4.3

This device complies with FCC Part 15 Verification

1.2 Statement of Compliance

The equipment under test is found to be complying with the following standard:

FCC Part 15, October 1, 2010 Edition

EXHIBIT 2
GENERAL DESCRIPTION

2.0 **General Description**

2.1 Product Description

The IP120 is a 3 Lines Desk Phone with HD Voice. The Base Unit is powered by an adaptor 100-240VAC to 7.5VDC 800mA.

For FCC, The Model(s): IP110, IP110XXX-X, IP110-TC, IP110-TCXXX-X, IP120XXX-X, IP120-TC and IP120-TCXXX-X are the same as the Model: IP120 in electrical designs including software & firmware, PCB layout and construction design/physical design/enclosure. The only differences between these models are model number, cosmetic details and package configuration. Moreover, Series of IP110 with HD voice and 2 lines, Series of IP120 with HD voice and 3 lines to be sold for marketing purpose. Suffix (XXX-X) represents that the 1^{st} (X) indicates brand and color, 2^{nd} (X) indicates package type, 3^{rd} (X) indicates number of handsets and 4^{th} (X) indicates version of models.

2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Preliminary radiated scans and all radiated measurements were performed in Open Area Test Sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

2.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data and conducted data are at Roof Top and 2^{nd} Floor respectively of Intertek Testing Services Hong Kong Ltd., which is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC.

EXHIBIT 3
SYSTEM TEST CONFIGURATION

3.0 **System Test Configuration**

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to transmit continuously / receive continuously / normal mode to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The EUT was powered by a 100-240VAC, 50/60Hz, 0.3A to 7.5VDC 800mA adaptor.

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the base unit attached to peripherals, they were connected and operational to simulate typical use.

For radiated measurement, the spectrum analyzer resolution bandwidth was 100 kHz for frequencies below 1000 MHz.

Radiated emission measurement was performed from the frequency 30MHz to 1GHz.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion were measured, and the limit are according to FCC Part 15 Section 15.109.

3.1 Justification - Cont'd

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in section 4.2.3.

Determination of pulse desensitization was made according to *Hewlett Packard Application Note 150-2, Spectrum Analysis... Pulsed RF.* The effective period (Teff) was referred to Exhibit 4.2.3. With the resolution bandwidth 100kHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

For AC line conducted emission test, the EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50ohm coupling impedance for measuring instrument. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

All relevant operation modes have been tested, and the worst case data is included in this report.

3.2 EUT Exercising Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

3.3 Details of EUT and Description of Accessories

Details of EUT:

An AC adaptor (provided with the unit) was used to power the device. Their description are listed below.

(1) Base Unit: An AC adaptor (100-240VAC to 7.5VDC 800mA, Model: SSA-10W-12 US 075080) (Supplied by Client)

Description of Peripherals:

(1) Telephone Headset with 1m long, Brand: PLANTRONICS (Supplied by Intertek)
(2) Smartdrive External Hard Disk, Model: HD3-SV2FW, S/N: 0800261, DoC Product (Supplied by Intertek)
(3) HP Notebook, Model: CPQNC2400, S/N: CNF638276D, DoC Product (Supplied by Intertek)
(4) 2 x CATS LAN unshielded cable with 1 meter long (Supplied by Intertek)
(5) BUFFALO Broad Band Router, Model: BBR-4HG, DoC product (Supplied by Client)

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

EXHIBIT 4
TEST RESULTS

4.0 **Test Results**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

4.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflects the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD +AV

<u>Example</u>
Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29 dB
PD = 0 dB
AV = -10 dB
FS = 62 + 7.4 +1.6 -29 +0 + (-10) = 32 dBμV/m

Level in μV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

4.2 Radiated Emissions

4.2.1 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at

Base Unit: 375.024 MHz

The worst case radiated emission configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.2.2 Radiated Emission Data

The data list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Base Unit: Passed by 2.5 dB margin

Model: IP120
Worst-Case: Speaker Talk (3 way conference) + PC data transfer

Data Table
Radiated Scan
Pursuant to FCC 15.109: Emissions Requirement

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	50.012	39.1	16	11.0	34.1	40.0	-5.9
V	62.550	40.1	16	10.0	34.1	40.0	-5.9
V	66.130	41.3	16	9.0	34.3	40.0	-5.7
V	73.890	44.4	16	6.0	34.4	40.0	-5.6
V	75.013	44.5	16	6.0	34.5	40.0	-5.5
V	100.014	37.8	16	12.0	33.8	43.5	-9.7
H	125.016	36.1	16	14.0	34.1	43.5	-9.4
H	150.016	36.2	16	14.0	34.2	43.5	-9.3
H	175.018	31.5	16	19.0	34.5	43.5	-9.0
H	200.014	34.6	16	16.0	34.6	43.5	-8.9
H	250.024	30.4	16	20.0	34.4	46.0	-11.6
H	275.026	36.6	16	22.0	42.6	46.0	-3.4
H	300.024	29.8	16	22.0	35.8	46.0	-10.2
H	350.029	28.1	16	24.0	36.1	46.0	-9.9
H	375.024	35.5	16	24.0	43.5	46.0	-2.5
H	400.026	28.4	16	24.0	36.4	46.0	-9.6
H	500.029	27.2	16	26.0	37.2	46.0	-8.8
H	625.028	23.8	16	29.0	36.8	46.0	-9.2
H	675.036	22.2	16	29.0	35.2	46.0	-10.8

Notes:
1. Peak detector is used for the emission measurement
2. Negative sign (-) in the margin column signify levels below the limit.
3. Only emissions significantly above equipment noise floor are reported.

4.3 AC Power Line Conducted Emission

[ ] Not applicable – EUT is only powered by battery for operation.

[×] EUT connects to AC power line. Emission Data is listed in following pages.

[ ] Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

4.3.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

0.474 MHz

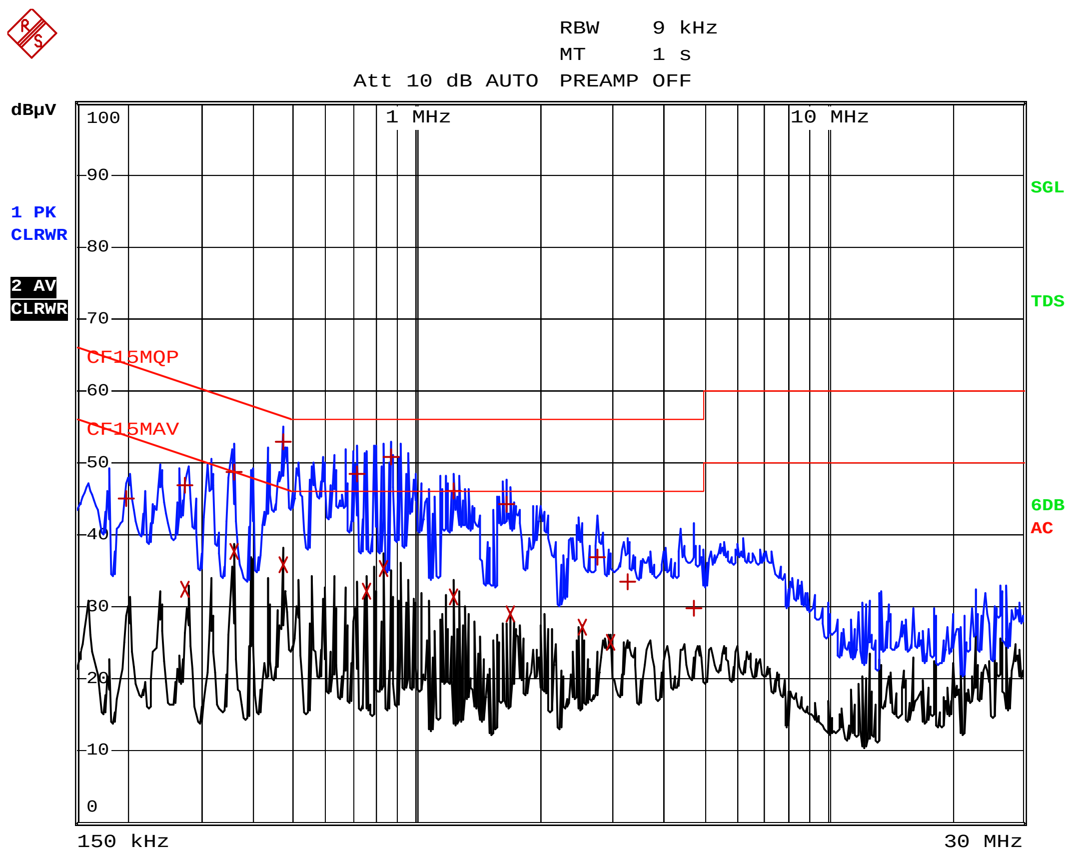
The worst case line conducted configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.3.2 AC Power Line Conducted Emission Data

The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance

Passed by 3.52 dB margin compare with quasi-peak limit

Model No.: IP120
Worst Case: Standby



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Model No.: IP120
Worst Case: Standby

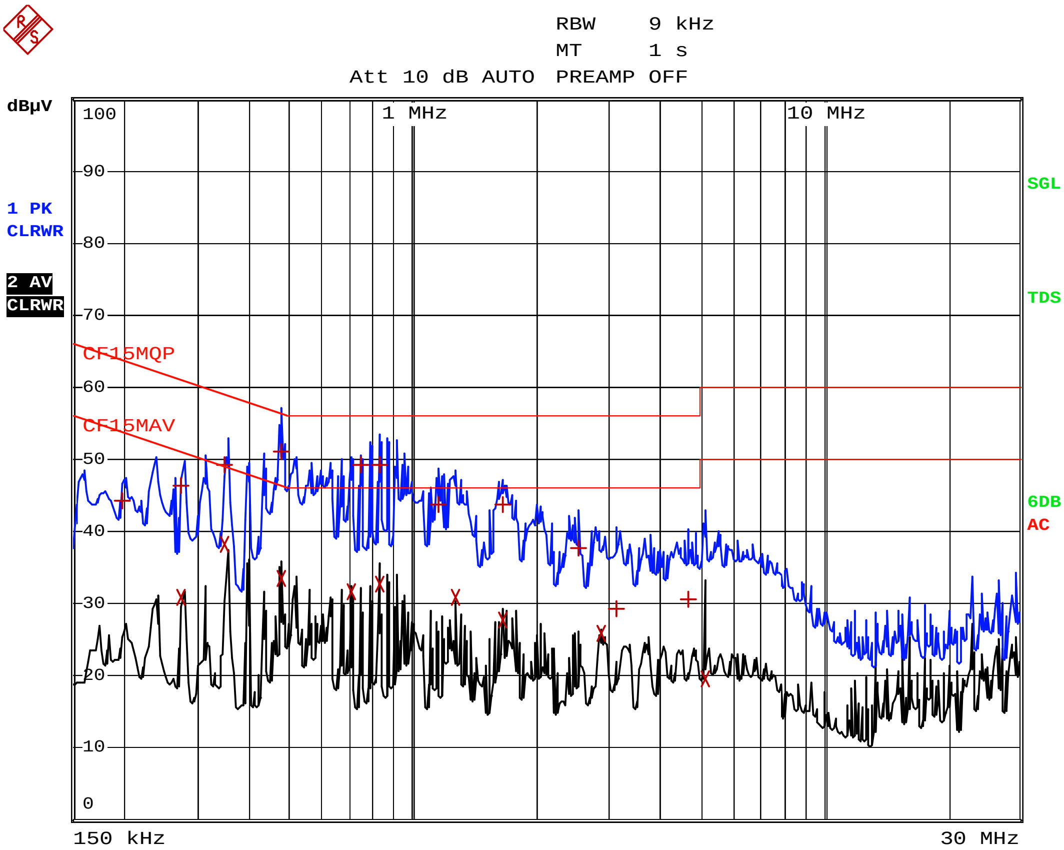
EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

TRACE		FREQUENCY	LEVEL dBμV		DELTA LIMIT dB
1	Quasi Peak	199.5 kHz	45.00	L1 gnd	-18.62
1	Quasi Peak	276 kHz	46.91	L1 gnd	-14.02
2	CISPR Average	276 kHz	32.39	L1 gnd	-18.54
1	Quasi Peak	357 kHz	48.58	N gnd	-10.21
2	CISPR Average	357 kHz	37.72	L1 gnd	-11.07
1	Quasi Peak	474 kHz	52.92	L1 gnd	-3.52
2	CISPR Average	474 kHz	35.82	L1 gnd	-10.62
1	Quasi Peak	712.5 kHz	48.44	L1 gnd	-7.55
2	CISPR Average	753 kHz	32.08	L1 gnd	-13.91
2	CISPR Average	829.5 kHz	35.35	L1 gnd	-10.64
1	Quasi Peak	870 kHz	50.79	N gnd	-5.20
1	Quasi Peak	1.2255 MHz	46.15	N gnd	-9.84
2	CISPR Average	1.2255 MHz	31.24	L1 gnd	-14.75
1	Quasi Peak	1.6575 MHz	44.19	N gnd	-11.80
2	CISPR Average	1.7025 MHz	28.92	L1 gnd	-17.07
2	CISPR Average	2.5305 MHz	27.13	L1 gnd	-18.86
1	Quasi Peak	2.7645 MHz	36.78	N gnd	-19.21
2	CISPR Average	2.967 MHz	25.12	L1 gnd	-20.87
1	Quasi Peak	3.2775 MHz	33.58	N gnd	-22.42
1	Quasi Peak	4.731 MHz	29.81	N gnd	-26.18

Date: 3.FEB.2012 18:21:27

Model No.: IP120
Worst Case: Ringing + PC Data Transfer



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Model No.: IP120
Worst Case: Ringing + PC Data Transfer

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	199.5 kHz	44.20	L1 gnd	-19.42
1	Quasi Peak	276 kHz	46.20	L1 gnd	-14.73
2	CISPR Average	276 kHz	30.91	L1 gnd	-20.01
1	Quasi Peak	352.5 kHz	49.21	N gnd	-9.68
2	CISPR Average	352.5 kHz	38.31	L1 gnd	-10.58
1	Quasi Peak	478.5 kHz	50.97	L1 gnd	-5.39
2	CISPR Average	478.5 kHz	33.59	L1 gnd	-12.77
2	CISPR Average	708 kHz	31.75	L1 gnd	-14.24
1	Quasi Peak	748.5 kHz	49.14	L1 gnd	-6.85
1	Quasi Peak	834 kHz	49.26	N gnd	-6.73
2	CISPR Average	834 kHz	32.62	L1 gnd	-13.37
1	Quasi Peak	1.149 MHz	43.67	L1 gnd	-12.32
2	CISPR Average	1.266 MHz	30.82	L1 gnd	-15.17
1	Quasi Peak	1.6575 MHz	43.72	N gnd	-12.27
2	CISPR Average	1.6575 MHz	27.78	L1 gnd	-18.22
1	Quasi Peak	2.535 MHz	37.62	N gnd	-18.37
2	CISPR Average	2.886 MHz	25.90	L1 gnd	-20.09
1	Quasi Peak	3.138 MHz	29.26	N gnd	-26.73
1	Quasi Peak	4.695 MHz	30.51	L1 gnd	-25.48
2	CISPR Average	5.1855 MHz	19.57	L1 gnd	-30.42

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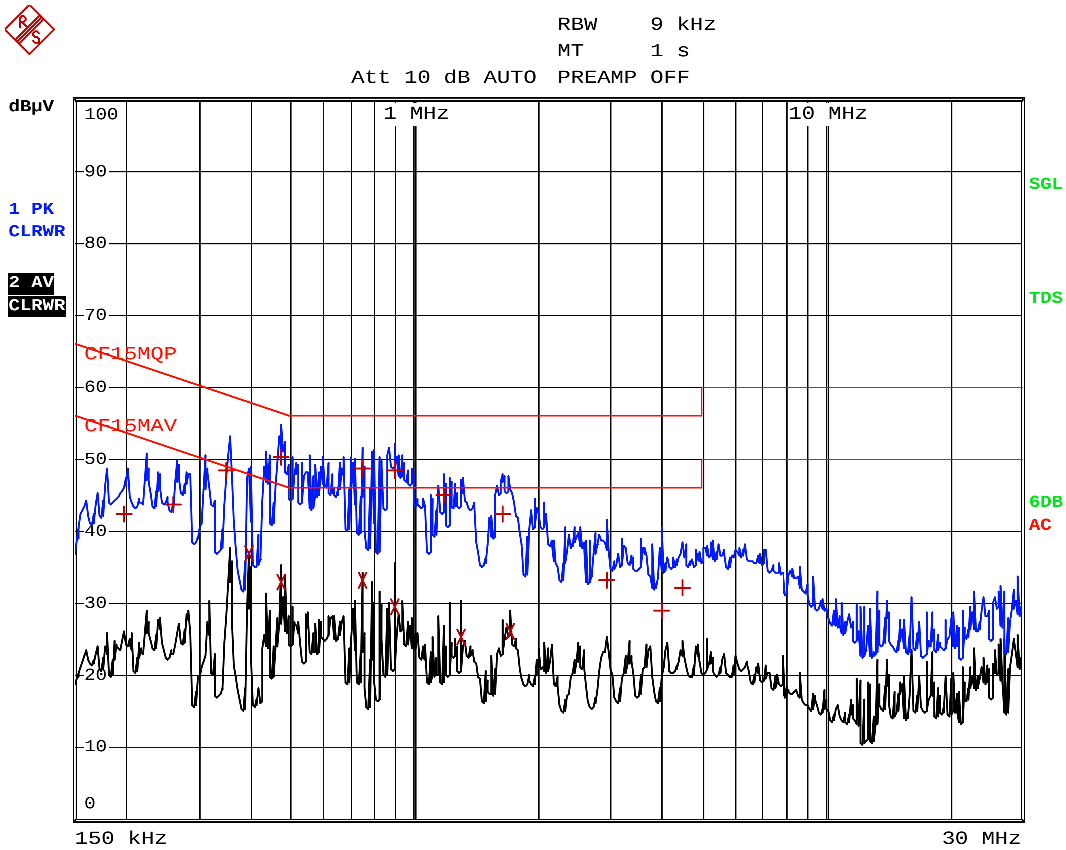
Model No.: IP120
Worst Case: Speaker Talk (3 Way Conference) + PC Data Transfer



Date: 3.FEB.2012 18:03:44

Model No.: IP120
Worst Case: Speaker Talk (3 Way Conference) + PC Data Transfer

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

TRACE		FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	199.5 kHz	42.48	L1 gnd	-21.14
1	Quasi Peak	262.5 kHz	43.69	L1 gnd	-17.65
1	Quasi Peak	352.5 kHz	48.53	N gnd	-10.37
2	CISPR Average	393 kHz	36.98	L1 gnd	-11.01
1	Quasi Peak	474 kHz	50.27	L1 gnd	-6.16
2	CISPR Average	474 kHz	33.00	L1 gnd	-13.44
1	Quasi Peak	748.5 kHz	48.77	L1 gnd	-7.22
2	CISPR Average	748.5 kHz	33.24	L1 gnd	-12.75
1	Quasi Peak	897 kHz	48.51	N gnd	-7.48
2	CISPR Average	897 kHz	29.53	L1 gnd	-16.47
1	Quasi Peak	1.185 MHz	44.90	N gnd	-11.09
2	CISPR Average	1.293 MHz	25.29	L1 gnd	-20.70
1	Quasi Peak	1.644 MHz	42.41	N gnd	-13.58
2	CISPR Average	1.7205 MHz	26.18	L1 gnd	-19.81
1	Quasi Peak	2.9355 MHz	33.12	N gnd	-22.87
1	Quasi Peak	4.0155 MHz	29.08	N gnd	-26.91
1	Quasi Peak	4.5105 MHz	32.22	L1 gnd	-23.77

Date: 3.FEB.2012 18:03:27

EXHIBIT 5
EQUIPMENT LIST

5.0 **Equipment List**

1) Radiated Emissions Test

Equipment	Biconical Antenna	Spectrum Analyzer (9kHz to 26.5GHz)	Log Periodic Antenna (200 - 1000)MHz
Registration No.	EW-0954	EW-2188	EW-0572
Manufacturer	EMCO	AGILENTTECH	EMCO
Model No.	3104C	E4407B	3146
Calibration Date	Oct. 18, 2011	Sep. 26, 2011	Nov. 15, 2011
Calibration Due Date	Apr. 18, 2013	Sep. 26, 2012	May. 15, 2013

2) Conducted Emissions Test

Equipment	EMI Test Receiver	Artificial Mains	Pulse Limiter
Registration No.	EW-2251	EW-0192	EW-0700
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	ESH3-Z5	ESH3-Z2
Calibration Date	May. 06, 2011	Nov. 30, 2010	Dec. 28, 2010
Calibration Due Date	May. 06, 2012	Feb. 29, 2012	Jun. 28, 2012

END OF TEST REPORT