MEASUREMENT REPORT
FCC Part 15B

FCC ID:	T2C-CP960
APPLICANT:	YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD
Application Type:	Certification
Product:	HD IP Conference Phone
Model No.:	CP960
Brand Name:	YEALINK
FCC Classification:	FCC Class B Digital Device (JBP)
FCC Rule Part(s):	FCC Part 15 Subpart B: 2016
Test Procedure(s):	ANSI C63.4: 2014
Test Date:	May 09 ~ 10, 2017

Reviewed By : Sunny Sun
(Sunny Sun)

Approved By : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2014. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
1705RSU00808	Rev. 01	Initial Report	06-19-2017	Invalid
1705RSU00808	Rev. 02	Revised the Test Configuration	06-22-2017	Valid

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Description Page

§2.1033 General Information

Applicant:	YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD
Applicant Address:	309, 3th Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China
Manufacturer:	YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD
Manufacturer Address:	309, 3th Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	809388
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	FCC Class B Digital Device (JBP)

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**

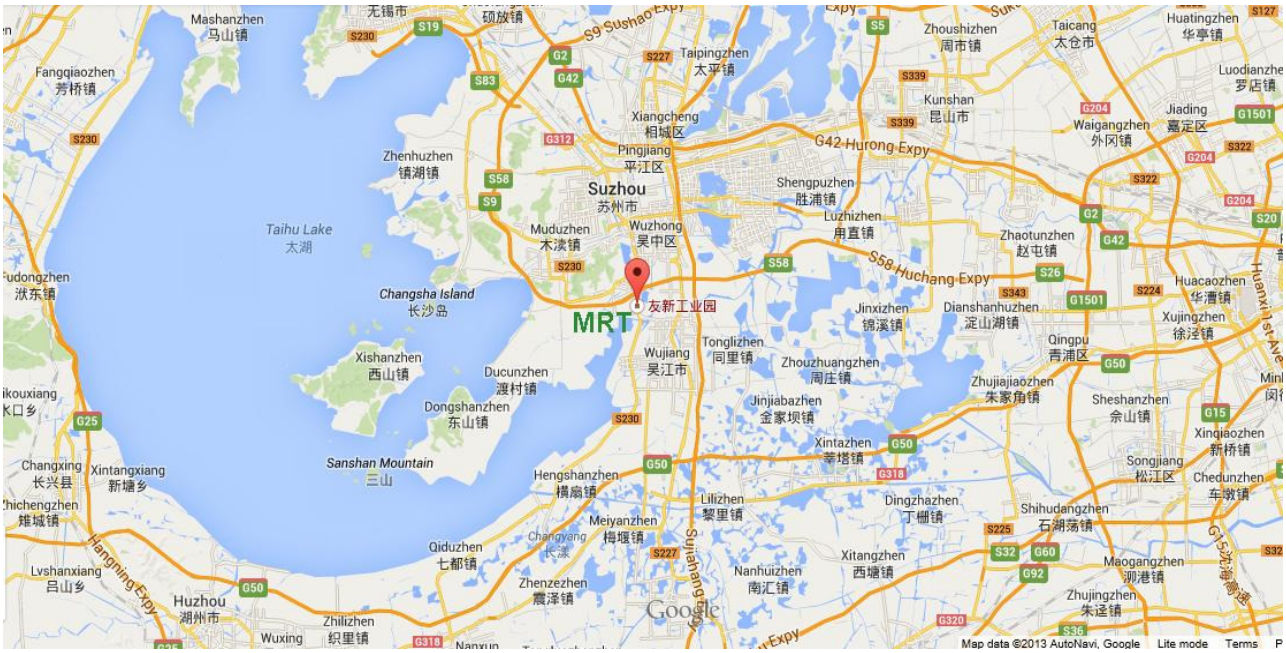
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

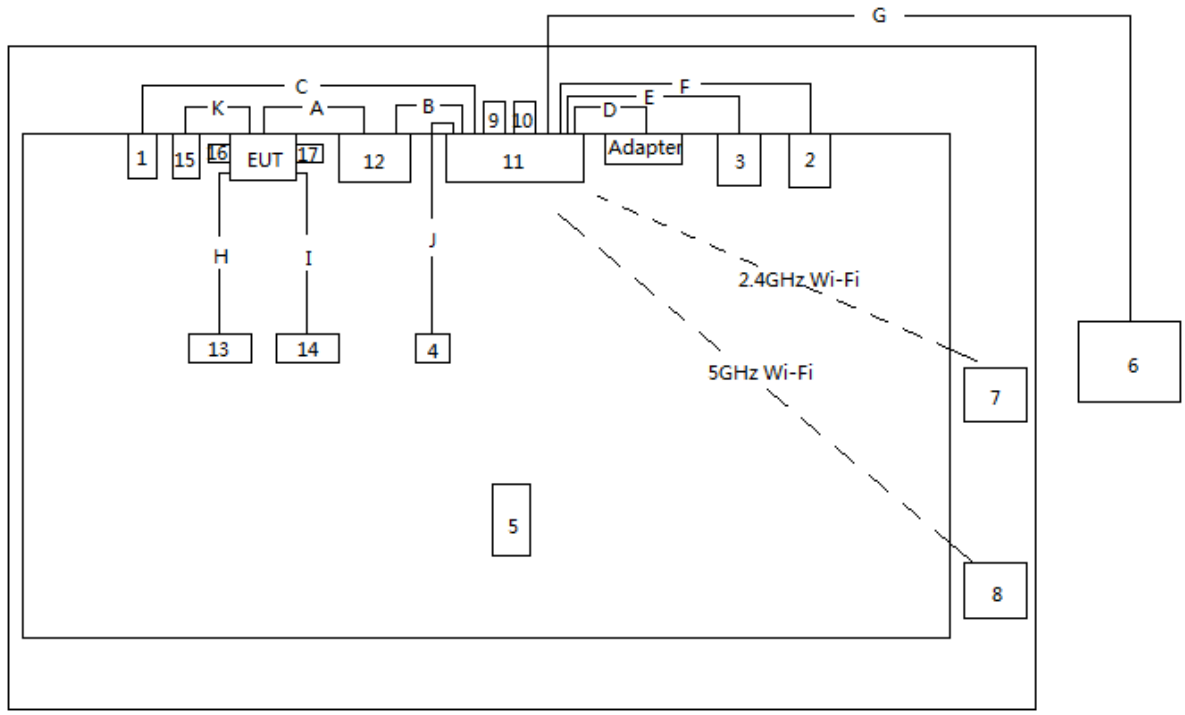
2.1. Equipment Description

Product Name	HD IP Conference Phone
Model No.	CP960

2.2. Test Configuration

The **HD IP Conference Phone FCC ID: T2C-CP960** was tested per the guidance FCC Part 15 Subpart B: 2016 and ANSI C63.4: 2014 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

Connection Diagram(Mode 1)



Signal Cable Type		Signal Cable Description
A	LAN Cable	Non-shielding, 0.3m
B	LAN Cable	Shielding, >10.0m
C	HDMI Cable	Shielding, 2.0m
D	Power Cable	Non-shielding, > 1.5m
E	Audio Cable	Shielding, 1m
F	HDMI Cable	Shielding, 2.0m
G	LAN Cable	Shielding, >10.0m
H	Telecom Cable	Non-shielding, 1.0m
I	Telecom Cable	Non-shielding, 1.0m
J	Audio Cable	Shielding, 1.5m
K	USB Cable	Shielding, 1.0m

2.3. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	LCD Monitor	Dell	SE2216H	N/A	N/A
2	LCD Monitor	Dell	SE2216H	N/A	N/A
3	Bluetooth Wireless Speaker	E-filliate	XT500	N/A	N/A
4	Headset	Logitech	N/A	N/A	N/A
5	Remote Controller	Yealink	N/A	N/A	N/A
6	PC	Dell	Vostro270	N/A	Non-Shielded, 1.8m
7	Notebook	Lenovo	X201	N/A	Non-Shielded, 1.8m
8	Notebook	Lenovo	E430c	MP-4CFX213/10	Non-Shielded, 1.8m
9	iPod	Apple	A1373	N/A	N/A
10	iPod	Apple	A1373	N/A	N/A
11	Full HD Video Conferencing System	Yealink	VC800	N/A	N/A
12	Video Conferencing Hub	Yealink	VCH50	N/A	N/A
13	CP Wired Expansion Mic	Yealink	CPE90	N/A	N/A
14	CP Wired Expansion Mic	Yealink	CPE90	N/A	N/A
15	Notebook	Lenovo	E430c	N/A	Non-Shielded, 1.8m
16	iPod	Apple	A1373	N/A	N/A
17	iPod	Apple	A1373	N/A	N/A

2.4. Test Software

Not applicable.

2.5. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.6. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical Equipment in the Range of 9kHz to 18GHz (ANSI C63.4-2014) was used in the measurement of the **HD IP Conference Phone.**
Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.
The EUT is powered from one LISN and the support equipment is powered from the second LISN. 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 line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.
Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150 kHz to 30 MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9 kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or resolution, clock or data exchange speed, scrolling H pattern to the EUT and/or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site.
Line conducted emissions test results are shown in Section 6.2.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30 MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30 MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 0.8 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB beam-width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2017/06/21
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2017/06/21
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2017/06/21
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06182	1 year	2017/12/22
Shielding Anechoic Chamber	MIX-BEP	Chamber-SR2	MRTSUE06215	1 year	2018/05/10

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2017/08/03
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2017/03/29
TRILOG Antenna	Schwarzbeck	VULB9162	MRTSUE06022	1 year	2017/11/07
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2017/11/07
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06170	1 year	2017/11/30
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06213	1 year	2018/05/10

Software	Version	Function
e3	V8.3.5	EMI Test Software

5. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.5dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~1GHz: 4.07dB 1GHz~18GHz: 4.16 dB Vertical: 30MHz~1GHz: 4.18 dB 1GHz~18GHz: 4.76 dB

6. TEST RESULT

6.1. Summary

Product Name: **HD IP Conference Phone**
FCC ID: **T2C-CP960**
FCC Classification: **FCC Class B Digital Device (JBP)**
Test Mode: **Mode 1: Normal Operation**

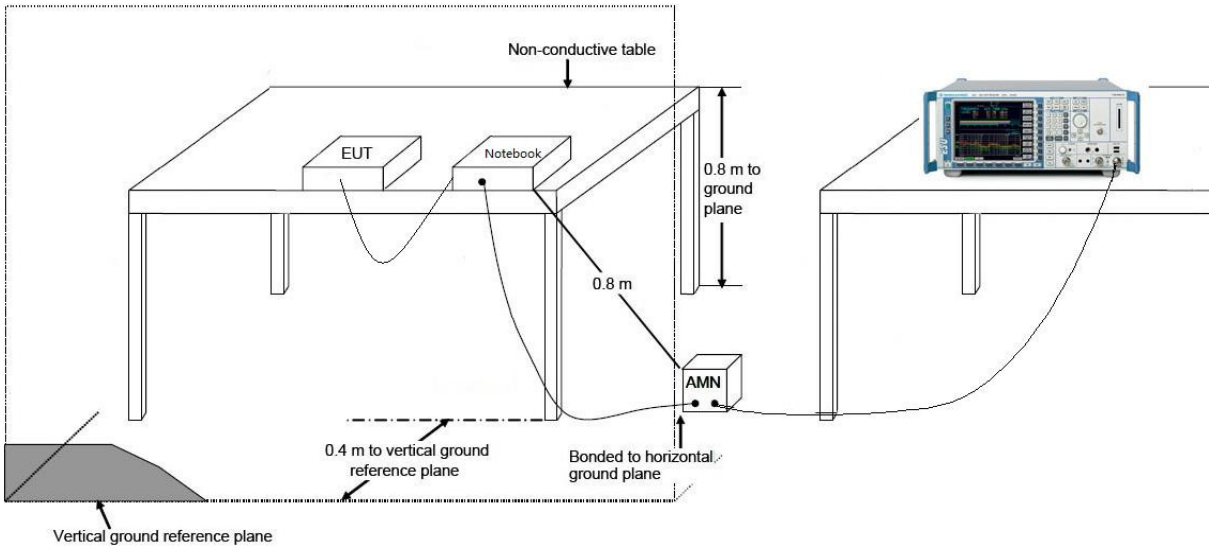
FCC Part Section(s)	Test Description	Test Result
15.107	Conducted Emissions	Pass
15.109	Radiated Emissions	Pass

6.2. Conducted Emission Measurement

6.2.1.Test Limit

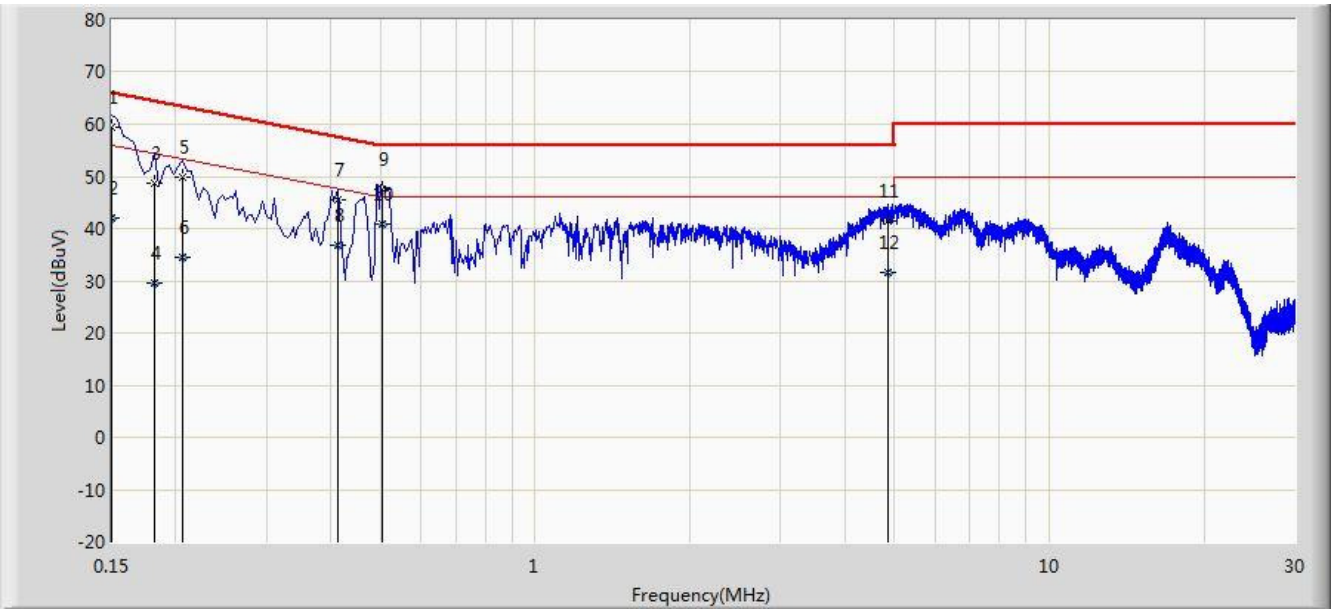
FCC Part 15.107 Limits		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

6.2.2.Test Setup



6.2.3.Test Result

Site: SR2	Time: 2017/05/09 - 09:38
Limit: FCC_Part15.107_CE_Class B	Engineer: Lewis Huang
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: HD IP Conference Phone	Power: AC 120V/60Hz
Test Mode 1	

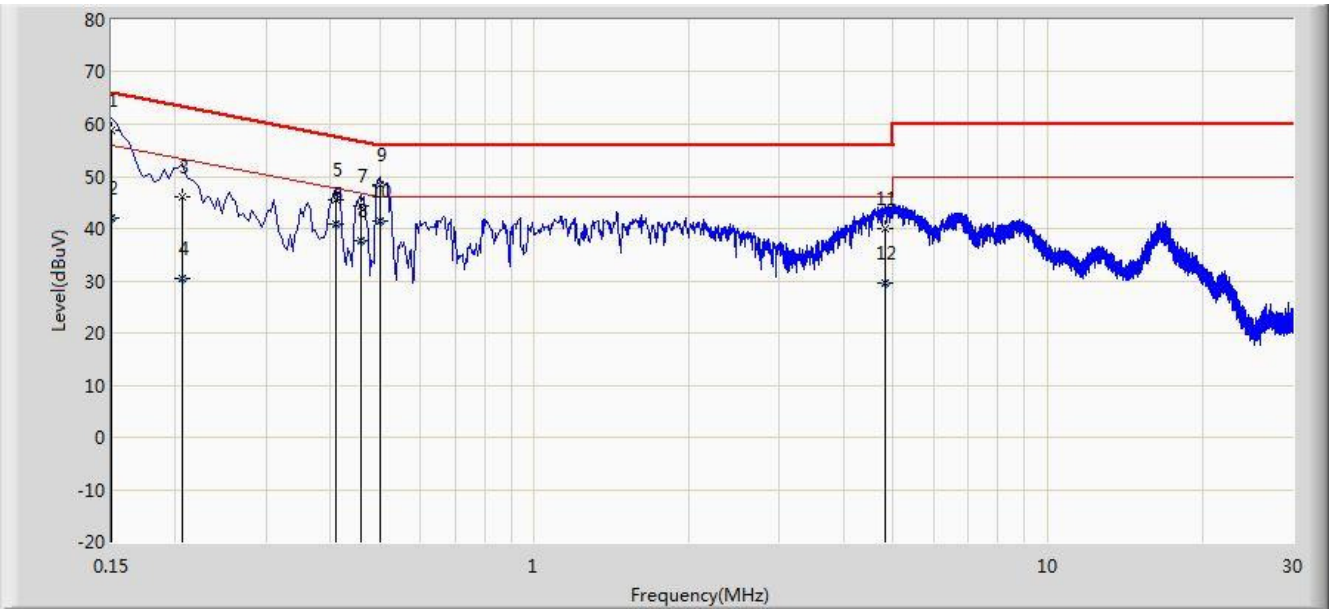


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.150	59.468	48.300	-6.532	66.000	11.168	QP
2			0.150	42.068	30.900	-13.932	56.000	11.168	AV
3			0.182	48.804	38.756	-15.590	64.394	10.048	QP
4			0.182	29.634	19.585	-24.760	54.394	10.048	AV
5			0.206	49.790	39.809	-13.575	63.365	9.981	QP
6			0.206	34.367	24.386	-18.998	53.365	9.981	AV
7			0.414	45.433	35.337	-12.134	57.568	10.097	QP
8			0.414	36.730	26.633	-10.838	47.568	10.097	AV
9			0.503	47.557	37.400	-8.443	56.000	10.157	QP
10		*	0.503	40.957	30.800	-5.043	46.000	10.157	AV
11			4.866	41.543	31.517	-14.457	56.000	10.026	QP
12			4.866	31.669	21.643	-14.331	46.000	10.026	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SR2	Time: 2017/05/09 - 09:45
Limit: FCC_Part15.107_CE_Class B	Engineer: Lewis Huang
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: HD IP Conference Phone	Power: AC 120V/60Hz
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.150	58.842	47.700	-7.158	66.000	11.142	QP
2			0.150	42.142	31.000	-13.858	56.000	11.142	AV
3			0.206	46.131	36.130	-17.234	63.365	10.001	QP
4			0.206	30.469	20.467	-22.896	53.365	10.001	AV
5			0.410	45.445	35.325	-12.204	57.648	10.119	QP
6			0.410	40.786	30.666	-6.862	47.648	10.119	AV
7			0.458	44.420	34.264	-12.309	56.729	10.156	QP
8			0.458	37.545	27.389	-9.184	46.729	10.156	AV
9			0.502	48.277	38.100	-7.723	56.000	10.177	QP
10		*	0.502	41.377	31.200	-4.623	46.000	10.177	AV
11			4.830	39.884	29.849	-16.116	56.000	10.036	QP
12			4.830	29.467	19.432	-16.533	46.000	10.036	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

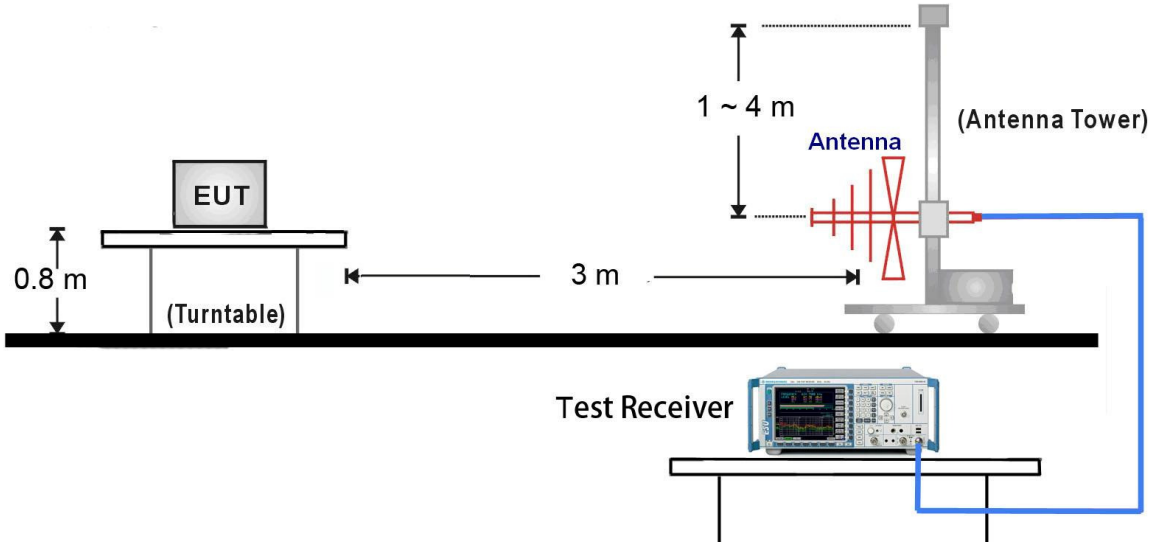
6.3. Radiated Emission Measurement

6.3.1.Test Limit

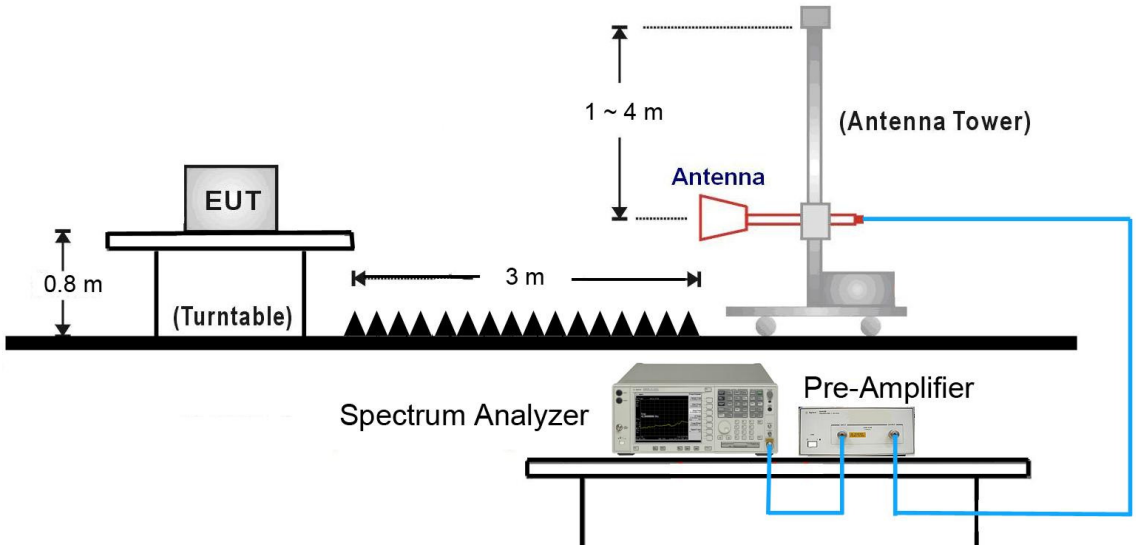
FCC Part 15.109 Limits		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBμV/m) = 20 log E field strength (uV/m)		

6.3.2.Test Setup

30MHz ~ 1GHz Test Setup:

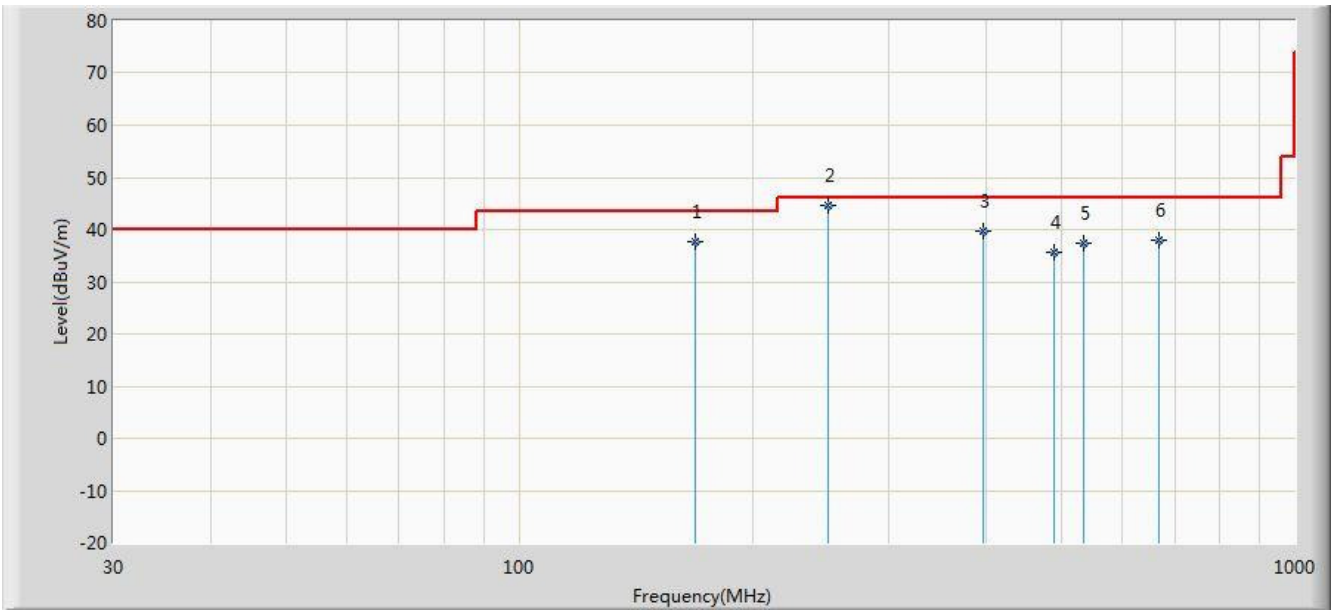


1GHz ~18GHz Test Setup:



6.3.3.Test Result

Site: AC1	Time: 2017/05/09 - 18:10
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Lewis Huang
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: HD IP Conference Phone	Power: By PoE
Test Mode 1	

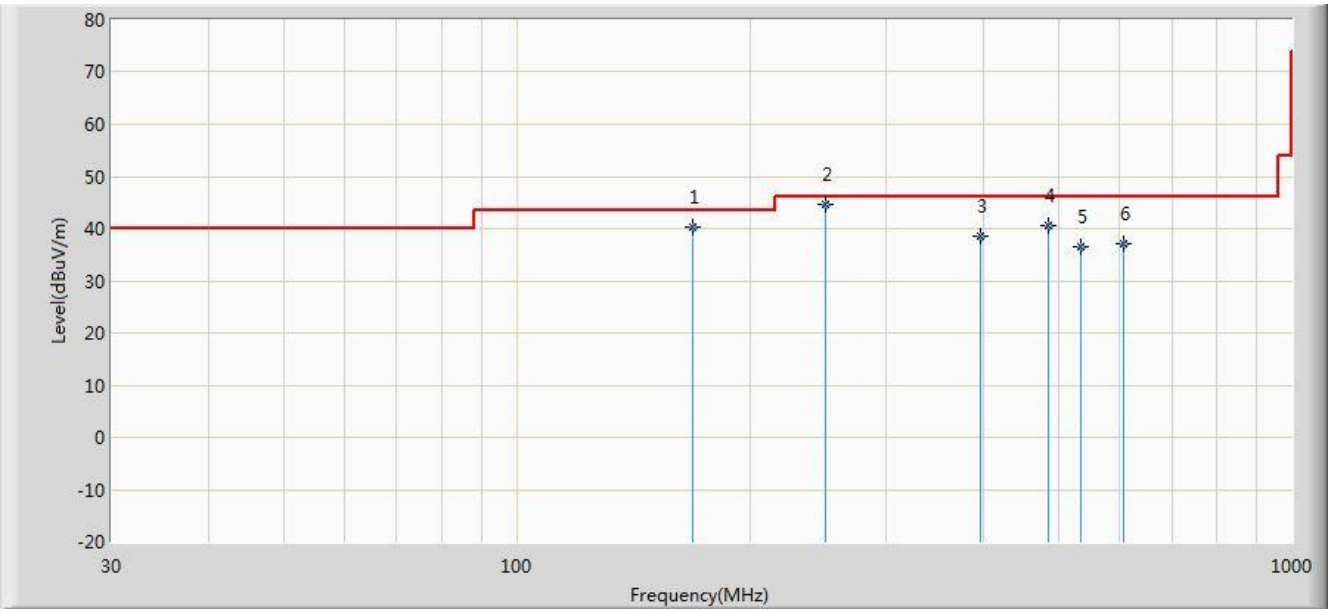


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			168.710	37.589	23.203	-5.911	43.500	14.386	134	34	QP
2		*	249.997	43.530	30.200	-2.670	46.000	12.930	201	142	QP
3			396.175	39.618	23.202	-6.382	46.000	16.416	152	315	QP
4			488.810	35.604	17.288	-10.396	46.000	18.316	183	107	QP
5			533.915	37.432	18.277	-8.568	46.000	19.155	241	118	QP
6			666.805	37.881	16.298	-8.119	46.000	21.582	175	98	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2017/05/09 - 18:11
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Lewis Huang
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: HD IP Conference Phone	Power: By PoE
Test Mode 1	

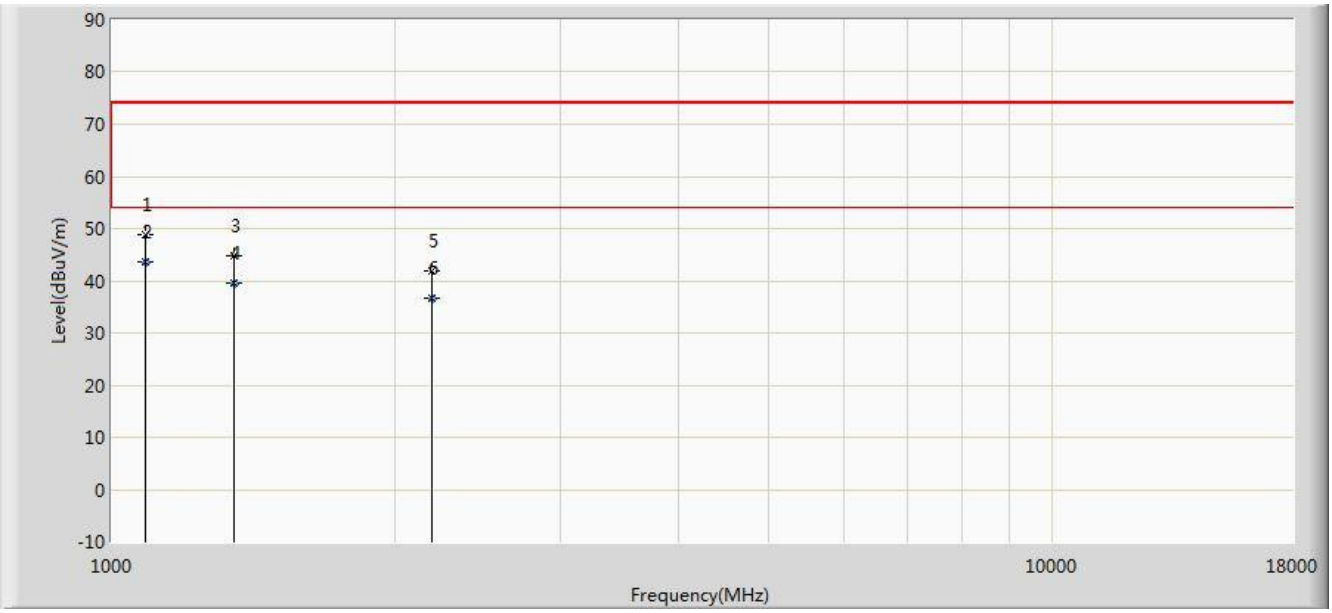


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			168.800	40.278	25.900	-3.222	43.500	14.377	132	25	QP
2		*	249.999	43.430	30.500	-2.570	46.000	12.930	156	307	QP
3			396.175	38.610	22.194	-7.390	46.000	16.416	174	251	QP
4			484.930	40.649	22.399	-5.351	46.000	18.250	203	94	QP
5			534.885	36.460	17.288	-9.540	46.000	19.171	185	162	QP
6			606.665	37.005	16.384	-8.995	46.000	20.620	238	154	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2017/05/09 - 18:12
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: HD IP Conference Phone	Power: By PoE
Test Mode 1	

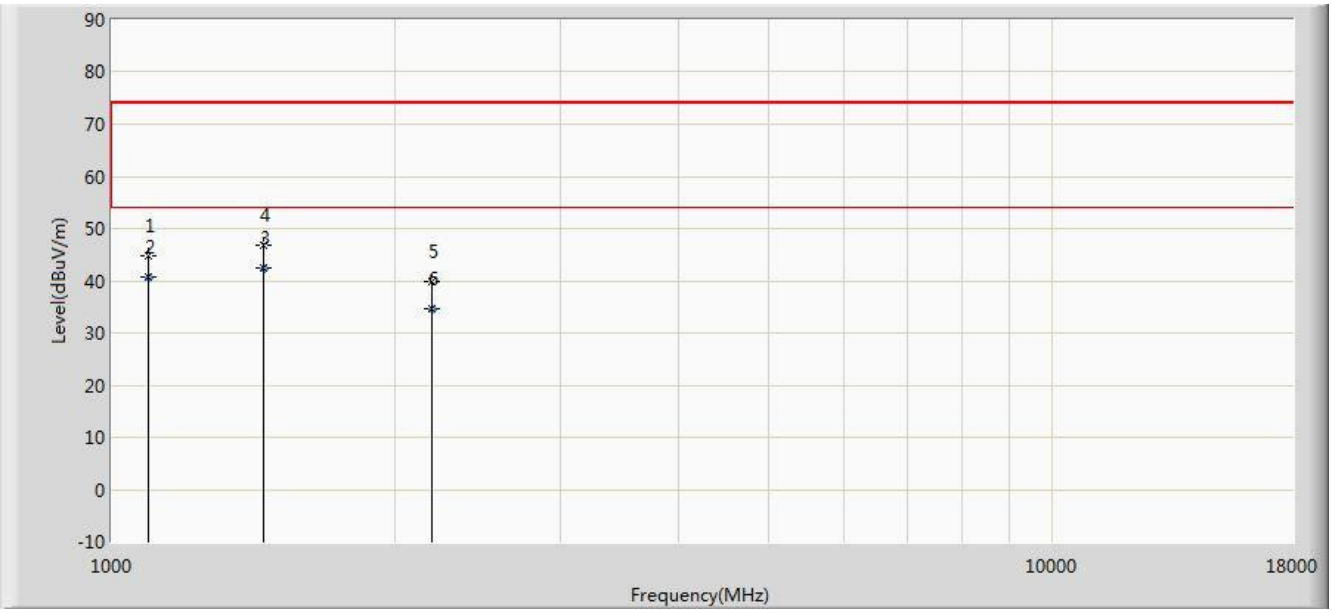


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			1085.000	48.915	59.460	-25.085	74.000	-10.545	100	231	PK
2		*	1085.120	43.765	54.309	-10.235	54.000	-10.543	100	242	AV
3			1348.500	44.762	52.635	-29.238	74.000	-7.874	100	53	PK
4			1348.743	39.522	47.393	-14.478	54.000	-7.871	100	59	AV
5			2190.000	42.017	45.737	-31.983	74.000	-3.720	100	107	PK
6			2190.120	36.569	40.288	-17.431	54.000	-3.719	100	113	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: AC1	Time: 2017/05/09 - 18:12
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: HD IP Conference Phone	Power: By PoE
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			1093.500	44.734	55.196	-29.266	74.000	-10.461	100	64	PK
2			1093.527	40.747	51.209	-13.253	54.000	-10.461	100	71	AV
3		*	1450.281	42.368	50.209	-11.632	54.000	-7.842	100	124	PK
4			1450.500	46.873	54.714	-27.127	74.000	-7.841	100	132	AV
5			2190.000	39.946	43.666	-34.054	74.000	-3.720	100	317	PK
6			2190.123	34.564	38.283	-19.436	54.000	-3.719	100	342	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

7. CONCLUSION

The data collected relate only the item(s) tested and show that the **HD IP Conference Phone FCC ID: T2C-CP960** has been tested to comply with the requirements specified in §15.107 and §15.109 of the FCC Rules.

The End