

## FCC PART 15B

### MEASUREMENT AND TEST REPORT

For

### Shanghai LeXiang Technology Co., Ltd.

Floor 6,Building 8,Yanjiaqiao Road, Pu dong Area, Shanghai, China

**FCC ID: 2AJPQ-E3-B**

<b>Report Type:</b> Original Report	<b>Product Type:</b> DPVR E3 Basic
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<b>Report Number:</b> RKS170329007-00A	
<b>Report Date:</b> 2017-04-25 Kamp Chen	<i>Kamp Chen</i>
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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Applicant	Shanghai LeXiang Technology Co., Ltd.
Model	E3-B
Product	DPVR E3 Basic
Rate Voltage	DC 5V From USB Port , rated power:3.5W,rated current:0.7A
Operating Frequency	180MHz
Dimension	266 mm (L) ×194.5mm (W) × 96 mm (H)

*\* All measurement and test data in this report was gathered from production sample serial number: 20170329001 (Assigned by BACL, Kunshan).The EUT supplied by the applicant was received on 2017-03-29.*

### Objective

This report is prepared on behalf of Shanghai LeXiang Technology Co., Ltd. in accordance with Part 2-Subpart J, and Part 15-Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15, Class B.

### Related Submittal(s)/Grant(s)

No related submittal.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## **Test Facility**

The test site A used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China

Test site at Bay Area Compliance Laboratories Corp. (Kunshan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 06, 2014. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 815570. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

## SYSTEM TEST CONFIGURATION

### Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

Test mode: HDMI 2560\*1440@60Hz

### EUT Exercise Software

Computer exeutive “winthrax.exe” through the Flash to R/W.

Computer exeutive “MyHWin”present “H” pattern on the EUT.

Exeutive “1kHz Sine wave Test Tone Singnal .mp3”to replay 1 kHz music .

### Special Accessories

No special accessory was used.

### Equipment Modifications

No modification was made to the EUT tested.

### Support Equipment List and Details

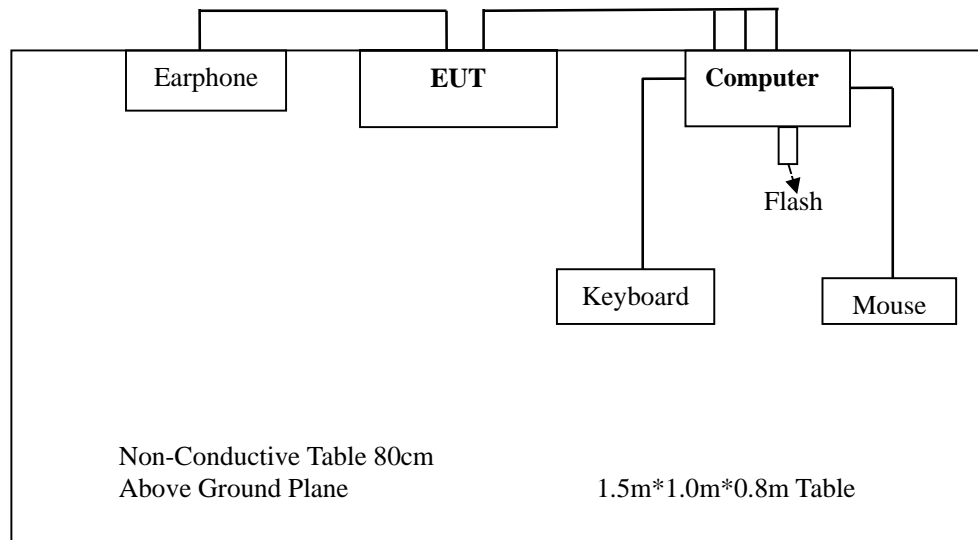
Manufacturer	Description	Model	Serial Number
FANBIYA	Earphone	Q2	/
DELL	Computer	015K3N	00190-098-766-241
Lenovo	USB flash disk	T180	0A1266865200521
Logitech	Keyboard	Y-U0009	1648MG010SV8
Logitech	Mouse	M-U0026	HS529HB

### External I/O Cable

Cable Description	Length (m)	From/Port	To
USB Cable	0.8	Notebook	Mouse
USB Cable	0.8	Notebook	Keyboard
Earphone Cable	1.0	EUT	Earphone

## Block Diagram of Radiated Test Setup

Test mode: HDMI 2560\*1440@60Hz



## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

## FCC §15.107 –CONDUCTED EMISSIONS

### Applicable Standard

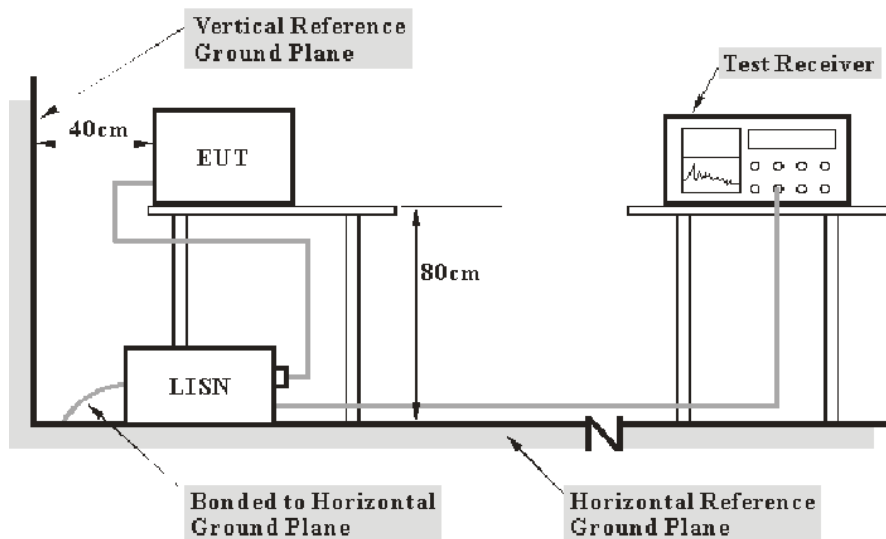
According to FCC§15.107

### Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements may be receiver reading, attenuation of the connection between LISN and receiver, LISN voltage division factor, LISN VDF frequency interpolation and receiver related input quantities, etc.

Item		Measurement Uncertainty	$U_{\text{cispr}}$
AMN	9kHz~30MHz	3.19 dB	3.4~3.8 dB

### EUT Setup



- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class B.



## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

## Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2016-11-25	2017-11-25
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2016-10-10	2017-10-09
ROHDE&SCHWARZ	LISN	ENV216	3560655016	2016-11-25	2017-11-24
Rohde & Schwarz	CE Test software	EMC 32	100357	--	--
MICRO-COAX	Coaxial Cable	Cable-6	006	2016-09-08	2017-09-07

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

**Test Data****Environmental Conditions**

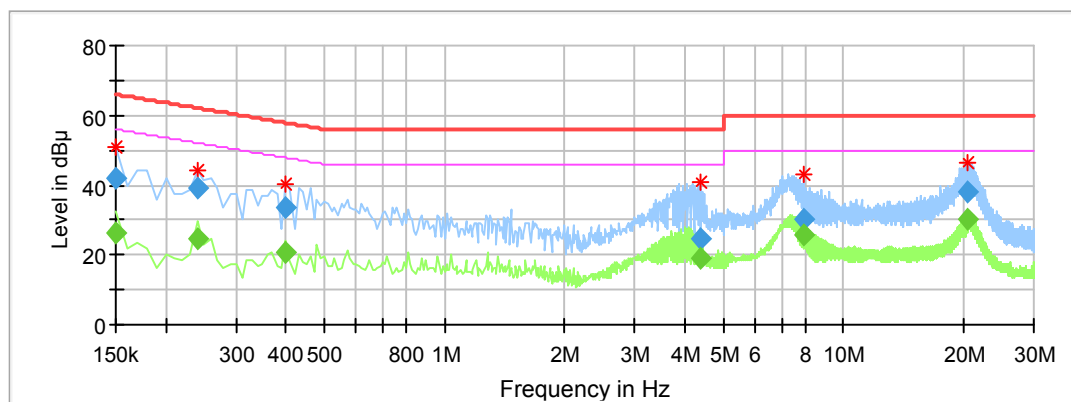
<b>Temperature:</b>	22°C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	101.0 kPa

The testing was performed by Phil Zhu on 2017-04-18.

Test mode: HDMI 2560\*1440@60Hz

**Line:**

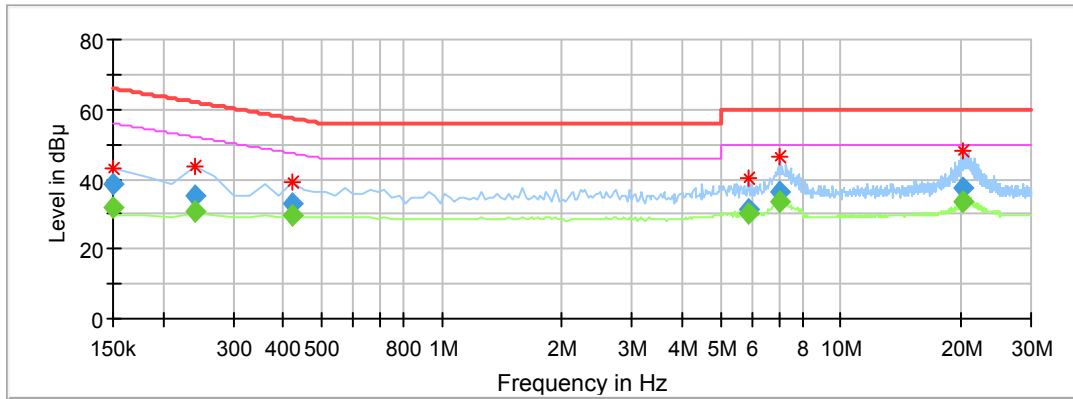
Full Spectrum



Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Corr. (dB)
0.150000	---	26.24	56.00	29.76	L1	10.1
0.150000	41.73	---	66.00	24.27	L1	10.1
0.240000	---	24.64	52.10	27.46	L1	10.0
0.240000	39.30	---	62.10	22.80	L1	10.0
0.400000	---	20.88	47.85	26.97	L1	10.1
0.400000	33.34	---	57.85	24.51	L1	10.1
4.360000	---	18.82	46.00	27.18	L1	9.9
4.360000	24.68	---	56.00	31.32	L1	9.9
7.960000	---	25.86	50.00	24.14	L1	10.0
7.960000	30.33	---	60.00	29.67	L1	10.0
20.490000	---	30.33	50.00	19.67	L1	10.4
20.490000	37.89	---	60.00	22.11	L1	10.4

**Neutral:**

Full Spectrum



Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Line	Corr. (dB)
0.150000	---	32.05	56.00	23.95	N	10.1
0.150000	38.65	---	66.00	27.35	N	10.1
0.240000	---	30.77	52.10	21.33	N	10.1
0.240000	35.04	---	62.10	27.06	N	10.1
0.420000	---	29.85	47.45	17.60	N	10.1
0.420000	33.05	---	57.45	24.40	N	10.1
5.850000	---	30.19	50.00	19.81	N	9.9
5.850000	31.06	---	60.00	28.94	N	9.9
7.050000	---	33.32	50.00	16.68	N	9.9
7.050000	36.48	---	60.00	23.52	N	9.9
20.250000	---	33.31	50.00	16.69	N	10.2
20.250000	37.48	---	60.00	22.52	N	10.2

## FCC §15.109 - RADIATED EMISSIONS

### Applicable Standard

FCC §15.109

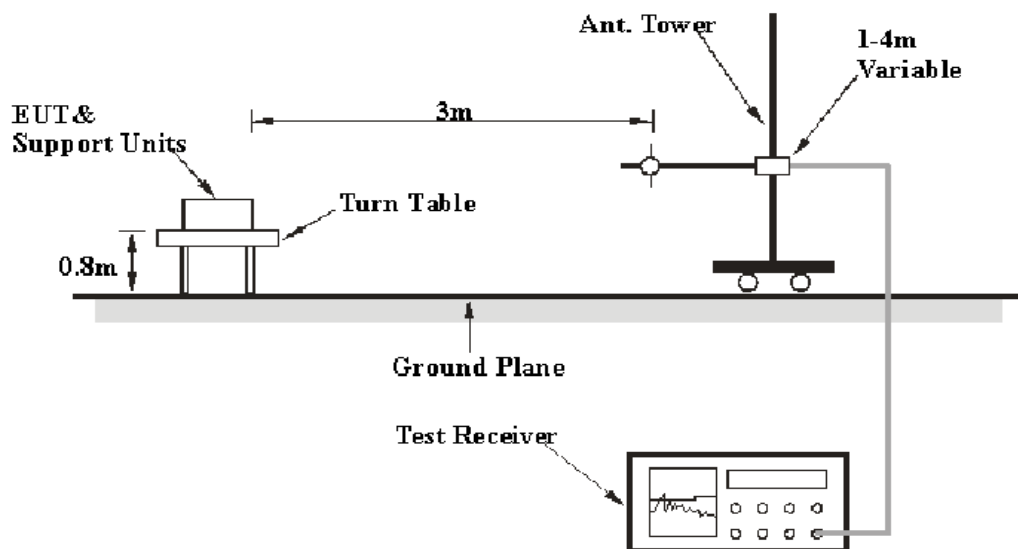
### Measurement Uncertainty

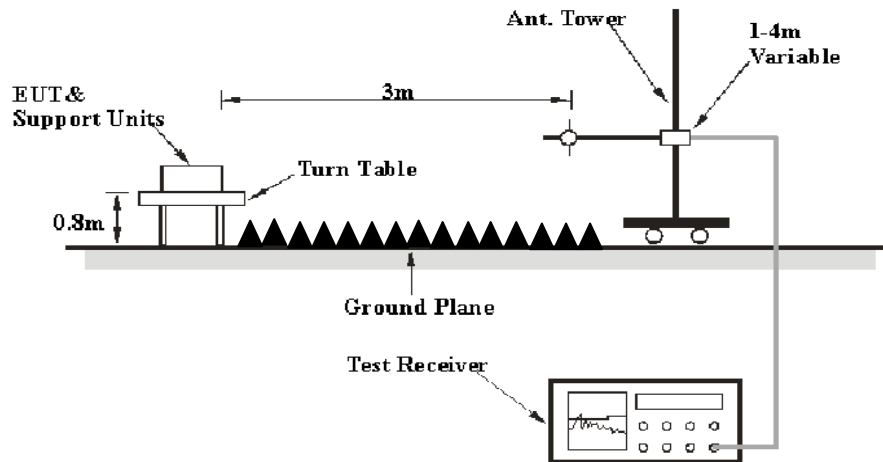
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Item		Measurement Uncertainty	$U_{\text{cisp}}r$
Radiated Emission	30MHz~1GHz	6.11dB	6.3 dB
	1GHz~6GHz	4.45dB	5.2 dB
	6 GHz ~18 GHz	5.23dB	5.5 dB

### EUT Setup

Below 1GHz:



**Above 1GHz:**

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

**EMI Test Receiver Setup**

The system was investigated from 30 MHz to 2GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	Peak
	1MHz	1 Hz	/	Av

**Test Procedure**

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz, Peak and average detection mode above 1 GHz.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sonoma Instrument	Amplifier	330	171377	2016-12-12	2017-12-11
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2016-11-25	2017-11-24
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2016-01-09	2019-01-08
Champrotek	Chamber	Chamber A	T-KSEMC049	-	-
R&S	Auto test Software	EMC32	100361	-	-
ETS	Horn Antenna	3115	6229	2016-01-11	2019-01-10
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2016-11-25	2017-11-25
Narda	Pre-amplifier	AFS42-00101800	2001270	2016-12-12	2017-12-11
haojintech	Coaxial Cable	Cable-1	001	2016-12-12	2017-12-11
haojintech	Coaxial Cable	Cable-2	002	2016-12-12	2017-12-11
haojintech	Coaxial Cable	Cable-3	003	2016-12-12	2017-12-11
MICRO-COAX	Coaxial Cable	Cable-4	004	2016-12-12	2017-12-11
MICRO-COAX	Coaxial Cable	Cable-5	005	2016-12-12	2017-12-11

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Corrected Amplitude & Margin Calculation**

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

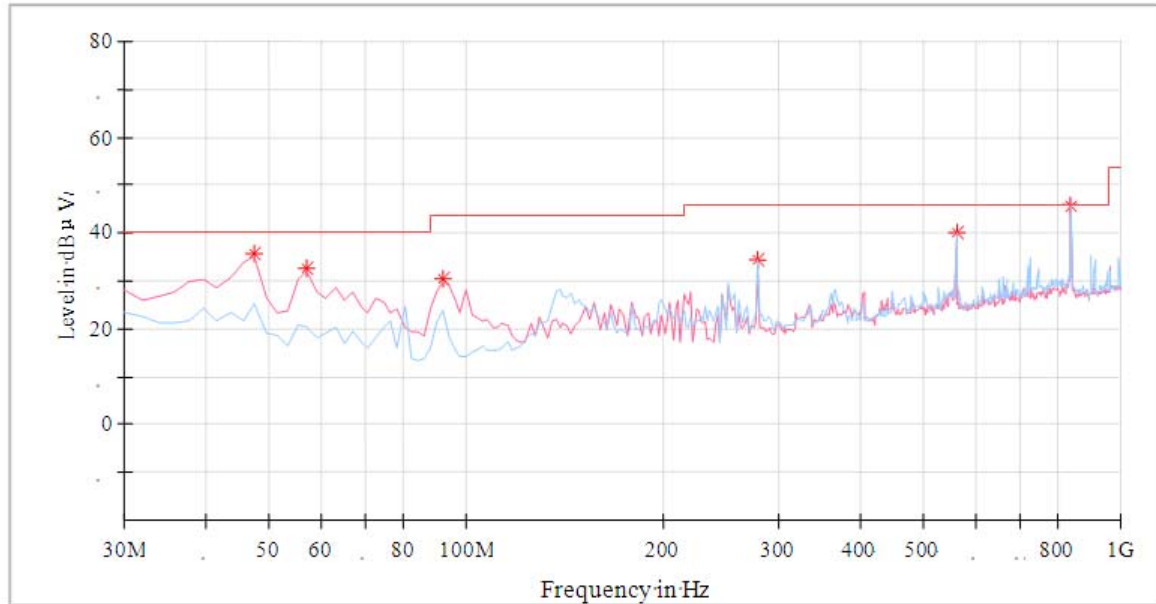
**Test Data****Environmental Conditions**

<b>Temperature:</b>	27 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Phil Zhu on 2017-04-18.*

Test mode: HDMI 2560\*1440@60Hz

30MHz ~ 1GHz:



Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
47.494990	35.52	40.00	4.48	100.0	V	175.0	-9.0
57.214429	32.66	40.00	7.34	100.0	V	3.0	-11.0
92.204409	30.22	43.50	13.28	100.0	V	48.0	-11.0
278.817635	34.52	46.00	11.48	100.0	H	154.0	-4.6
560.681363	40.28	46.00	5.72	100.0	H	290.0	1.9
840.601202	45.72	46.00	0.28	100.0	V	170.0	6.1

**Above 1 GHz:**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1020.260521	---	48.79	54.00	5.21	101.0	H	188.0	-11.1
1020.260521	56.99	---	74.00	17.01	101.0	H	188.0	-11.1
1199.739479	---	40.87	54.00	13.13	101.0	H	202.0	-9.7
1199.739479	56.02	---	74.00	17.98	101.0	H	202.0	-9.7
1479.779559	---	43.50	54.00	10.50	101.0	H	141.0	-8.0
1479.779559	55.31	---	74.00	18.69	101.0	H	141.0	-8.0
1560.701403	---	39.56	54.00	14.44	101.0	H	212.0	-7.0
1560.701403	54.41	---	74.00	19.59	101.0	H	212.0	-7.0
1800.300602	60.69	---	74.00	13.31	101.0	H	169.0	0.5
1800.300602	---	44.21	54.00	9.79	101.0	H	169.0	0.5
1960.701403	59.89	---	74.00	14.11	101.0	H	147.0	2.0
1960.701403	---	48.55	54.00	5.45	101.0	H	147.0	2.0

**\*\*\*\*\* END OF REPORT \*\*\*\*\***