Produkte
Products

Prüfbericht - Nr.: *Test Report No.:*	**17008737 001**	**Seite 1 von 45** *Page 1 of 45*
Auftraggeber: *Client:*	**Namtai Electronic (Shenzhen) Co., Ltd.** **Gusu Industrial Estate, Xixiang, Baoan, Shenzhen Guangdong 518126, P.R. China**	
Gegenstand der Prüfung: *Test item:*	**Wireless Buzz!™ Buzzers**	
Bezeichnung: *Identification:*	**SLEH-00069(Pod)**	**Serien-Nr.:** *Serial No.:* **n.a.**
Wareneingangs-Nr.: *Receipt No.:*	**163036072**	**Eingangsdatum:** *Date of receipt:* **2008-01-25**
Prüfort: *Testing location:*	**TÜV Rheinland (Guangdong) Ltd.** **EMC Laboratory** **Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China** **FCC Registration No.: 833845**	
Prüfgrundlage: *Test specification:*	**FCC CFR47 Part 15: Subpart C Section 15.247** **FCC CFR47 Part 15: Subpart C Section 15.209**	
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test item passed the test specification(s).*	
Prüflaboratorium *Testing Laboratory*	**TÜV Rheinland (Shenzhen) Co., Ltd.**	

geprüft/ *tested by:*			**kontrolliert/** *reviewed by:*		
2008-02-26	Sam Lin/ Project Engineer		2008-02-28	Shawn Peng/ Senior Project Manager	
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges/ *Other Aspects:*

Abkürzungen:				*Abbreviations:*			
	P(ass)	=	*entspricht Prüfgrundlage*		*P(ass)*	=	*passed*
	F(ail)	=	*entspricht nicht Prüfgrundlage*		*F(ail)*	=	*failed*
	N/A	=	*nicht anwendbar*		*N/A*	=	*not applicable*
	N/T	=	*nicht getestet*		*N/T*	=	*not tested*

TEST SUMMARY

5.1 ANTENNA REQUIREMENT
RESULT: Passed

5.2 PEAK OUTPUT POWER
RESULT: Passed

5.3 6DB BANDWIDTH
RESULT: Passed

5.4 100KHZ BANDWIDTH OF FREQUENCY BAND EDGE
RESULT: Passed

5.5 MAXIMUM POWER DENSITY
RESULT: Passed

5.6 SPURIOUS EMISSION
RESULT: Passed

5.7 RADIATED EMISSIONS
RESULT: Passed

Contents

1. General Remarks

1.1 Complementary Materials

None

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd.
EMC Laboratory

Guangzhou Auto Market,
Yuan Gang Section of Guangshan Road,
Guangzhou, P.R. China

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
For Radio Test Suite				
Spectrum Analyzer	Rhode & Schwarz	FSP30	100286	2008-09-16
Spurious Emission Test and Radiated Emission Test				
EMI Test Receiver	R&S	ESCI3	1.807	2009-01-25
Spectrum Analyzer	Rhode & Schwarz	FSP30	100286	2008-09-16
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	209	2009-05-08
3m Semi-anechoic chamber	Albatross Projects	N/A	N/A	2011-03-16
Horn Antenna	EMCO	21642	63042-766 (3160-09)	2008-07-25
Double-Ridged Waveguide Horn Antenna	Rohde &Schwarz	HF 906	100385	2009-07-09

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are ±3dB.

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Guangdong) Ltd. test facility located at Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. General Product Information

3.1 Product Function and Intended Use

The EUT is wireless buzzer that is based on radio technology. The wireless buzzer is only designed for SONY PlayStation® 2 and SONY PlayStation® 3. It operates at 2.4GHz ISM frequency band.
For more information refer to the User's Manual.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment:	Wireless Buzz!™ Buzzers
Type Designation:	SLEH-00069(Pod)
FCC ID	VZVBUZZ01

Table 3: Technical Specification of EUT

Technical Specification	**Value**		
Operating Frequency band	2400 – 2483.5 MHz		
Channel number	18 Channels		
Channel list	2402 MHz	2404 MHz	2409 MHz
	2414 MHz	2419 MHz	2424 MHz
	2429 MHz	2434 MHz	2439 MHz
	2441 MHz	2444 MHz	2449 MHz
	2454 MHz	2459 MHz	2464 MHz
	2469 MHz	2474 MHz	2481 MHz
Modulation method	GFSK		
Operation Temperature	+5ºC to +35ºC		
Operation Voltage	DC 3V via 2xAA Alkaline Battery		
Antenna Type	Internal Antenna		

3.3 Independent Operation Modes

The basic operation modes are:

A. Transmitting
   1. Low channel
   2. Middle channel
   3. High channel
B. Receiving
C. Standby
D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- Circuit Diagram
- PCB Layout
- Photo Document
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2003.

4.3 Special Accessories and Auxiliary Equipment

None

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

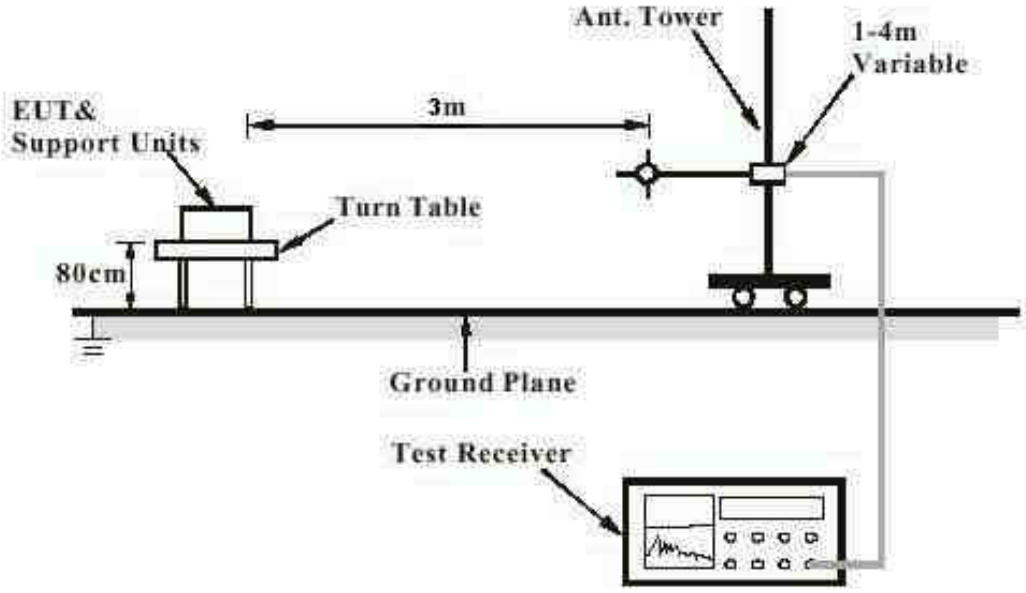


Diagram of Measurement Equipment Configuration for Conduction Measurement

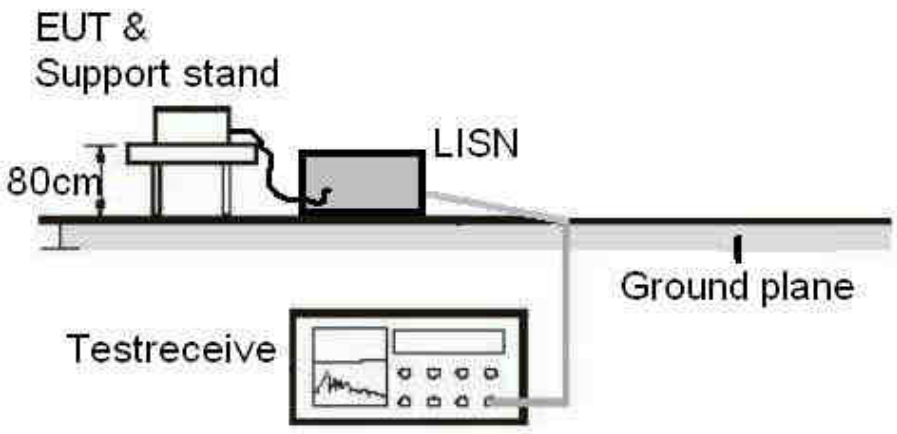
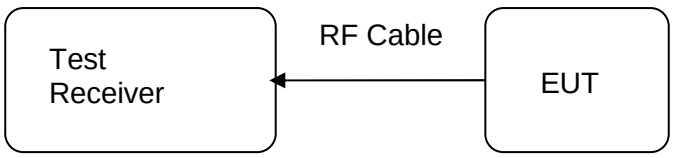


Diagram of Measurement Equipment Configuration for Transmitter Measurement



5. Test Results of Transmitter

5.1 Antenna Requirement

RESULT: **Passed**

Test date	:	2008-02-01
Test standard	:	FCC Part 15.247(b)(4) and Part 15.203
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer's declaration, the EUT has an internal antenna, the directional gain of antenna is less than 6 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT photo for details.

5.2 Peak Output Power

RESULT: **Passed**

Test date	:	2008-01-30
Test standard	:	FCC Part 15.247(b)(3)
Basic standard	:	ANSI C63.4: 2003
Limit	:	1 Watt
Kind of test site	:	Shielded room

Test setup

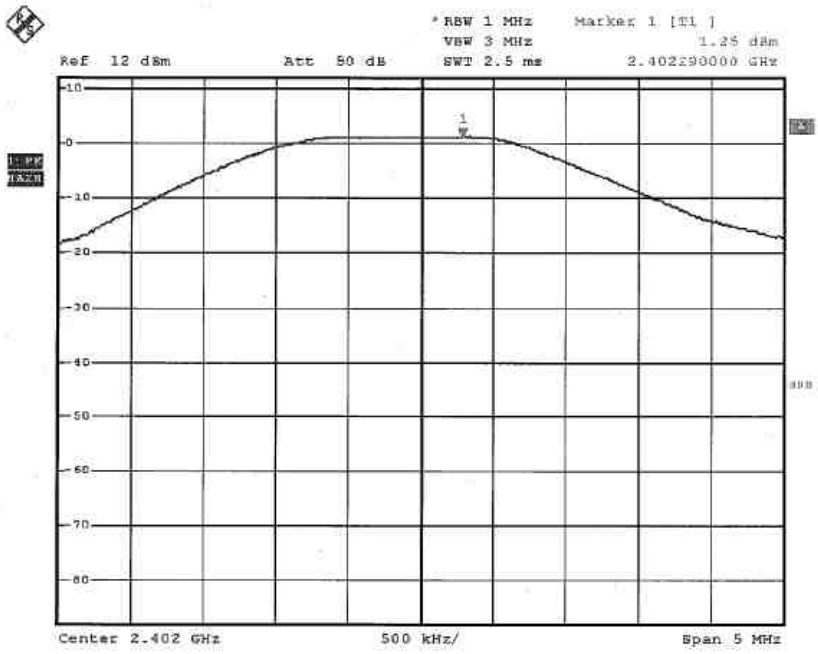
Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	20℃
Relative humidity	:	40%
Atmospheric pressure	:	100 kPa

Table 4: Test result of Peak Output Power

Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(W)
Low Channel	2402	1.25	0.0013	1
Mid Channel	2441	-0.17	0.0009	1
High Channel	2481	0.26	0.0011	1

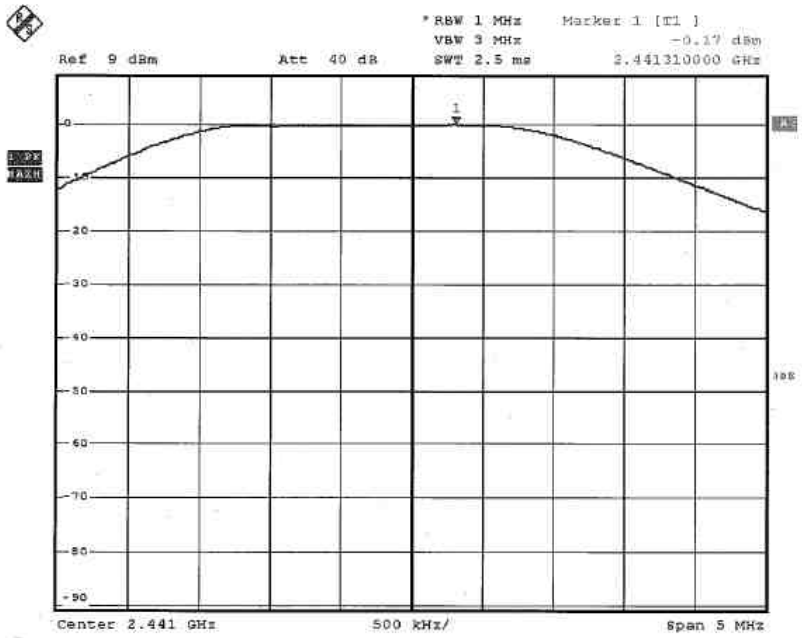
Test Plot of Peak Output Power

Low Channel



Date: 30.JAN.2008 09:53:01

Middle Channel



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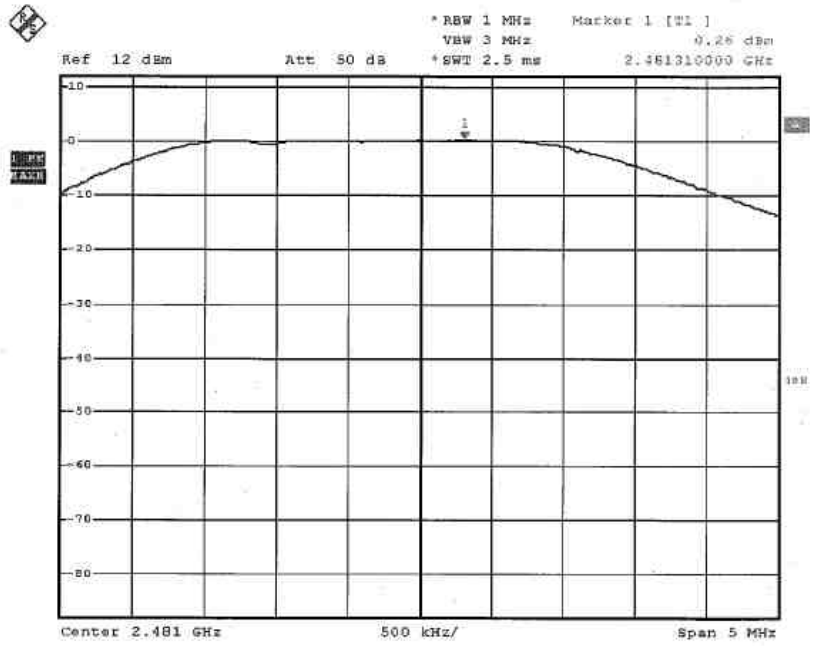
High Channel



Date: 30.JAN.2008 09:54:29

5.3 6dB Bandwidth

RESULT: **Passed**

Date of testing	:	2008-01-30
Test standard	:	FCC Part 15.247(a)(2)
Basic standard	:	ANSI C63.4: 2003
Requirement	:	at least 500kHz
Kind of test site	:	Shielded room

Test setup

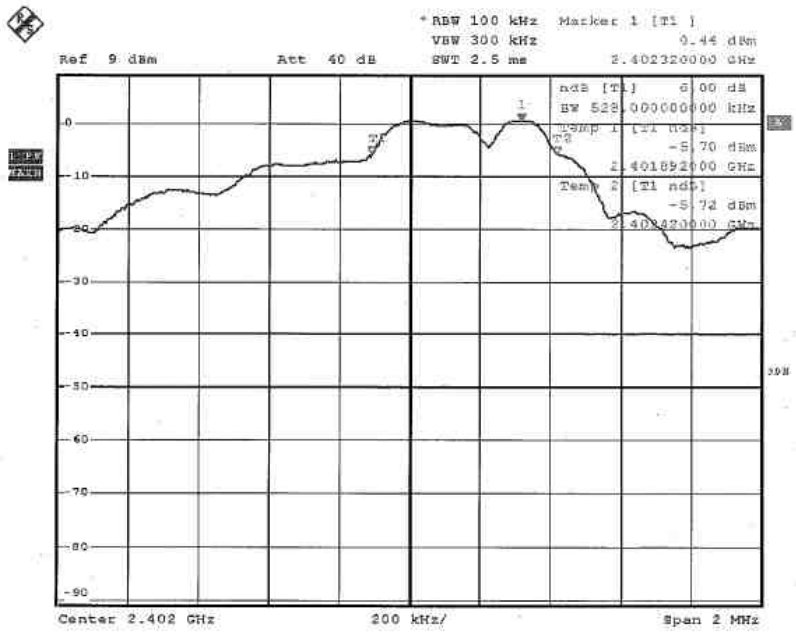
Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	20℃
Relative humidity	:	40%
Atmospheric pressure	:	100 kPa

Table 5: Test result of 6dB Bandwidth

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2402	528	≥500	Pass
Mid Channel	2441	528	≥500	Pass
High Channel	2481	548	≥500	Pass

Test Plot of 6dB Bandwidth

Low Channel



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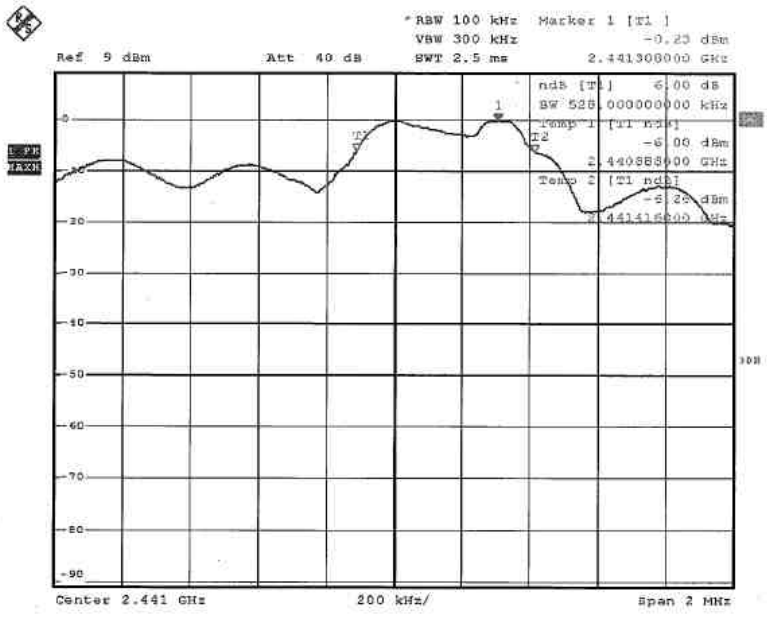
Middle Channel



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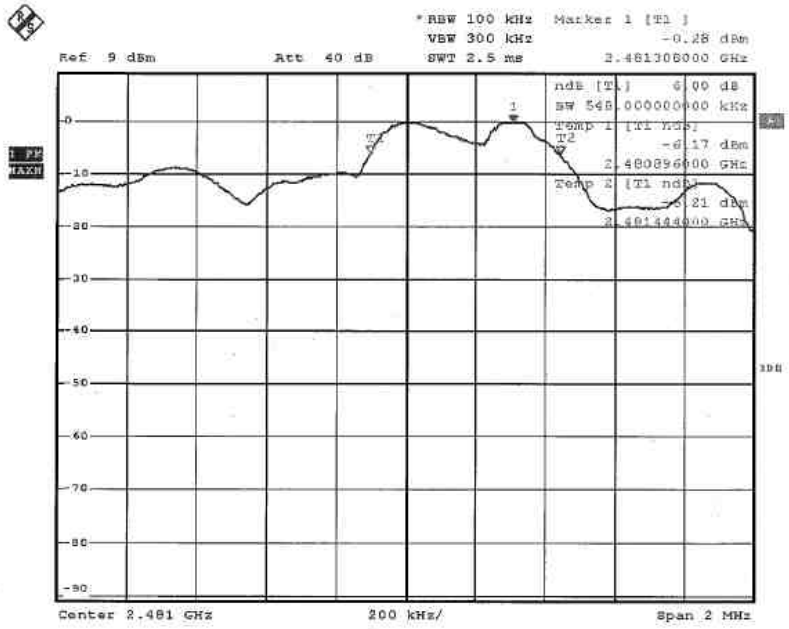
High Channel



Date: 30.JAN.2008 11:11:22

5.4 100kHz Bandwidth of Frequency Band Edge

RESULT: **Passed**

Date of testing	:	2008-02-13
Test standard	:	FCC part 15.247(d)
Basic standard	:	ANSI C63.4: 2003
Limit	:	at least 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power), in additional radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a), whichever results in lower attenuation
Kind of test site	:	Shield room

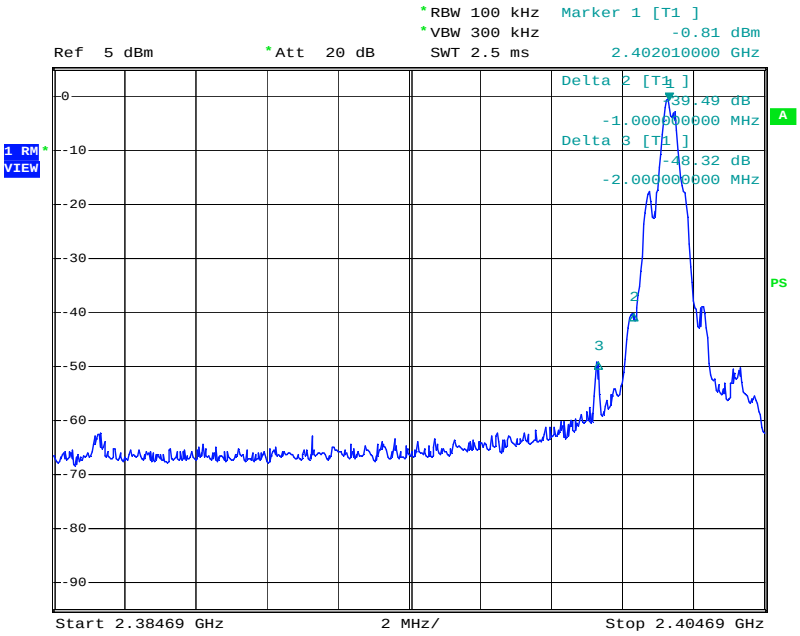
Test setup

Test Channel	:	Low/ High
Operation mode	:	A
Ambient temperature	:	20℃
Relative humidity	:	40%
Atmospheric pressure	:	100 kPa

All emissions are more than 20dB below fundamental. Test results of 100kHz Bandwidth of Frequency Band Edge refer to following test plot.

Test Plot of 100kHz Bandwidth of Frequency Band Edge

Low Channel



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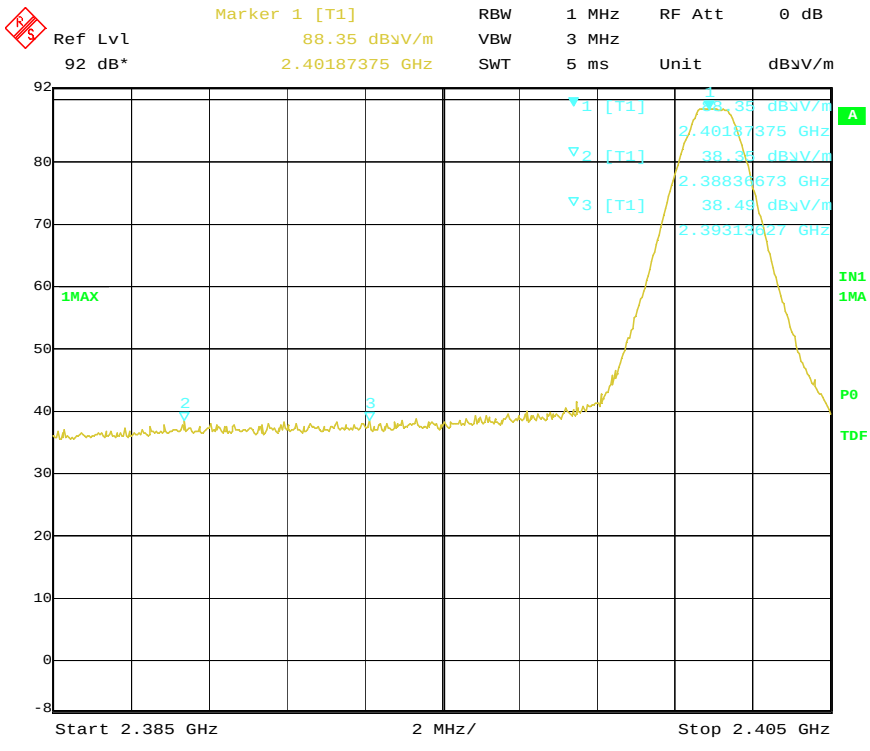

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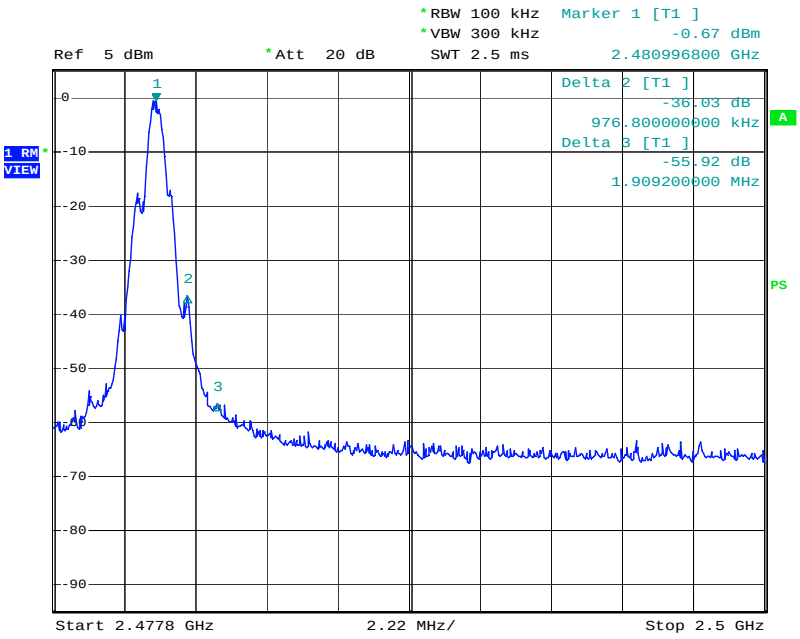
High Channel



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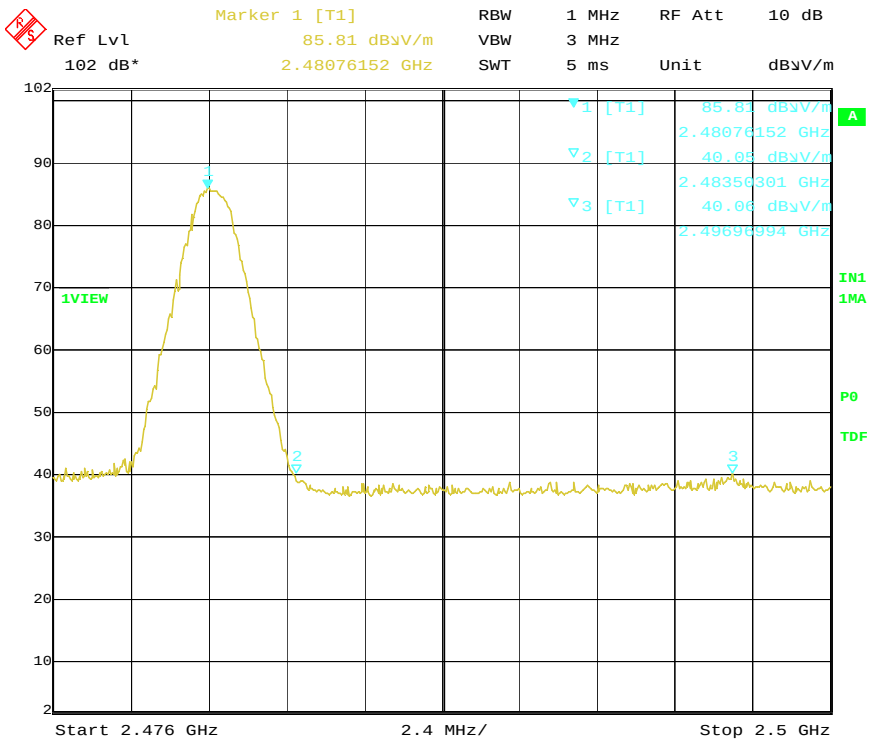


Date: 15.APR.2008 16:00:38

5.5 Maximum Power Density

RESULT: **Passed**

Date of testing	:	2008-01-30
Test standard	:	FCC Part 15.247(e)
Basic standard	:	ANSI C63.4: 2003
Limit	:	8dBm/3kHz
Kind of test site	:	Shielded room

Test setup

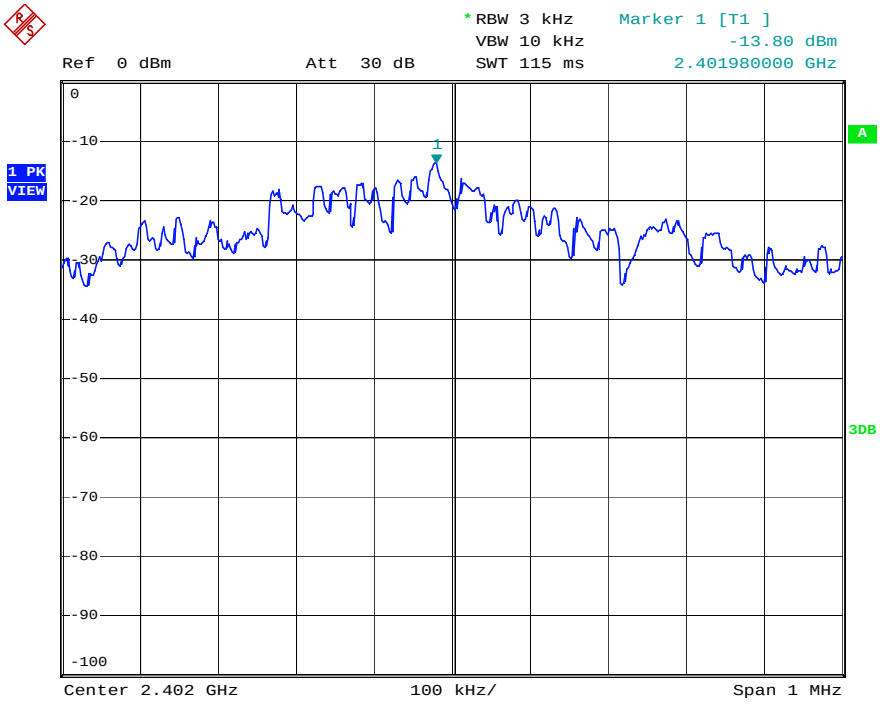
Test Channel	:	Low/ Middle/ High
Operation Mode	:	A
Ambient temperature	:	20℃
Relative humidity	:	40%
Atmospheric pressure	:	100 kPa

Table 6: Test result of Maximum Power Density

Channel	Channel Frequency (MHz)	Maximum Power Density (dBm)	Limit (dBm)	Result
Low Channel	2402	-13.80	8	Pass
Mid Channel	2441	-13.33	8	Pass
High Channel	2481	-13.75	8	Pass

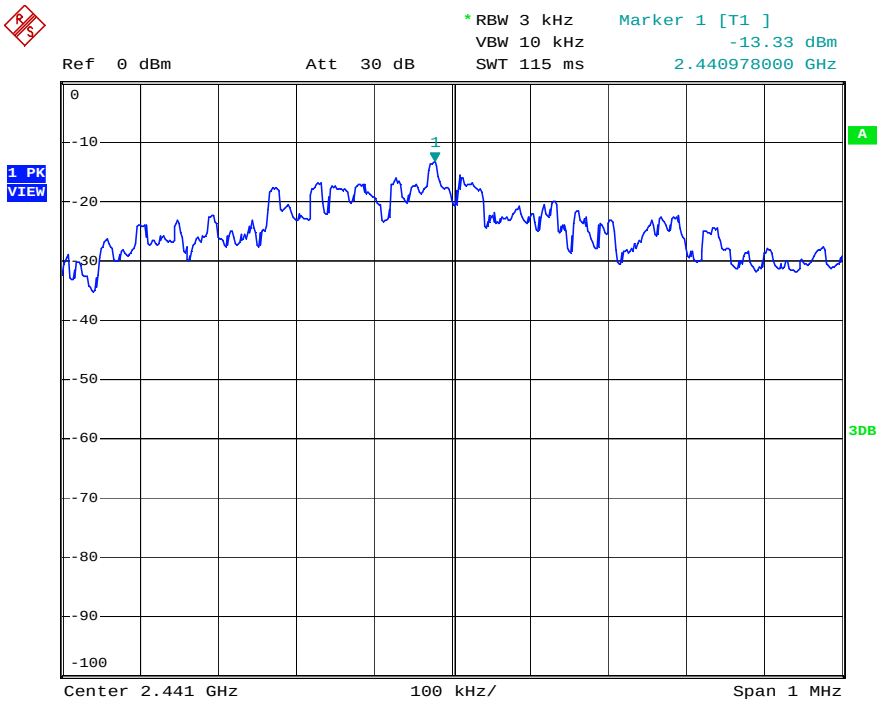
Test Plot of Maximum Power Density

Low Channel



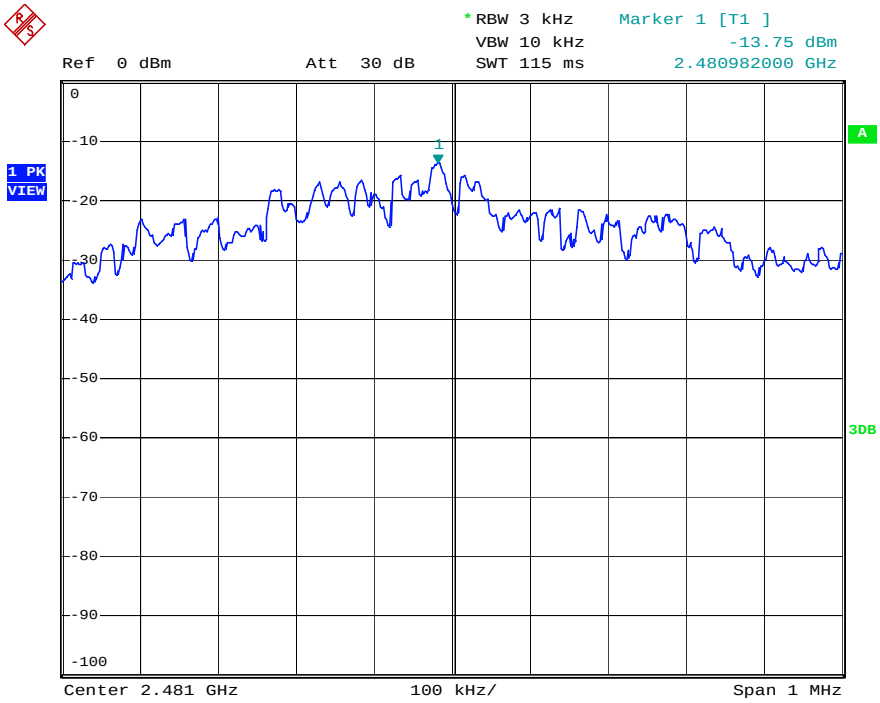
Date: 9.APR.2008 04:39:04

Middle Channel



Date: 9.APR.2008 04:37:47

High Channel



Date: 9.APR.2008 04:36:37

5.6 Spurious Emission

RESULT: **Passed**

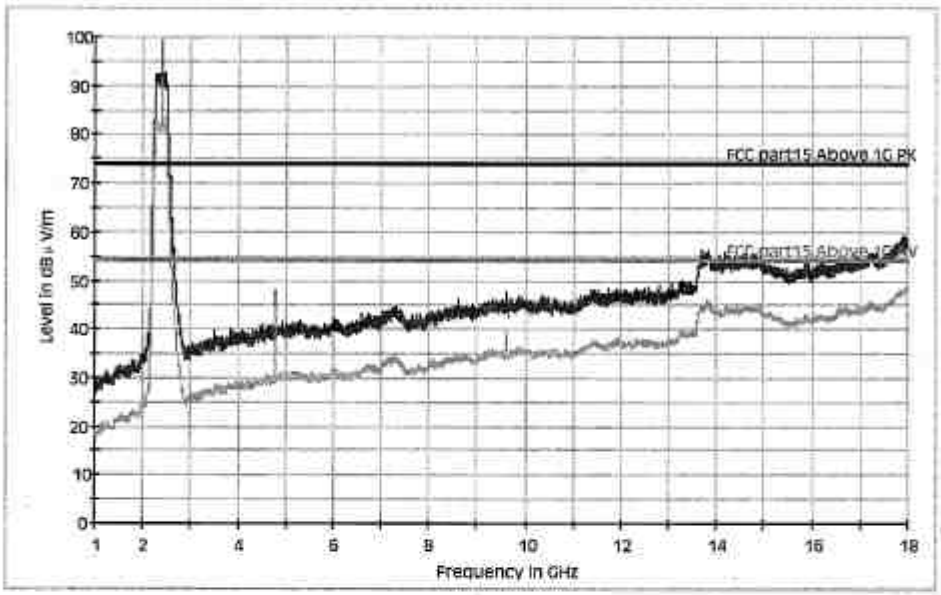
Date of testing	:	2008-01-24 to 2008-02-14
Test standard	:	FCC part 15.247 & FCC part 15.209
Basic standard	:	ANSI C63.4: 2003
Limits	:	Refer to 15.209(a)
Kind of test site	:	3m Anechoic Chamber

Test setup

Test Channel	:	Low/ Middle/ High
Operation mode	:	A
Ambient temperature	:	20℃
Relative humidity	:	40%
Atmospheric pressure	:	100 kPa

Test results of spurious emission refer to following test plot.

Test Plot of Spurious emission of Low channel– Vertical (Radiated, 1GHz – 18GHz)



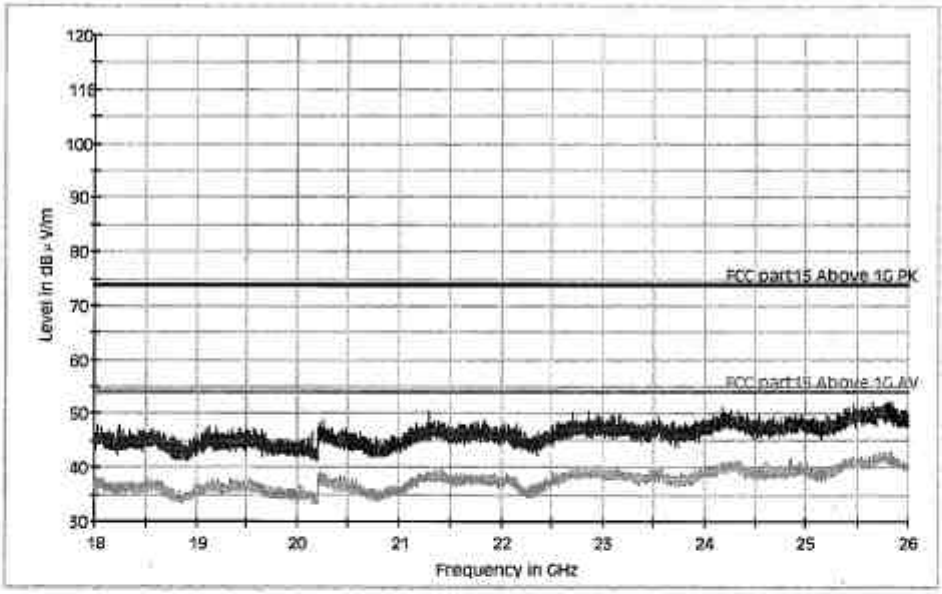
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4803.750000	48.0	26.0	74.0	
7311.250000	44.9	29.1	74.0	
8609.625000	46.3	27.7	74.0	
11506.000000	48.1	25.9	74.0	
13694.750000	56.2	17.8	74.0	
13852.000000	56.4	17.6	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4803.750000	44.3	9.7	54.0	
7205.000000	34.9	19.1	54.0	
9304.500000	36.0	18.0	54.0	
9608.375000	39.5	14.5	54.0	
13705.375000	45.1	8.9	54.0	
13822.250000	46.3	7.7	54.0	

Test Plot of Spurious emission of Low channel– Vertical (Radiated, 18GHz – 26GHz)



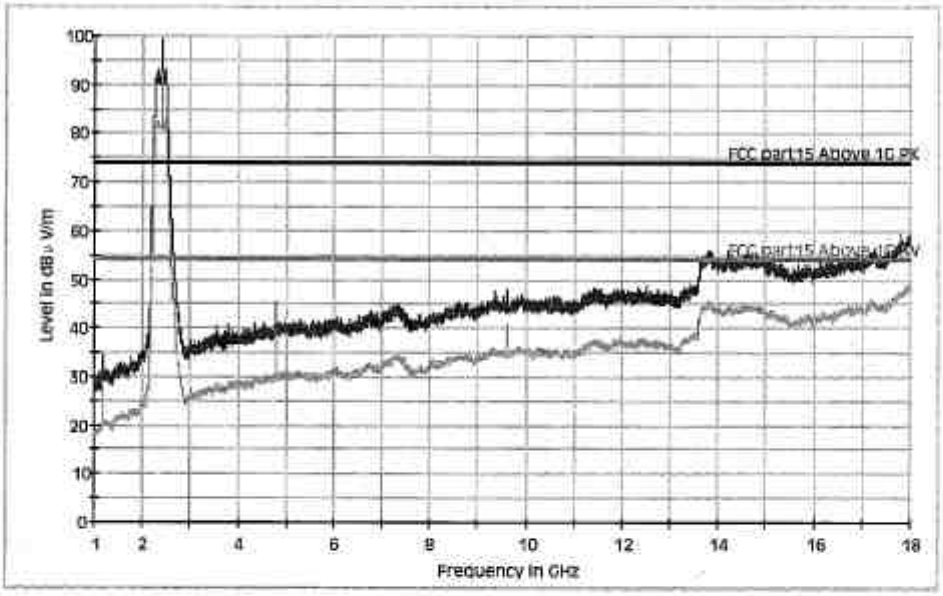
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18072.000000	45.3	28.7	74.0	
20236.000000	46.0	28.0	74.0	
21416.000000	46.6	27.4	74.0	
22959.000000	46.5	27.5	74.0	
24347.000000	49.4	24.6	74.0	
25821.000000	51.3	22.7	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18072.000000	38.1	15.9	54.0	
20236.000000	39.0	15.0	54.0	
21416.000000	39.7	14.3	54.0	
22959.000000	40.3	13.7	54.0	
24347.000000	41.3	12.7	54.0	
25821.000000	42.9	11.1	54.0	

Test Plot of Spurious emission of Low channel– Horizontal (Radiated, 1GHz – 18GHz)



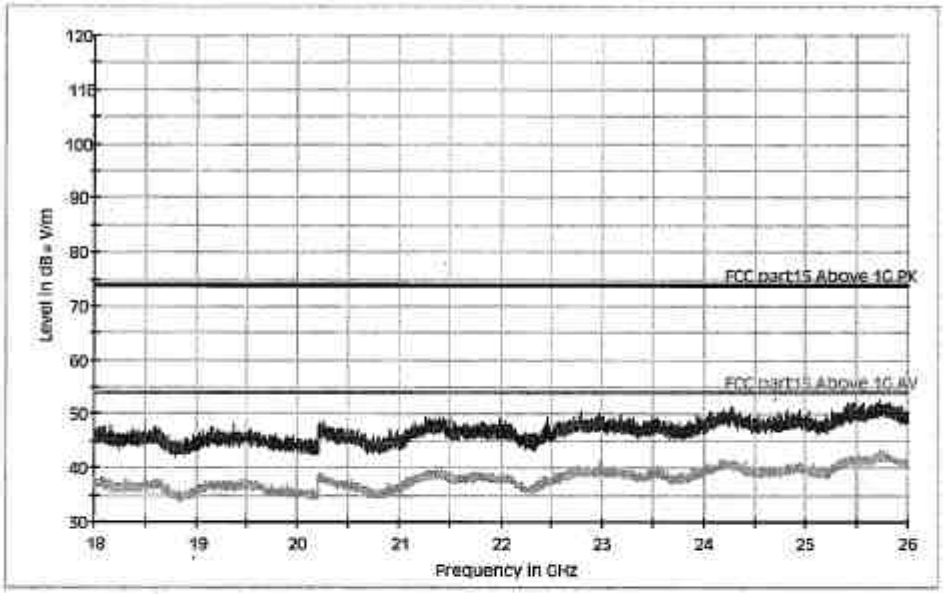
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4803.750000	45.4	28.6	74.0	
7330.375000	44.9	29.1	74.0	
9353.375000	47.5	26.5	74.0	
11395.500000	48.2	25.8	74.0	
13675.625000	54.6	19.4	74.0	
14942.125000	56.7	17.3	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4803.750000	39.9	14.1	54.0	
7355.875000	34.4	19.6	54.0	
9308.750000	36.1	17.9	54.0	
9608.375000	40.9	13.1	54.0	
13724.500000	44.7	9.3	54.0	
13852.000000	45.9	8.1	54.0	

Test Plot of Spurious emission of Low channel– Horizontal (Radiated, 18GHz – 26GHz)



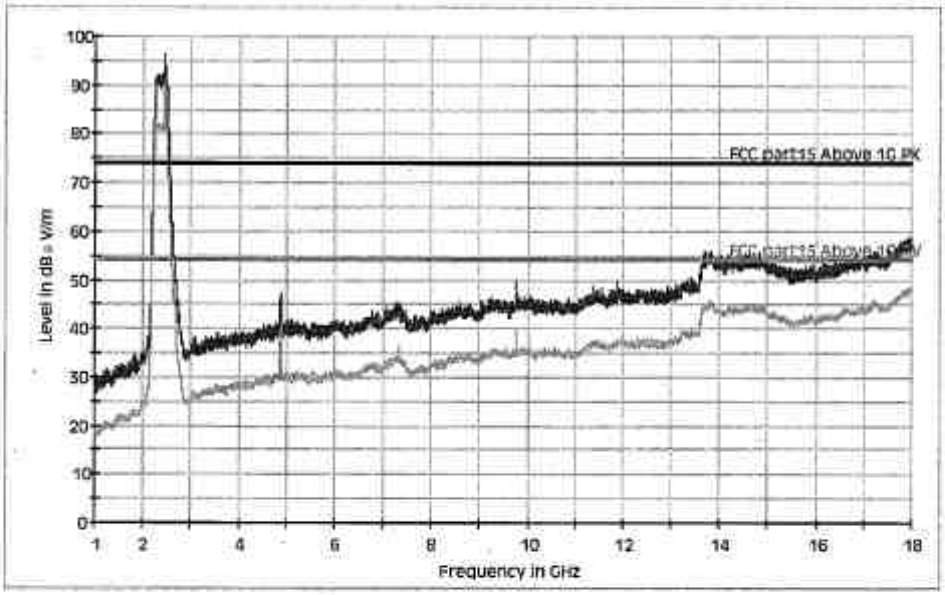
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18498.000000	47.2	26.8	74.0	
20224.000000	47.8	26.2	74.0	
21418.000000	47.2	26.8	74.0	
22982.000000	47.4	26.6	74.0	
24173.000000	48.6	25.4	74.0	
25758.000000	50.8	23.2	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18498.000000	38.1	15.9	54.0	
20224.000000	39.2	14.8	54.0	
21418.000000	40.0	14.0	54.0	
22982.000000	41.3	12.7	54.0	
24173.000000	41.8	12.2	54.0	
25758.000000	43.4	10.6	54.0	

Test Plot of Spurious emission of Middle channel– Vertical (Radiated, 1GHz – 18GHz)



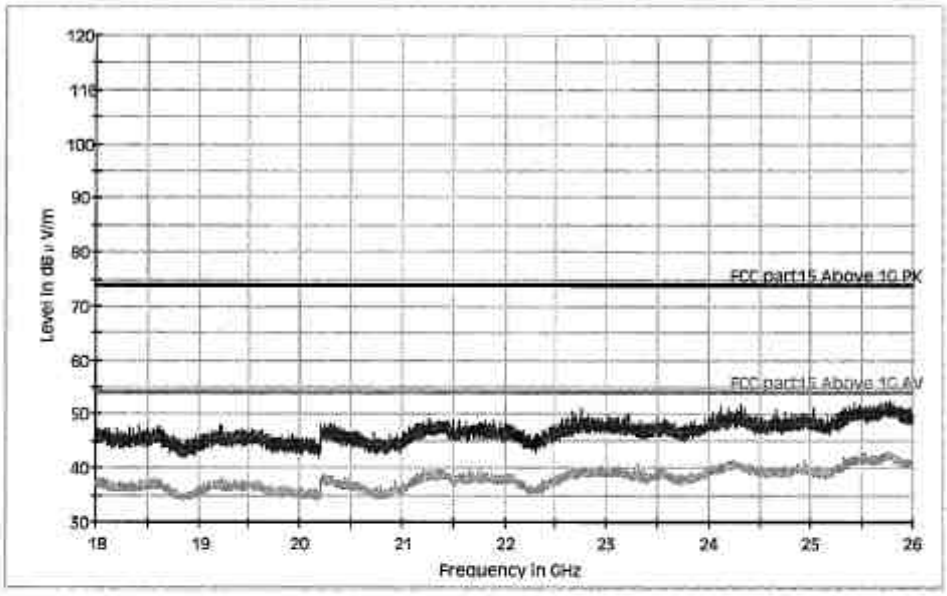
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Comment
4882.375000	47.2	26.8	74.0	
7321.875000	45.7	28.3	74.0	
9257.750000	46.6	27.4	74.0	
9763.500000	49.9	24.1	74.0	
13682.000000	55.9	18.1	74.0	
13835.000000	55.8	18.2	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Comment
4882.375000	41.2	12.8	54.0	
7321.875000	36.5	17.5	54.0	
9272.625000	35.7	18.3	54.0	
9763.500000	39.7	14.3	54.0	
13728.750000	44.6	9.4	54.0	
13822.250000	45.8	8.2	54.0	

Test Plot of Spurious emission of Middle channel– Vertical (Radiated, 18GHz – 26GHz)



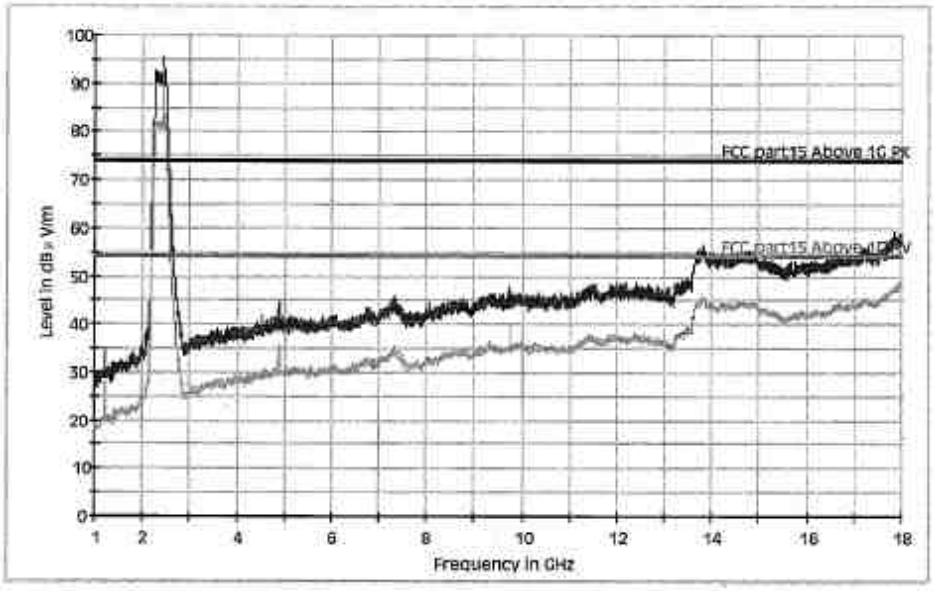
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
19224.000000	45.4	28.6	74.0	
20242.000000	47.4	26.6	74.0	
21204.000000	47.5	26.5	74.0	
23310.000000	46.5	27.5	74.0	
24250.000000	49.5	24.5	74.0	
25778.000000	51.0	23.0	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
19224.000000	38.2	15.8	54.0	
20242.000000	38.8	15.2	54.0	
21204.000000	39.8	14.2	54.0	
23310.000000	40.6	13.4	54.0	
24250.000000	41.6	12.4	54.0	
25778.000000	42.9	11.1	54.0	

Test Plot of Spurious emission of Middle channel– Horizontal (Radiated, 1GHz – 18GHz)



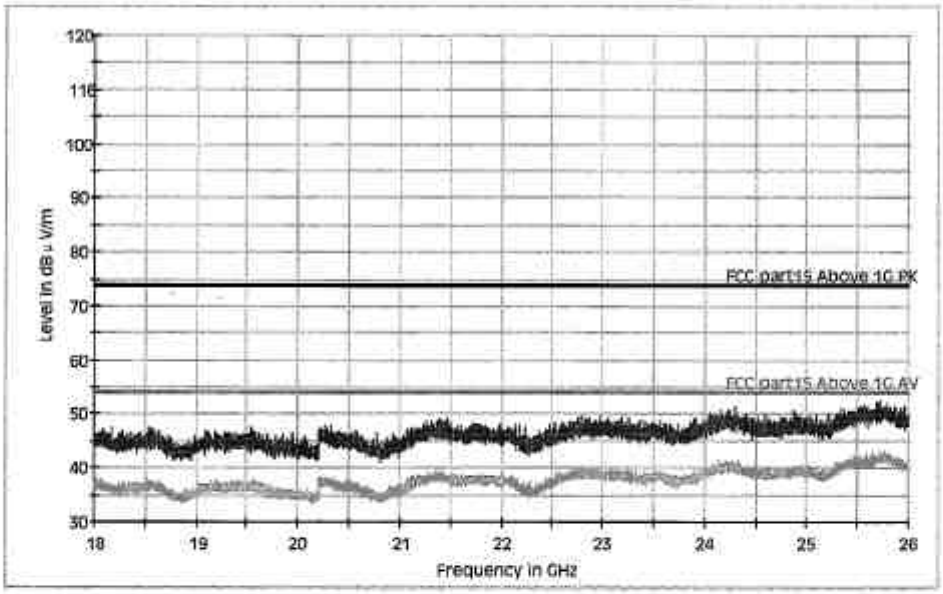
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dBµV/m)	Average-Max Hold (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Comment
4882.375000	44.7	35.9	29.3	74.0	
7338.875000	46.0	33.7	28.0	74.0	
9338.500000	46.3	35.3	27.7	74.0	
11565.500000	48.3	36.3	25.7	74.0	
13743.625000	55.5	44.5	18.5	74.0	
13849.875000	56.5	45.5	17.5	74.0	

Limit and Margin AV

Frequency (MHz)	MaxPeak-Max Hold (dBµV/m)	Average-Max Hold (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Comment
4882.375000	44.7	35.9	18.1	54.0	
7321.875000	45.7	35.5	18.5	54.0	
9302.375000	45.2	36.5	17.5	54.0	
9763.500000	47.0	39.7	14.3	54.0	
13709.625000	53.0	44.6	9.4	54.0	
13841.375000	55.1	45.7	8.3	54.0	

Test Plot of Spurious emission of Middle channel– Horizontal (Radiated, 18GHz – 26GHz)



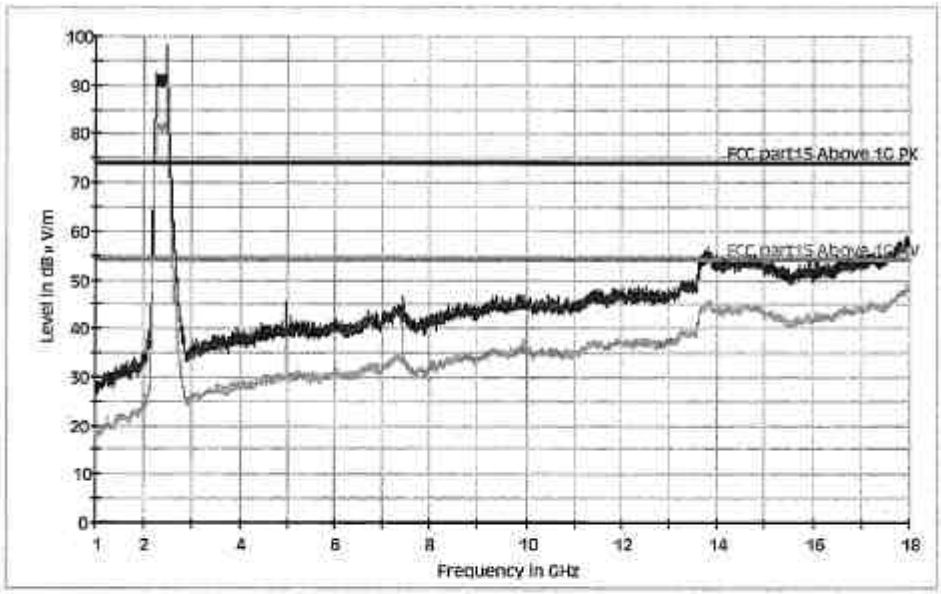
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18036.000000	44.9	29.1	74.0	
20227.000000	46.1	27.9	74.0	
21343.000000	46.3	27.7	74.0	
22771.000000	48.5	25.5	74.0	
24205.000000	48.5	25.5	74.0	
25767.000000	50.3	23.7	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18036.000000	37.8	16.2	54.0	
20227.000000	38.6	15.4	54.0	
21343.000000	39.3	14.7	54.0	
22771.000000	40.4	13.6	54.0	
24205.000000	41.4	12.6	54.0	
25767.000000	43.2	10.8	54.0	

Test Plot of Spurious emission of High channel– Vertical (Radiated, 1GHz – 18GHz)



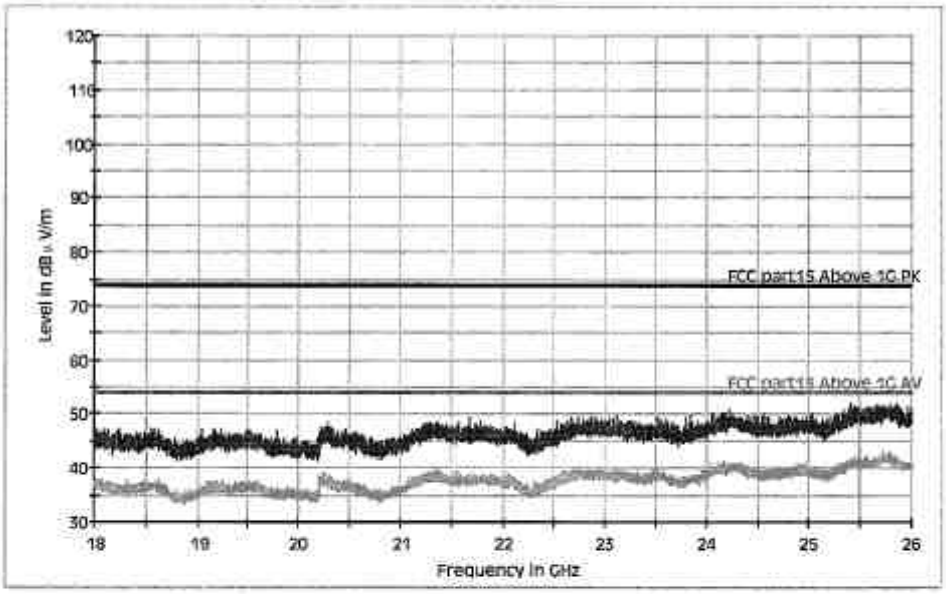
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4961.000000	45.4	28.6	74.0	
7349.500000	44.8	29.2	74.0	
7443.000000	46.7	27.3	74.0	
11433.750000	48.1	25.9	74.0	
13750.000000	56.0	18.0	74.0	
13820.125000	56.7	17.3	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4961.000000	38.0	16.0	54.0	
7347.375000	34.6	19.4	54.0	
7443.000000	41.2	12.8	54.0	
9925.000000	37.9	16.1	54.0	
13737.250000	44.7	9.3	54.0	
13809.500000	45.8	8.2	54.0	

Test Plot of Spurious emission of High channel– Vertical (Radiated, 18GHz – 26GHz)



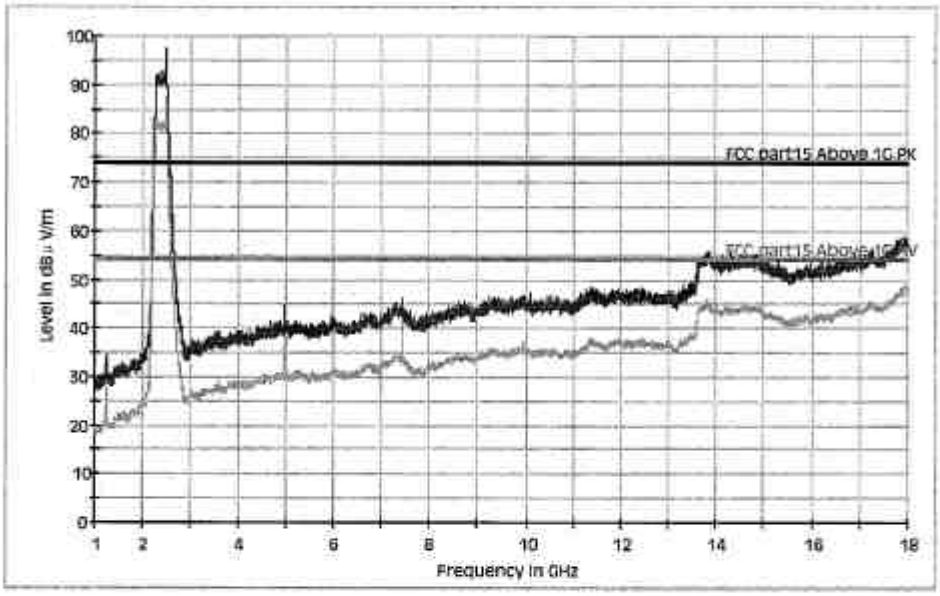
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18036.000000	43.5	30.5	74.0	
20257.000000	45.6	28.4	74.0	
21356.000000	47.0	27.0	74.0	
23091.000000	47.6	26.4	74.0	
24179.000000	47.5	26.5	74.0	
25785.000000	49.2	24.8	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18036.000000	37.9	16.1	54.0	
20257.000000	39.2	14.8	54.0	
21356.000000	40.2	13.8	54.0	
23091.000000	40.0	14.0	54.0	
24179.000000	41.3	12.7	54.0	
25785.000000	43.0	11.0	54.0	

Test Plot of Spurious emission of High channel– Horizontal (Radiated, 1GHz – 18GHz)



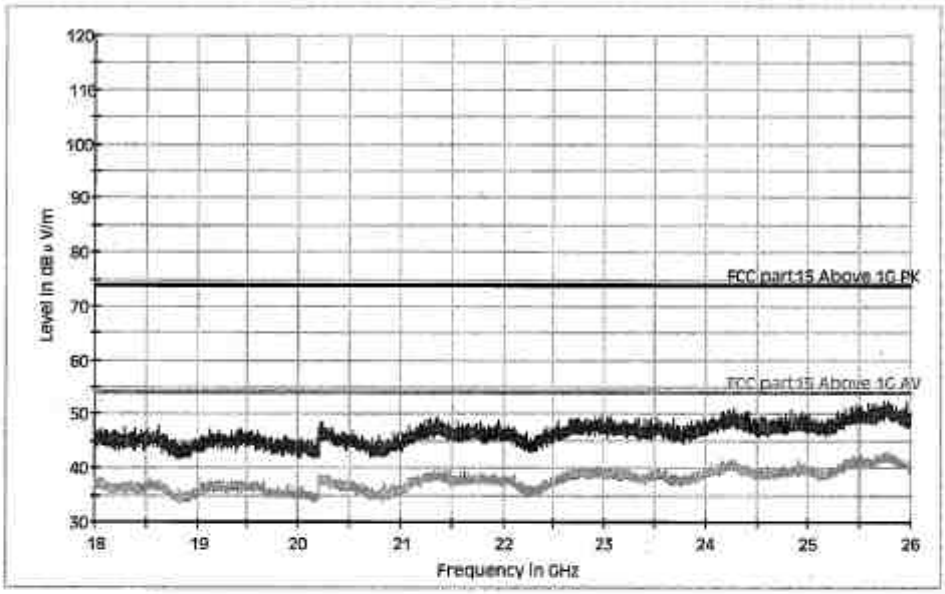
Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4961.000000	44.9	29.1	74.0	
7309.125000	45.1	28.9	74.0	
9249.250000	46.6	27.4	74.0	
11427.375000	48.5	25.5	74.0	
13720.250000	54.6	19.4	74.0	
13845.625000	56.1	17.9	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
4961.000000	36.8	17.2	54.0	
7311.250000	34.4	19.6	54.0	
7443.000000	41.8	12.2	54.0	
11376.375000	37.8	16.2	54.0	
13741.500000	44.9	9.1	54.0	
13828.625000	46.1	7.9	54.0	

Test Plot of Spurious emission of High channel– Horizontal (Radiated, 18GHz – 26GHz)



Limit and Margin PK

Frequency (MHz)	MaxPeak-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18008.000000	45.6	28.4	74.0	
20209.000000	46.5	27.5	74.0	
21487.000000	45.8	28.2	74.0	
23136.000000	46.6	27.4	74.0	
24265.000000	49.2	24.8	74.0	
25804.000000	50.6	23.4	74.0	

Limit and Margin AV

Frequency (MHz)	Average-Max Hold (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Comment
18008.000000	38.3	15.7	54.0	
20209.000000	38.8	15.2	54.0	
21487.000000	39.7	14.3	54.0	
23136.000000	40.2	13.8	54.0	
24265.000000	41.5	12.5	54.0	
25804.000000	42.9	11.1	54.0	

5.7 Radiated emissions

RESULT: **Passed**

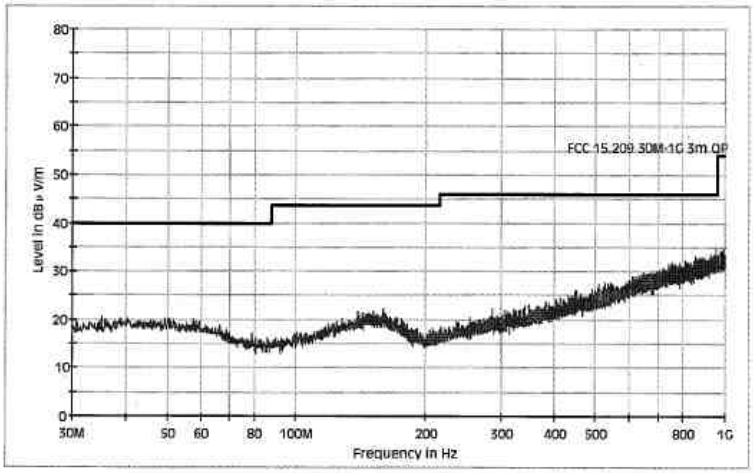
Date of testing	:	2008-01-31
Test standard	:	FCC Part 15.209
Basic standard	:	ANSI C63.4: 2003
Frequency range	:	30 – 1000MHz
Limits	:	FCC Part 15.209(a)
Kind of test site	:	3m Semi-Anechoic Chamber

Test Setup

Input Voltage	:	DC 3V via AA Alkaline Battery
Operation Mode	:	A, B, C
Earthing	:	Not Connected
Ambient temperature	:	20℃
Relative humidity	:	40%
Atmospheric pressure	:	100 kPa

Test results of radiated emissions refer to following test plot.

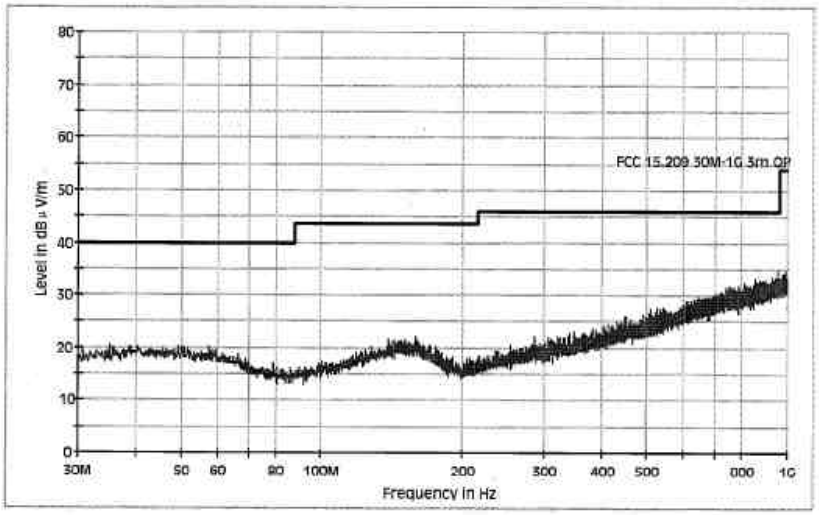
Test Plot of Radiated emissions of Low channel- Horizontal



Limit and Margin

Frequency (MHz)	QuasiPeak (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Polarity
47.450000	11.2	28.8	40.0	H
160.000000	15.7	27.8	43.5	H
384.050000	16.8	29.2	46.0	H
501.400000	16.9	29.1	46.0	H
817.650000	23.5	22.5	46.0	H

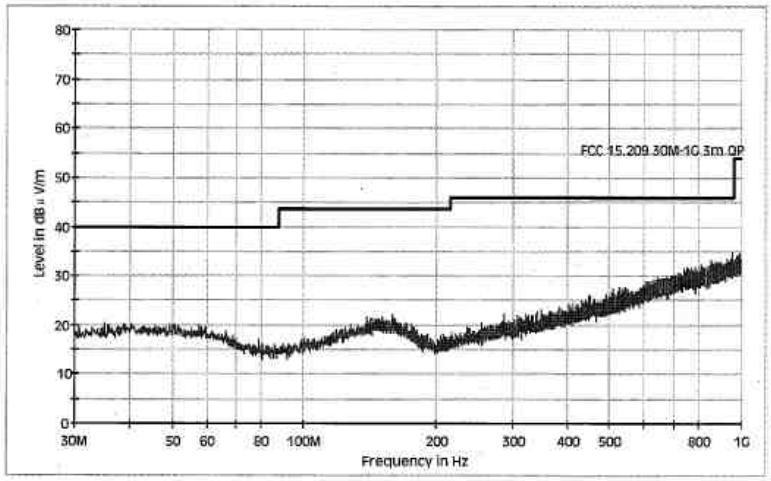
Test Plots of Radiated emissions of Low channel- Vertical



Limit and Margin

Frequency (MHz)	QuasiPeak (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Polarity
160.000000	15.7	27.8	43.5	V
384.050000	16.9	29.1	46.0	V
501.450000	17.0	29.0	46.0	V
810.850000	23.5	22.5	46.0	V

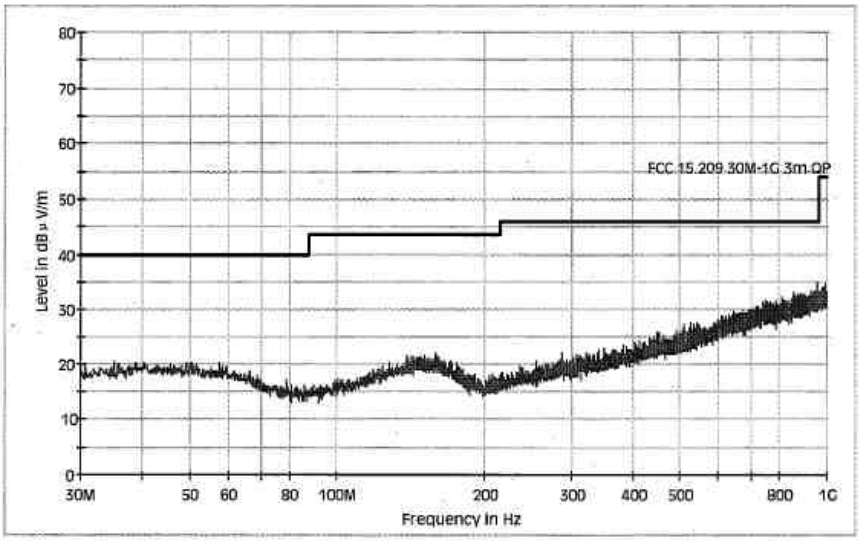
Test Plot of Radiated emissions of Middle channel- Horizontal



Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Polarity
160.000000	15.8	27.7	43.5	H
384.050000	16.9	29.1	46.0	H
501.400000	17.0	29.0	46.0	H

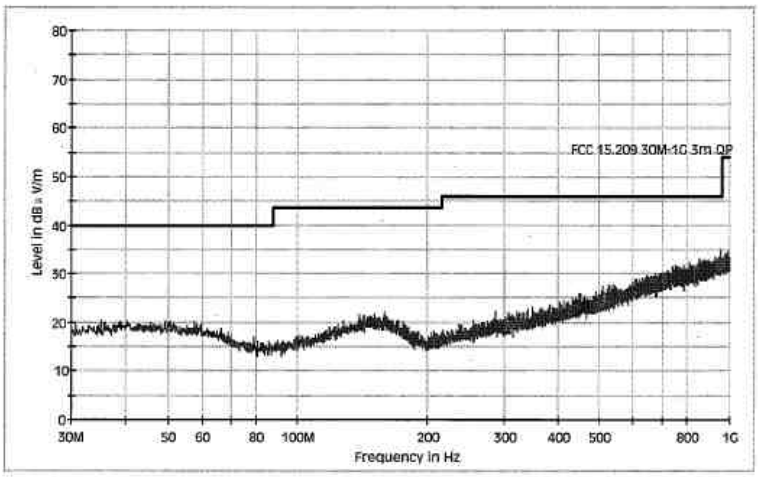
Test Plots of Radiated emissions of Middle channel- Vertical



Limit and Margin

Frequency (MHz)	QuasiPeak (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Polarity
160.000000	15.7	27.8	43.5	V
384.050000	16.8	29.2	46.0	V
501.400000	17.1	28.9	46.0	V
529.550000	17.6	28.4	46.0	V

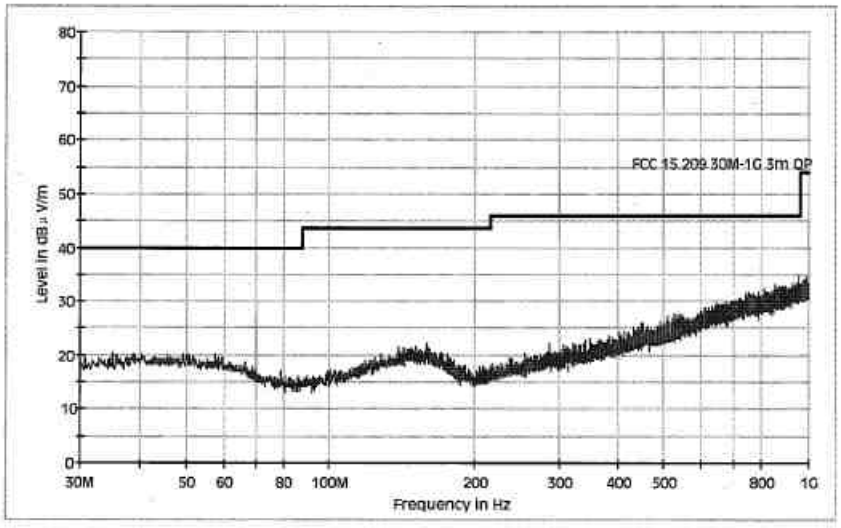
Test Plot of Radiated emissions of High channel- Horizontal



Limit and Margin

Frequency (MHz)	QuasiPeak (dB µ V/m)	Margin (dB)	Limit (dB µ V/m)	Polarity
384.050000	16.8	29.2	46.0	H
501.400000	17.1	28.9	46.0	H
787.550000	23.1	22.9	46.0	H

Test Plots of Radiated emissions of High channel- Vertical



Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Polarity
160.000000	15.7	27.8	43.5	V
384.050000	16.9	29.1	46.0	V
501.400000	17.0	29.0	46.0	V
939.850000	25.3	20.7	46.0	V

6. Photographs of the Test Set-Up

Photograph 1: Set-up for Radiated Emissions

Photograph 2: Set-up for Spurious Emissions tets (1GHz – 18GHz)

Photograph 3: Set-up for Spurious Emissions tets (18GHz – 26GHz)

7. List of Tables

8. List of Photographs