

EMC TEST REPORT

Report No. : EME-040211

Model No. : 36122

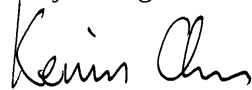
Issued Date : Mar. 31, 2004

Applicant : SENTON Enterprises Limited
Flat 10, 17/F., Fotan Ind. Centre, 26-28 Au Pui Wan St.,
Fo Tan Shatin, N.T. Hong Kong

Test By : Intertek Testing Services Taiwan Ltd.
No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li,
Shiang-Shan District, Hsinchu City, Taiwan

This test report consists of 44 pages in total. It may be duplicated completely for legal use with the allowance of the applicant. It shall not be reproduced except in full, without the written approval of Intertek Laboratory. The test result in this report only applies to the tested sample.

Project Engineer



Kevin Chen

Reviewed By



Elton Chen

Table of Contents

Summary of Tests	3
1. General information	4
1.1 Identification of the EUT	4
1.2 Additional information about the EUT	4
1.3 Antenna description.....	5
1.4 Peripherals equipment.....	5
1.5 Supporting equipment	5
2. Test specifications.....	6
2.1 Test standard	6
2.2 Operation mode.....	6
2.4 Test equipment	7
3. Radiated emission test FCC 15.249 (C).....	8
3.1 Operating environment.....	8
3.2 Test setup & procedure.....	8
3.3 Emission limit.....	9
3.3.1 Fundamental and harmonics emission limits.....	9
3.3.2 General radiated emission limits.....	10
3.4 Radiated spurious emission test data	11
3.4.1 Measurement results: frequencies equal to or less than 1 GHz	11
3.4.2 Measurement results: frequency above 1GHz.....	18
4. Conducted emission test FCC 15.207.....	24
4.1 Operating environment.....	24
4.2 Test setup & procedure.....	24
4.3 Emission limit.....	25
4.4 Conducted emission data FCC 15.207	26
5. Radiated emission on the band edge FCC 15.249(C).....	32

Summary of Tests**2.4GHz Cordless Phone -Model: 36122****FCC ID: PEG36121-2**

Test	Reference	Results
Conducted Emission of AC Power	15.207	Complies
Radiated Emission test	15.249(c), 15.209	Complies

1. General information

1.1 Identification of the EUT

Applicant	: SENTON Enterprises Limited
Product	: 2.4GHz Cordless Phone
Model No.	: 36122
FCC ID.	: PEG36121-2
Frequency Range	: 2402.55~ 2475.95MHz
Channel Number	: 40 channels
Frequency of Each Channel (Base)	: Tx: 2402.55 + 0.05k MHz, k=0~39 Rx: 2474.00 + 0.05k MHz, k=0~39
Frequency of Each Channel (Handset)	: Tx: 2474.00 + 0.05k MHz, k=0~39 Rx: 2402.55 + 0.05k MHz, k=0~39
Type of Modulation	: FM
Power Supply (Base)	: 120Vac, 60Hz with adapter
Rated Power (Handset)	: 3.6Vdc battery
Power Cord	: N/A
Sample Received	: Mar. 12, 2004
Test Date(s)	: Mar. 15, 2004 to Mar. 24, 2004

1.2 Additional information about the EUT

The EUT is a Cordless Phone, it consists one handset, which operated at 2474MHz – 2475.95MHz and one base that operated at 2402.55 – 2404.50MHz.

We verify that 36121 is series model to 36122 (EUT), because 36121 and 36122 use the same handset, and the difference is only on the circuit of charger of base unit.

The EUT has two types of base, one of which can connect with RJ-11 port, and the other has charger function only. Under this condition, we define the base as charger 1 (with RJ-11 port) and charger 2 (charger function only) for EUT in this report. For detailed test items, please see table below:

Test Item Model No.	Radiated Emission Test		Conduction test
	Below 1GHz	Above 1Ghz	
36121(Series model)	ü	ü	ü
36122 (with charger 1)	ü	ü	ü
36122 (with charger 2)	ü		ü

We test the Radiated Emission for handset of EUT only.

For more detail features, please refer to User's manual as file name “Installation guide.pdf”

1.3 Antenna description

The EUT uses a permanently connected antenna.

Antenna Gain : 0dBi

Antenna Type : Copper Wire

Connector Type : Soldering

1.4 Peripherals equipment

Peripherals	Manufacturer	Product No.	Serial No.	FCC ID
Phone	Tentel	K-903S	0514000941	FCC DoC Approved

1.5 Supporting equipment

Peripherals	Manufacturer	Product No.	Serial No.
Exchange Board	Tentel	250-00193-07	94948

2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 Subpart C Paragraph 15.249 for non-spread spectrum devices.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band were all meet limit requirement, thus we evaluate the EUT pass the specified test.

2.2 Operation mode

During conduction test, it worked in normal operating mode.
While in other test, it worked in the status of continuously transmitting.

2.4 Test equipment

Equipment	Brand	Frequency range	Model No.	Series No.	Last Cal.Date
EMI Test Receiver	Rohde & Schwarz	9kHz~2.75GHz	ESCS 30	825788/014	Feb. 18, 2004
EMI Test Receiver	Rohde & Schwarz	20Hz~26.5GHz	ESMI	825428/005	June 10, 2003
Spectrum Analyzer	Rohde & Schwarz	9kHz~30GHz	FSP 30	100137	July 10, 2003
Horn Antenna	EMCO	1GHz~18GHz	3115	9906-5890	Sep. 19, 2003
Horn Antenna	SCHWARZBECK	14GHz~40GHz	BBHA 9170	159	June 20, 2003
Bilog Antenna	SCHWARZBECK	25MHz~1.7GHz	VULB 9160	3133	Feb. 21, 2004
Turn Table	HDGmbH	N/A	DS 420S	420/669/01	N/A
Antenna Tower	HDGmbH	N/A	MA 240	240/573	N/A
Pre-Amplifier	MITEQ	0.1GHz~26.5GHz	AFS42-001026 50-42-10P-42	919981	April 14, 2003
LISN	Rohde & Schwarz	9KHz~30MHz	ESH3-Z5	EC344	Jan. 20, 2004

Note: The above equipments are within the valid calibration period.

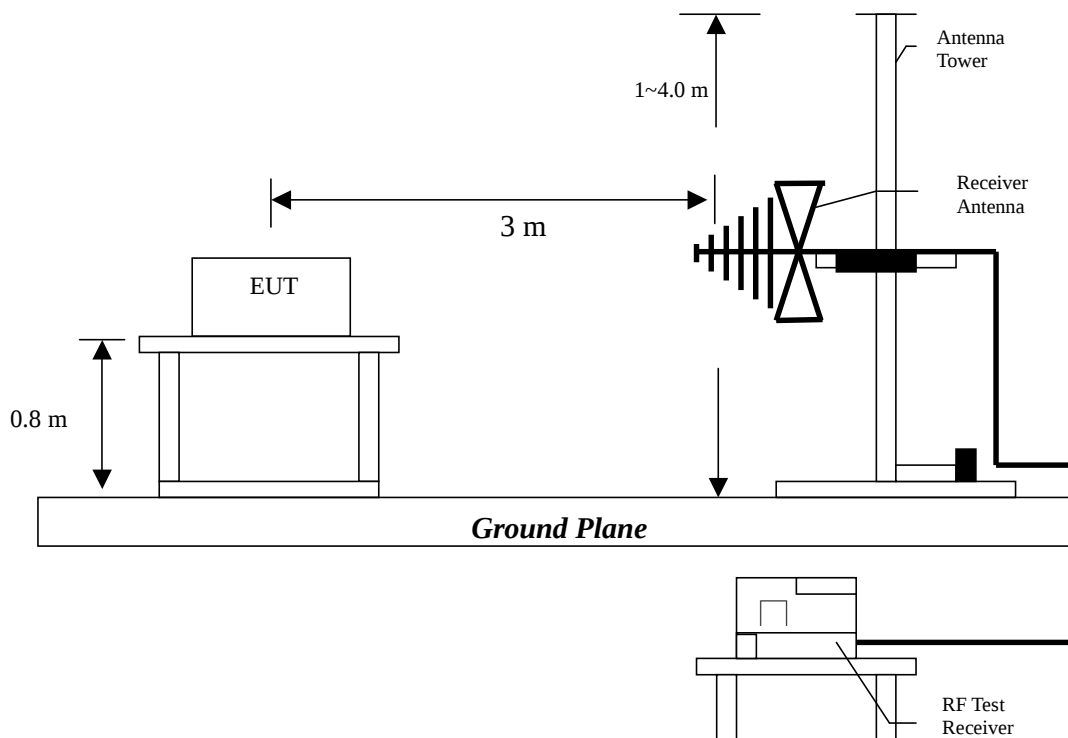
3. Radiated emission test FCC 15.249 (C)

3.1 Operating environment

Temperature:	21	°C	(10-40°C)
Relative Humidity:	55	%	(10-90%)
Atmospheric Pressure	1010	hPa	(860-1060hPa)

3.2 Test setup & procedure

The Diagram below shows the test setup, which is utilized to make these measurements.



Radiated emissions were investigated cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1MHz RBW/VBW) recorded also on the report.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance.



Setup 1



Setup 2



Setup 3

The worst case condition was found in setup1 and recorded in this report.

The EUT configuration please refers to the “Spurious set-up photo.pdf”.

3.3 Emission limit

3.3.1 Fundamental and harmonics emission limits

Frequency (MHz)	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m@3m)	(dBuV/m@3m)	(uV/m@3m)	(dBuV/m@3m)
2400~2483.5	50	94	500	54

3.3.2 General radiated emission limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

Frequency MHz	15.209 Limits (dB μ V/m@3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remark:

1. In the above table, the tighter limit applies at the band edges.
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

Uncertainty was calculated in accordance with NAMAS NIS 81.

Expanded uncertainty (k=2) of radiated emission measurement is ± 4.98 dB.

Expanded uncertainty (k=2) of conducted emission measurement is ± 2.02 dB.

3.4 Radiated spurious emission test data

3.4.1 Measurement results: frequencies equal to or less than 1 GHz

EUT : 36121
Test Unit : Base
Test Condition : Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
59.10000	QP	V	12.90	3.00	15.90	40.00	-24.10	1.20	302
163.90000	QP	V	14.92	2.70	17.62	43.50	-25.88	1.21	205
340.40000	QP	V	15.56	2.70	18.26	46.00	-27.74	1.42	147
544.10000	QP	V	19.60	3.00	22.60	46.00	-23.40	1.00	185
800.20000	QP	V	23.89	11.50	35.39	46.00	-10.61	2.54	312
899.10000	QP	V	24.51	3.70	28.21	46.00	-17.79	2.58	56
158.00000	QP	H	14.76	1.90	16.66	43.50	-26.84	1.50	45
171.60000	QP	H	14.29	3.40	17.69	43.50	-25.81	2.10	204
408.30000	QP	H	16.94	3.00	19.94	46.00	-26.06	2.74	38
590.70000	QP	H	20.62	2.60	23.22	46.00	-22.78	3.00	185
786.60000	QP	H	23.49	3.80	27.29	46.00	-18.71	2.60	94
800.20000	QP	H	23.89	10.80	34.69	46.00	-11.31	3.20	358

Remark:

1. Corrected Level = Reading Level + Correction Factor

2. Correction Factor = Antenna Factor + Cable Loss

EUT : 36121
 Test Unit : Base
 Test Condition : Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
59.10000	QP	V	12.90	3.80	16.70	40.00	-23.30	1.10	315
156.10000	QP	V	14.76	1.40	16.16	43.50	-27.34	1.25	25
332.60000	QP	V	14.99	2.40	17.39	46.00	-28.61	1.00	178
425.80000	QP	V	17.37	2.90	20.27	46.00	-25.73	1.89	64
573.20000	QP	V	19.99	2.60	22.59	46.00	-23.41	2.05	258
802.10000	QP	V	23.89	11.10	34.99	46.00	-11.01	2.14	14
342.30000	QP	H	15.56	2.70	18.26	46.00	-27.74	2.50	94
406.40000	QP	H	16.94	3.10	20.04	46.00	-25.96	2.78	211
497.50000	QP	H	18.61	3.30	21.91	46.00	-24.09	3.02	59
600.40000	QP	H	20.88	2.90	23.78	46.00	-22.22	3.25	158
7767.20000	QP	H	27.50	3.60	31.10	54.00	-22.90	2.74	87
802.10000	QP	H	23.89	10.50	34.39	46.00	-11.61	2.00	341

Remark:

1. Corrected Level = Reading Level + Correction Factor
2. Correction Factor = Antenna Factor + Cable Loss

EUT : 36122 (with charger 1)
 Test Unit : Base
 Test Condition : Tx at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
59.10000	QP	V	12.90	4.10	17.00	40.00	-23.00	1.14	300
468.40000	QP	V	18.21	3.50	21.71	46.00	-24.29	1.24	98
608.10000	QP	V	20.88	3.00	23.88	46.00	-22.12	1.02	168
751.70000	QP	V	23.40	3.40	26.80	46.00	-19.20	1.54	187
800.20000	QP	V	23.89	16.60	40.49	46.00	-5.51	1.85	78
827.30000	QP	V	24.46	6.20	30.66	46.00	-15.34	2.05	45
115.40000	QP	H	11.80	4.00	15.80	43.50	-27.70	2.71	74
158.00000	QP	H	14.76	2.50	17.26	43.50	-26.24	1.56	35
280.30000	QP	H	14.07	2.50	16.57	46.00	-29.43	1.77	251
800.20000	QP	H	23.89	15.10	38.99	46.00	-7.01	2.21	354
827.30000	QP	H	24.46	5.50	29.96	46.00	-16.04	3.20	244
893.30000	QP	H	24.51	7.00	31.51	46.00	-14.49	2.85	196

Remark:

1. Corrected Level = Reading Level + Correction Factor
2. Correction Factor = Antenna Factor + Cable Loss

EUT : 36122 (with charger 1)
Test Unit : Base
Test Condition : Tx at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
43.60000	QP	V	12.96	5.40	18.36	40.00	-21.64	1.25	254
59.10000	QP	V	12.90	4.90	17.80	40.00	-22.20	1.04	64
348.20000	QP	V	15.56	2.70	18.26	46.00	-27.74	1.22	147
588.70000	QP	V	20.62	3.10	23.72	46.00	-22.28	1.74	185
802.10000	QP	V	23.89	19.35	43.24	46.00	-2.76	1.56	74
829.30000	QP	V	24.46	5.90	30.36	46.00	-15.64	1.43	35
109.50000	QP	H	10.92	3.60	14.52	43.50	-28.98	2.49	47
348.20000	QP	H	15.56	2.90	18.46	46.00	-27.54	2.14	58
489.80000	QP	H	18.61	2.70	21.31	46.00	-24.69	1.98	211
755.60000	QP	H	23.40	3.00	26.40	46.00	-19.60	1.85	54
802.10000	QP	H	23.89	16.30	40.19	46.00	-5.81	2.54	234
829.30000	QP	H	24.46	6.10	30.56	46.00	-15.44	2.35	277

Remark:

1. Corrected Level = Reading Level + Correction Factor
2. Correction Factor = Antenna Factor + Cable Loss

EUT : 36122 (with charger 2)
 Test Unit : Base charger only
 Test Condition : Charger mode

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
53.30000	QP	V	13.07	2.50	15.57	40.00	-24.43	1.51	325
243.40000	QP	V	12.85	2.50	15.35	46.00	-30.65	1.47	97
478.10000	QP	V	18.21	3.20	21.41	46.00	-24.59	1.25	174
600.40000	QP	V	20.88	3.20	24.08	46.00	-21.92	2.01	158
798.20000	QP	V	23.49	6.40	29.89	46.00	-16.11	1.78	48
903.00000	QP	V	24.76	10.30	35.06	46.00	-10.94	1.59	47
160.00000	QP	H	14.92	7.80	22.72	43.50	-20.78	1.85	221
175.50000	QP	H	14.29	10.10	24.39	43.50	-19.11	1.44	78
185.20000	QP	H	13.55	4.80	18.35	43.50	-25.15	2.04	199
196.80000	QP	H	12.03	9.40	21.43	43.50	-22.07	2.26	314
798.20000	QP	H	23.49	6.60	30.09	46.00	-15.91	1.88	168
906.90000	QP	H	24.76	6.10	30.86	46.00	-15.14	3.05	78

Remark:

1. Corrected Level = Reading Level + Correction Factor
2. Correction Factor = Antenna Factor + Cable Loss

EUT : 36122
Test Unit : Handset
Test Condition : Tx at low channel
Worst Case Condition : Setup1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
59.10000	QP	V	12.90	3.40	16.30	40.00	-23.70	1.11	25
158.00000	QP	V	14.76	1.60	16.36	43.50	-27.14	1.52	147
590.70000	QP	V	20.62	2.60	23.22	46.00	-22.78	1.47	165
796.30000	QP	V	23.49	4.20	27.69	46.00	-18.31	1.24	198
852.60000	QP	V	24.39	3.90	28.29	46.00	-17.71	1.46	57
953.40000	QP	V	25.81	5.00	30.81	46.00	-15.19	1.05	98
37.80000	QP	H	12.81	2.30	15.11	40.00	-24.89	1.25	49
72.70000	QP	H	11.62	3.00	14.62	40.00	-25.38	1.33	215
158.00000	QP	H	14.76	1.00	15.76	43.50	-27.74	1.09	65
755.60000	QP	H	23.40	3.20	26.60	46.00	-19.40	2.45	79
796.30000	QP	H	23.49	9.80	33.29	46.00	-12.71	3.21	233
825.40000	QP	H	24.46	9.40	33.86	46.00	-12.14	2.85	178

Remark:

1. Corrected Level = Reading Level + Correction Factor
2. Correction Factor = Antenna Factor + Cable Loss

EUT : 36122
Test Unit : Handset
Test Condition : Tx at high channel
Worst Case Condition : Setup1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
59.10000	QP	V	12.90	3.50	16.40	40.00	-23.60	1.21	33
138.60000	QP	V	13.34	1.80	15.14	43.50	-28.36	1.00	25
458.70000	QP	V	17.86	3.20	21.06	46.00	-24.94	1.78	174
761.40000	QP	V	23.40	3.40	26.80	46.00	-19.20	1.05	201
798.20000	QP	V	23.49	4.10	27.59	46.00	-18.41	1.54	58
903.00000	QP	V	24.76	6.30	31.06	46.00	-14.94	1.09	300
59.10000	QP	H	12.90	1.70	14.60	40.00	-25.40	2.88	78
150.30000	QP	H	14.76	1.40	16.16	43.50	-27.34	1.38	64
478.10000	QP	H	18.21	2.70	20.91	46.00	-25.09	2.06	98
712.90000	QP	H	22.22	2.80	25.02	46.00	-20.98	2.29	156
798.20000	QP	H	23.49	9.30	32.79	46.00	-13.21	2.47	308
825.40000	QP	H	24.46	9.20	33.66	46.00	-12.34	2.56	288

Remark:

1. Corrected Level = Reading Level + Correction Factor
2. Correction Factor = Antenna Factor + Cable Loss

3.4.2 Measurement results: frequency above 1GHz

EUT : 36121
Test Unit : Base
Test Condition : Continuous transmit at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamplifier (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
2402.55	PK	V	33.74	30.542	62.968	59.77	114	-54.23	102	208
2402.55	AV	V	33.74	30.542	55.408	52.21	94	-41.79	102	208
2402.55	PK	H	33.74	30.542	65.998	62.8	114	-51.2	107	203
2402.55	AV	H	33.74	30.542	61.168	57.97	94	-36.03	107	203

Remark:

1. Corrected Level = Reading Level + Correction Factor – Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

For PK:

1GHz-3GHz: 50dBuV
3GHz-14GHz: 54dBuV
14GHz-26.5GHz: 60dBuV

For AV:

1GHz-3GHz: 41.5dBuV
3GHz-14GHz: 46dBuV
14GHz-26.5GHz: 46.5dBuV

EUT : 36121
 Test Unit : Base
 Test Condition : Continuous transmit at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (m)	Turn Table angle (degree)
2404.5	PK	V	33.74	30.542	64.538	61.34	114	-52.66	199	238
2404.5	AV	V	33.74	30.542	57.358	54.16	94	-39.84	199	238
2404.5	PK	H	33.74	30.542	65.168	61.97	114	-52.03	107	182
2404.5	AV	H	33.74	30.542	60.768	57.57	94	-36.43	107	182

Remark:

1. Corrected Level = Reading Level + Correction Factor – Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

For PK:

1GHz-3GHz: 50dBuV
 3GHz-14GHz: 54dBuV
 14GHz-26.5GHz: 60dBuV

For AV:

1GHz-3GHz: 41.5dBuV
 3GHz-14GHz: 46dBuV
 14GHz-26.5GHz: 46.5dBuV

EUT : 36122 (with charger 1)
Test Unit : Base
Test Condition : Continuous transmit at low channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
2402.55	PK	V	33.74	30.542	65.238	62.04	114	-51.96	100	38
2402.55	AV	V	33.74	30.542	59.248	56.05	94	-37.95	100	38
2402.55	PK	H	33.74	30.542	68.218	65.02	114	-48.98	106	187
2402.55	AV	H	33.74	30.542	64.978	61.78	94	-32.22	106	187

Remark:

1. Corrected Level = Reading Level + Correction Factor – Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

For PK:

1GHz-3GHz: 50dBuV
3GHz-14GHz: 54dBuV
14GHz-26.5GHz: 60dBuV

For AV:

1GHz-3GHz: 41.5dBuV
3GHz-14GHz: 46dBuV
14GHz-26.5GHz: 46.5dBuV

EUT : 36122 (with charger 1)
 Test Unit : Base
 Test Condition : Continuous transmit at high channel

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
2404.5	PK	V	33.74	30.542	65.278	62.08	114	-51.92	107	332
2404.5	AV	V	33.74	30.542	59.648	56.45	94	-37.55	107	332
2404.5	PK	H	33.74	30.542	67.248	64.05	114	-49.95	107	186
2404.5	AV	H	33.74	30.542	63.328	60.13	94	-33.87	107	186

Remark:

1. Corrected Level = Reading Level + Correction Factor – Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

For PK:

1GHz-3GHz: 50dBuV
 3GHz-14GHz: 54dBuV
 14GHz-26.5GHz: 60dBuV

For AV:

1GHz-3GHz: 41.5dBuV
 3GHz-14GHz: 46dBuV
 14GHz-26.5GHz: 46.5dBuV

EUT : 36122
Test Unit : Handset
Test Condition : Continuous transmit at low channel
Worst Case Condition : Setup 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
2474	PK	V	33.74	30.542	83.558	80.36	114	-33.64	161	64
2474	AV	V	33.74	30.542	83.018	79.82	94	-14.18	161	64
2474	PK	H	33.74	30.542	82.168	78.97	114	-35.03	221	221
2474	AV	H	33.74	30.542	81.548	78.35	94	-15.65	221	221
4123.34	PK	H	31.88	35.742	42.588	46.45	74	-27.55	133	226
4123.34	AV	H	31.88	35.742	38.778	42.64	54	-11.36	133	226
4948	PK	H	32.265	35.742	39.813	43.29	74	-30.71	119	216
4948	AV	H	32.265	35.742	33.983	37.46	54	-16.54	119	216

Remark:

1. Corrected Level = Reading Level + Correction Factor – Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

For PK:

1GHz-3GHz: 50dBuV
3GHz-14GHz: 54dBuV
14GHz-26.5GHz: 60dBuV

For AV:

1GHz-3GHz: 41.5dBuV
3GHz-14GHz: 46dBuV
14GHz-26.5GHz: 46.5dBuV

EUT : 36122
Test Unit : Handset
Test Condition : Continuous transmit at high channel
Wosrt Case Condition : Setup 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV)	Limit @ 3 m (dBuV)	Margin (dB)	Antenna high (cm)	Turn Table angle (degree)
2475.95	PK	V	33.74	30.542	83.098	79.9	114	-34.1	129	128
2475.95	AV	V	33.74	30.542	82.488	79.29	94	-14.71	129	128
2475.95	PK	H	33.74	30.542	81.588	78.39	114	-35.61	217	193
2475.95	AV	H	33.74	30.542	81.108	77.91	94	-16.09	217	193
4126.52	PK	H	31.88	35.742	42.958	46.82	74	-27.18	133	223
4126.52	AV	H	31.88	35.742	39.448	43.31	54	-10.69	133	223

Remark:

1. Corrected Level = Reading Level + Correction Factor – Preamp
2. Correction Factor = Antenna Factor + Cable Loss
3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

For PK:

1GHz-3GHz: 50dBuV
3GHz-14GHz: 54dBuV
14GHz-26.5GHz: 60dBuV

For AV:

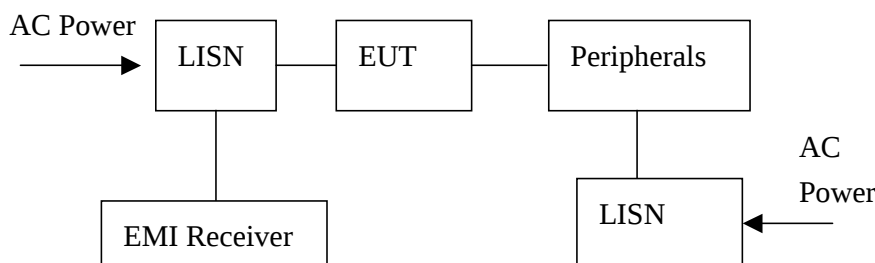
1GHz-3GHz: 41.5dBuV
3GHz-14GHz: 46dBuV
14GHz-26.5GHz: 46.5dBuV

4. Conducted emission test FCC 15.207

4.1 Operating environment

Temperature:	21	°C	(10-40°C)
Relative Humidity:	54	%	(10-90%)
Atmospheric Pressure	1010	hPa	(860-1061hPa)

4.2 Test setup & procedure



The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50 ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.

Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/1992 on conducted measurement.

The bandwidth of the field strength meter (R & S Test Receiver ESCS 30) is set at 9kHz.

The EUT configuration please refer to the “Conducted set-up photo.pdf”.

4.3 Emission limit

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

*Decreases with the logarithm of the frequency.

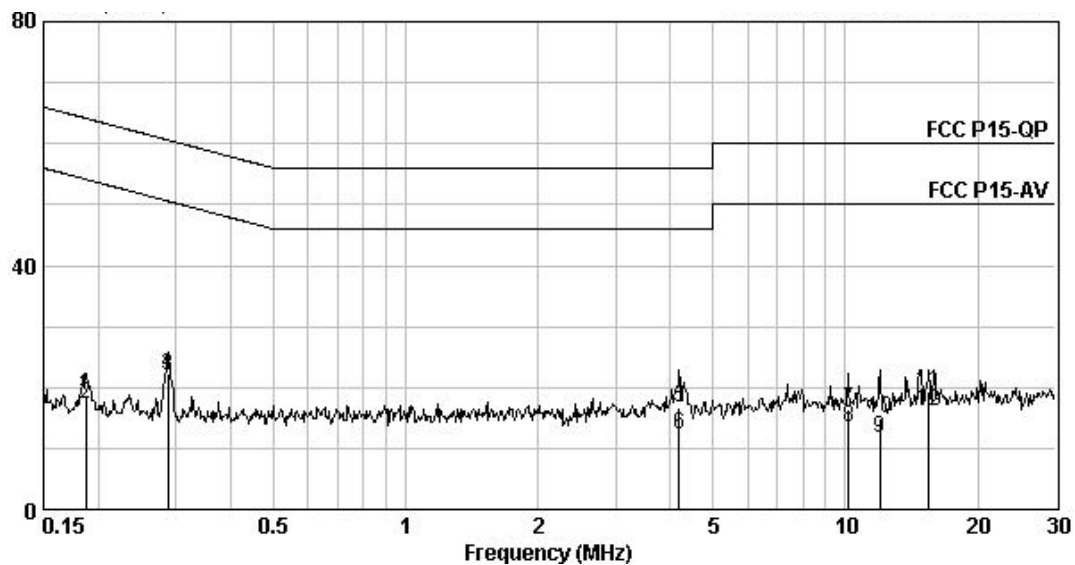
4.4 Conducted emission data FCC 15.207

(1) Line

EUT : 36121 (Base unit)

Test Condition : Charging mode

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.18749	0.1	18.75	64.15	-45.4	QP
0.18749	0.1	17.15	54.15	-37	AVERAGE
0.28831	0.1	22.38	60.57	-38.19	QP
0.28831	0.1	22.06	50.57	-28.51	AVERAGE
4.194	0.21	16.57	56	-39.43	QP
4.194	0.21	12.36	46	-33.64	AVERAGE
10.156	0.41	16.51	60	-43.49	QP
10.156	0.41	13.51	50	-36.49	AVERAGE
12.006	0.52	14.82	60	-45.18	QP
12.006	0.52	11.64	50	-38.36	AVERAGE
15.492	0.71	19.44	60	-40.56	QP
15.492	0.71	16.09	50	-33.91	AVERAGE

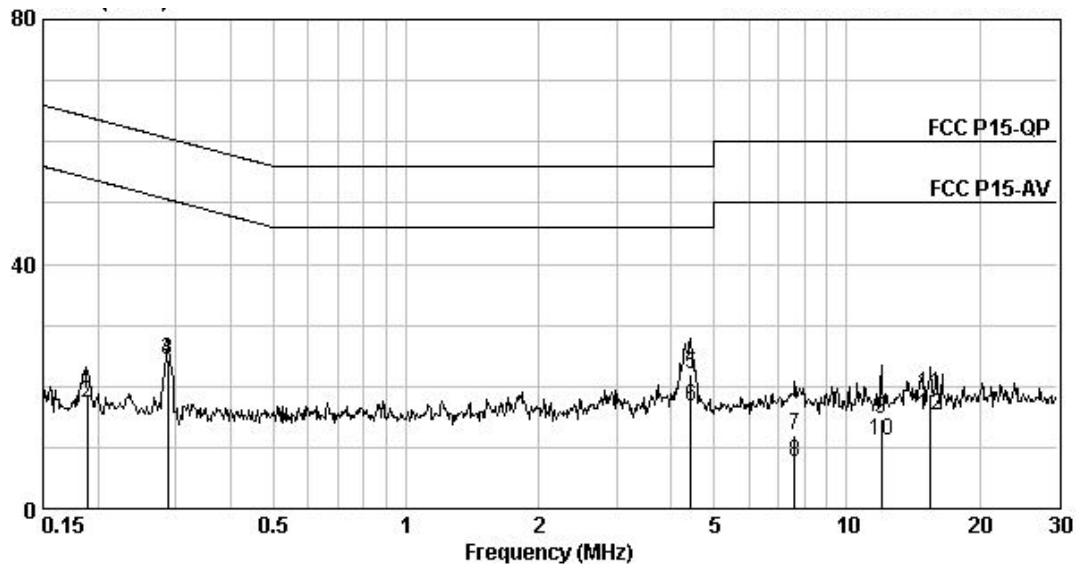


(2) Neutral

EUT : 36121 (Base unit)

Test Condition : Charging mode

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.18899	0.1	18.79	64.08	-45.29	QP
0.18899	0.1	17.26	54.08	-36.82	AVERAGE
0.28831	0.1	24.32	60.57	-36.25	QP
0.28831	0.1	24.19	50.57	-26.38	AVERAGE
4.434	0.2	22.04	56	-33.96	QP
4.434	0.2	16.67	46	-29.33	AVERAGE
7.623	0.2	12.02	60	-47.98	QP
7.623	0.2	7.66	50	-42.34	AVERAGE
12.006	0.28	14.52	60	-45.48	QP
12.006	0.28	11.25	50	-38.75	AVERAGE
15.492	0.42	18.68	60	-41.32	QP
15.492	0.42	15.32	50	-34.68	AVERAGE



Remark:

1. The reading value included cable loss and LISN factor.
2. Uncertainty was calculated in accordance with NAMAS NIS 81.

Expanded uncertainty (k=2) of conducted emission measurement is ± 2.6 dB.

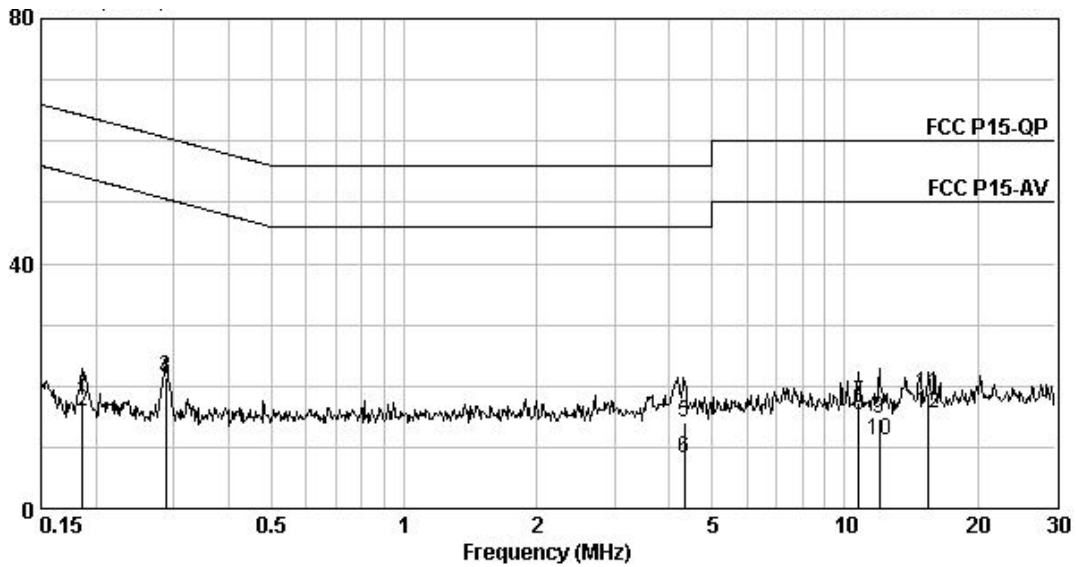
3. Please see the plot below.

(1) Line

EUT : 36122 (Base unit with charger 1)

Test Condition : Charging mode

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.18601	0.1	17.62	64.21	-46.59	QP
0.18601	0.1	15.81	54.21	-38.4	AVERAGE
0.28831	0.1	21.34	60.57	-39.23	QP
0.28831	0.1	21.02	50.57	-29.55	AVERAGE
4.329	0.21	14.02	56	-41.98	QP
4.329	0.21	8.24	46	-37.76	AVERAGE
10.738	0.44	17.4	60	-42.6	QP
10.738	0.44	15.31	50	-34.69	AVERAGE
12.006	0.52	14.54	60	-45.46	QP
12.006	0.52	11.09	50	-38.91	AVERAGE
15.492	0.71	18.79	60	-41.21	QP
15.492	0.71	15.51	50	-34.49	AVERAGE

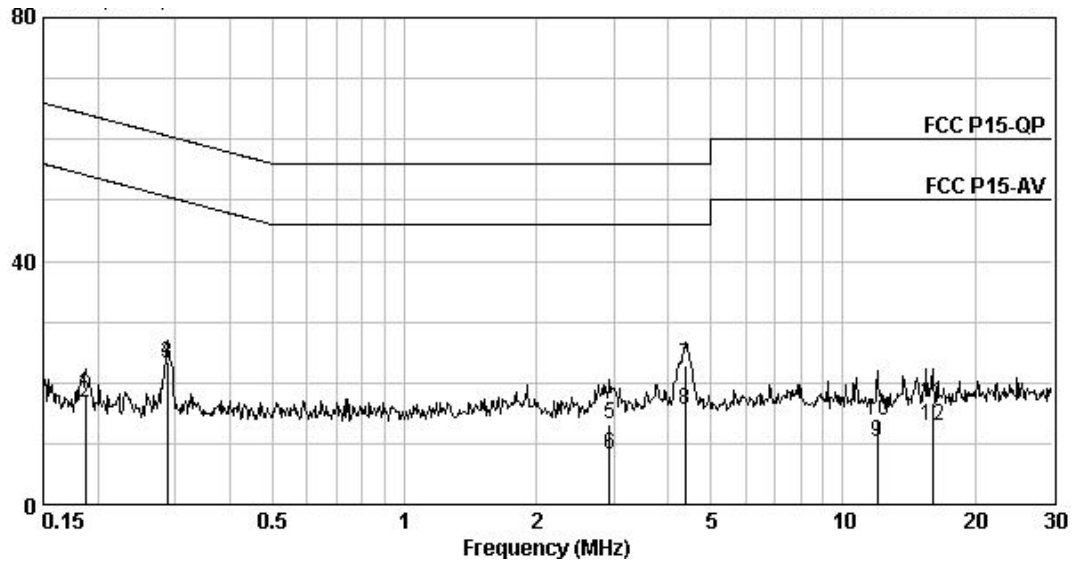


(2) Neutral

EUT : 36122 (Base unit with charger 1)

Test Condition : Charging mode

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.18749	0.1	18.16	64.15	-45.99	QP
0.18749	0.1	16.74	54.15	-37.41	AVERAGE
0.28831	0.1	23.43	60.57	-37.14	QP
0.28831	0.1	23.11	50.57	-27.46	AVERAGE
2.93	0.15	13.28	56	-42.72	QP
2.93	0.15	8.23	46	-37.77	AVERAGE
4.364	0.2	22.77	56	-33.23	QP
4.364	0.2	15.39	46	-30.61	AVERAGE
12.006	0.28	13.84	60	-46.16	QP
12.006	0.28	10.32	50	-39.68	AVERAGE
15.994	0.44	16.57	60	-43.43	QP
15.994	0.44	13	50	-37	AVERAGE



Remark:

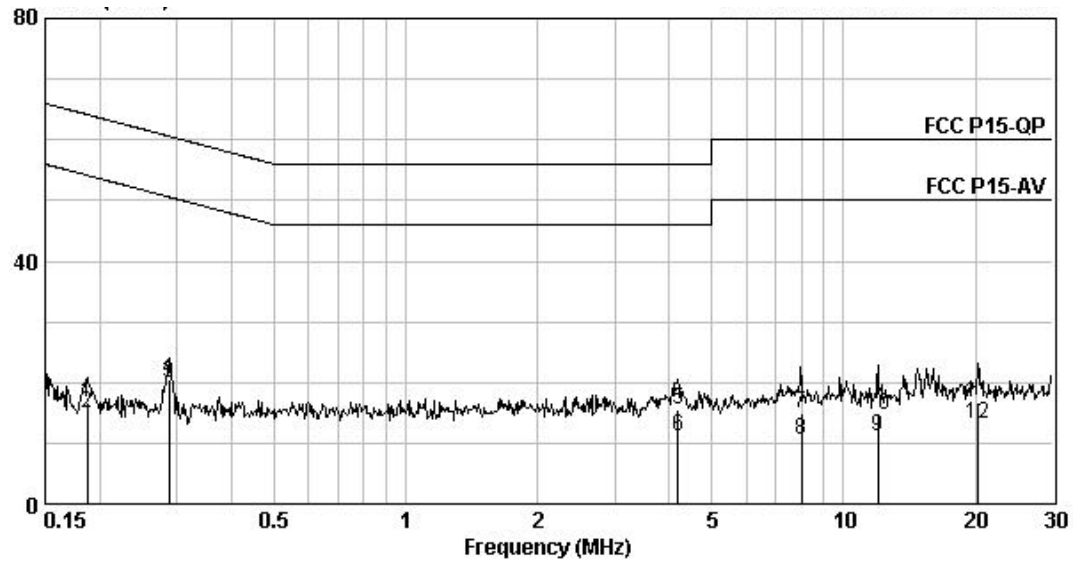
1. The reading value included cable loss and LISN factor.
2. Uncertainty was calculated in accordance with NAMAS NIS 81.
Expanded uncertainty (k=2) of conducted emission measurement is ± 2.6 dB.
3. Please see the plot below.

(1) Line

EUT : 36122 (Base unit with charger 2)

Test Condition : Charging mode

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.18749	0.1	16.81	64.15	-47.34	QP
0.18749	0.1	14.86	54.15	-39.29	AVERAGE
0.28831	0.1	20.45	60.57	-40.12	QP
0.28831	0.1	19.86	50.57	-30.71	AVERAGE
4.194	0.21	15.65	56	-40.35	QP
4.194	0.21	11.27	46	-34.73	AVERAGE
7.996	0.33	14.89	60	-45.11	QP
7.996	0.33	10.69	50	-39.31	AVERAGE
12.006	0.52	14.7	60	-45.3	QP
12.006	0.52	11.25	50	-38.75	AVERAGE
20.313	0.81	16.65	60	-43.35	QP
20.313	0.81	13.14	50	-36.86	AVERAGE

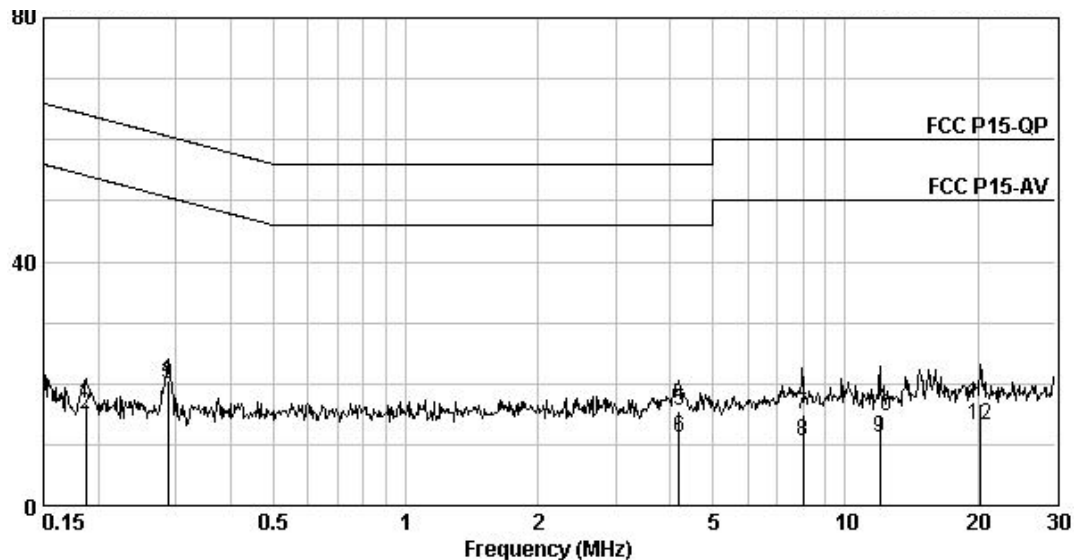


(2) Neutral

EUT : 36122 (Base unit with charger 2)

Test Condition : Charging mode

Freq. (MHz)	Correction Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.18749	0.1	18.16	64.15	-45.99	QP
0.18749	0.1	16.74	54.15	-37.41	AVERAGE
0.28831	0.1	23.43	60.57	-37.14	QP
0.28831	0.1	23.11	50.57	-27.46	AVERAGE
2.93	0.15	13.28	56	-42.72	QP
2.93	0.15	8.23	46	-37.77	AVERAGE
4.364	0.2	22.77	56	-33.23	QP
4.364	0.2	15.39	46	-30.61	AVERAGE
12.006	0.28	13.84	60	-46.16	QP
12.006	0.28	10.32	50	-39.68	AVERAGE
15.994	0.44	16.57	60	-43.43	QP
15.994	0.44	13	50	-37	AVERAGE



Remark:

1. The reading value included cable loss and LISN factor.

2. Uncertainty was calculated in accordance with NAMAS NIS 81.

Expanded uncertainty (k=2) of conducted emission measurement is ± 2.6 dB.

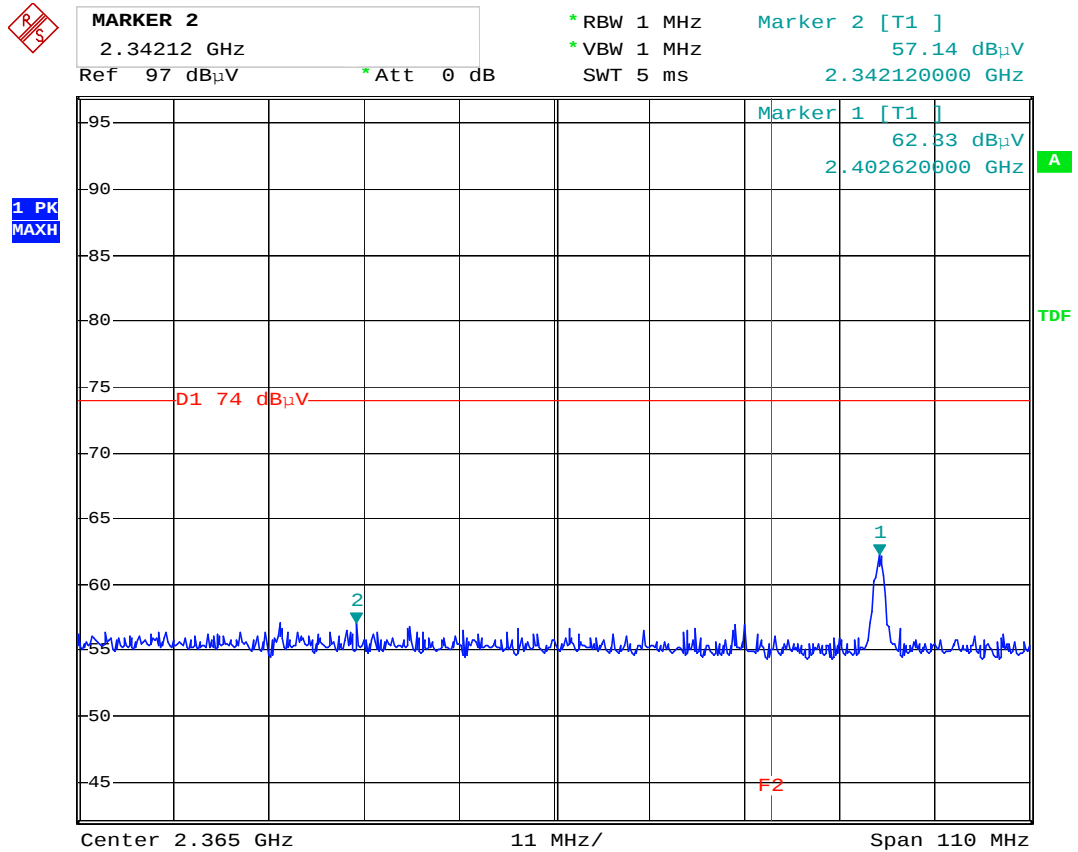
3. Please see the plot below.

5. Radiated emission on the band edge FCC 15.249(C)

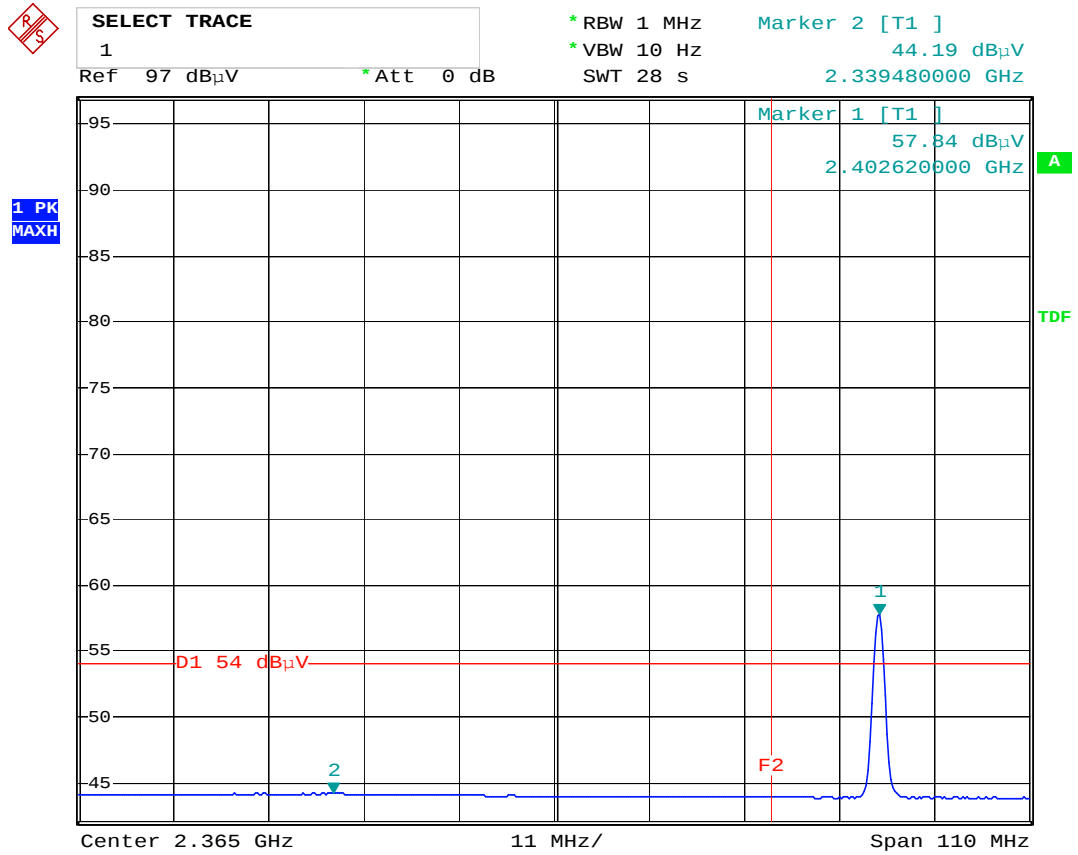
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental (Base: 2402.55~ 2404.50MHz, Handset: 2474MHz ~ 2475.95MHz) or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Please see the plot below.

EUT 36121 Base unit
Test Condition : Continuous transmit at low channel

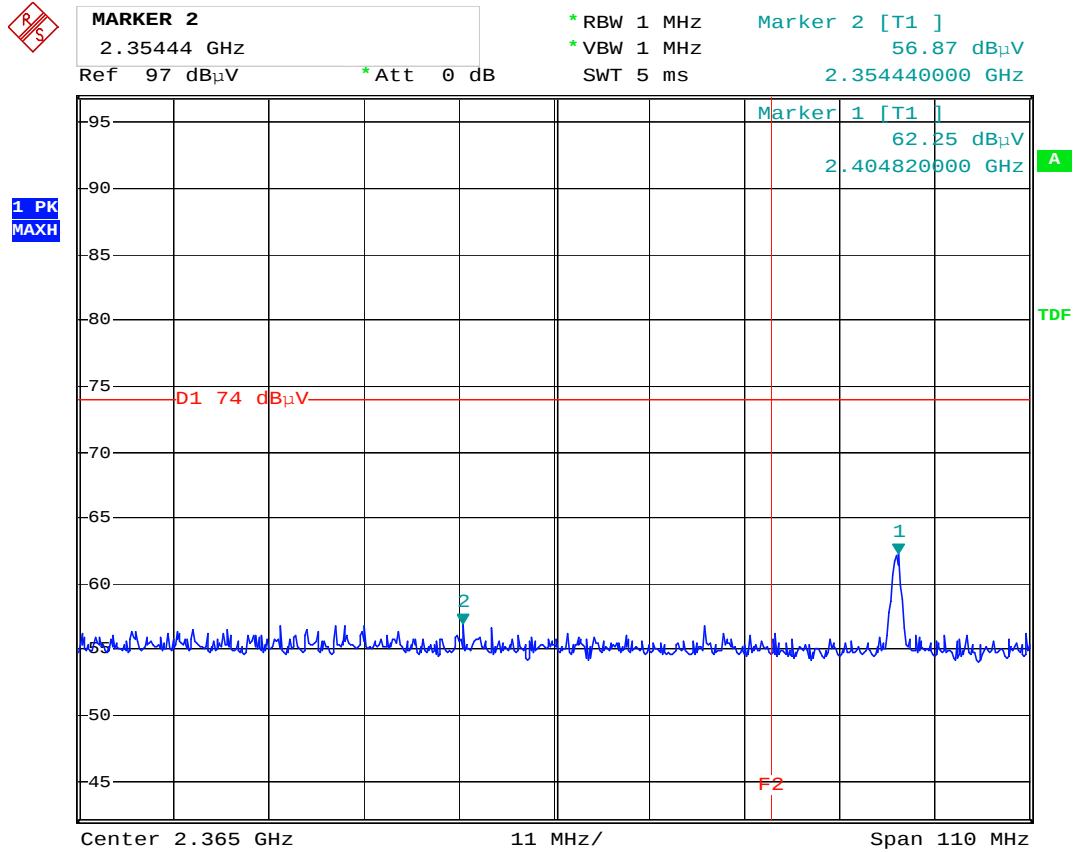


Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz
Date: 19.MAR.2004 09:57:07

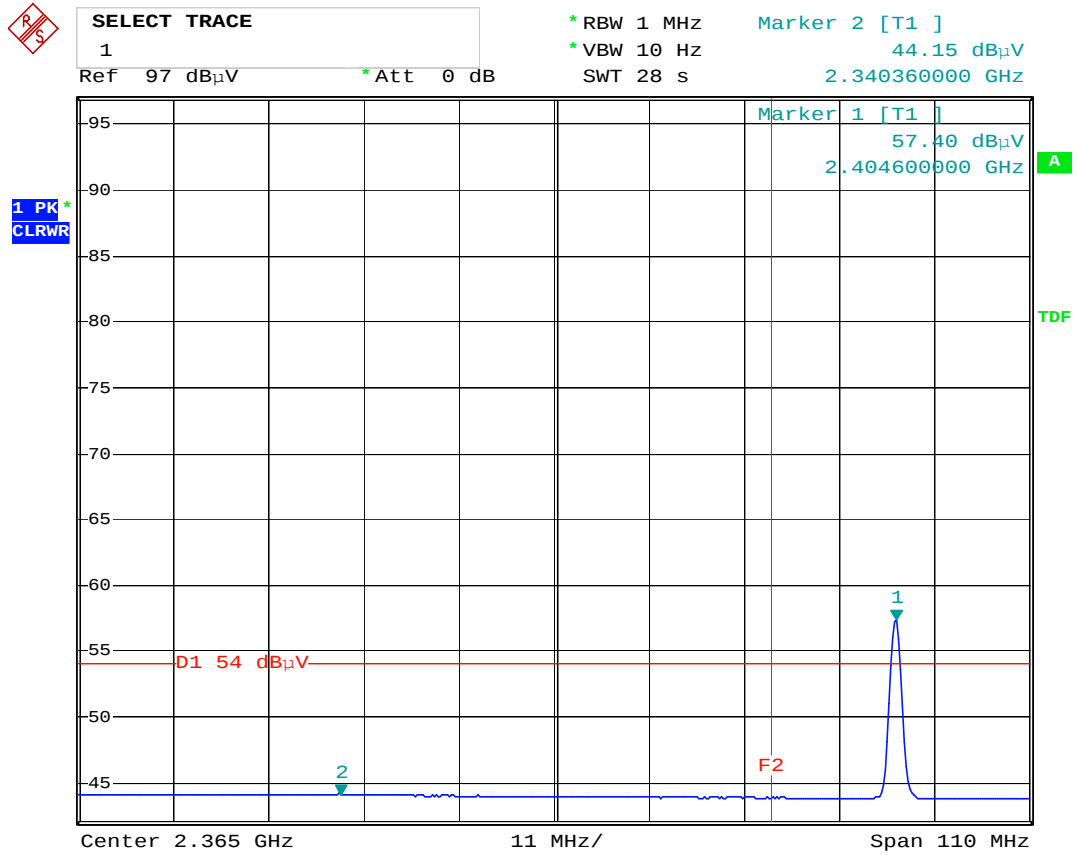


Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz
Date: 19.MAR.2004 09:59:23

EUT 36121 Base unit
Test Condition : Continuous transmit at high channel

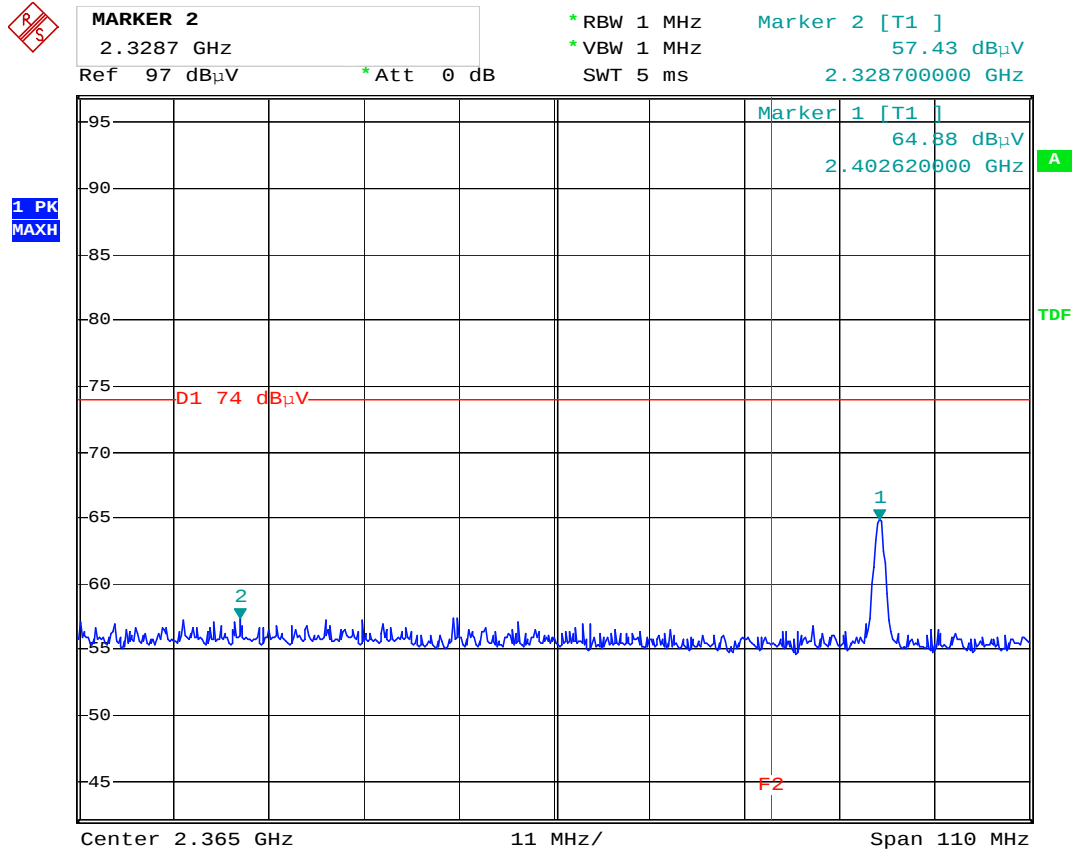


Comment: Band-edge test at high channel
Comment: Peak detector F2=2390MHz
Date: 19.MAR.2004 11:14:49

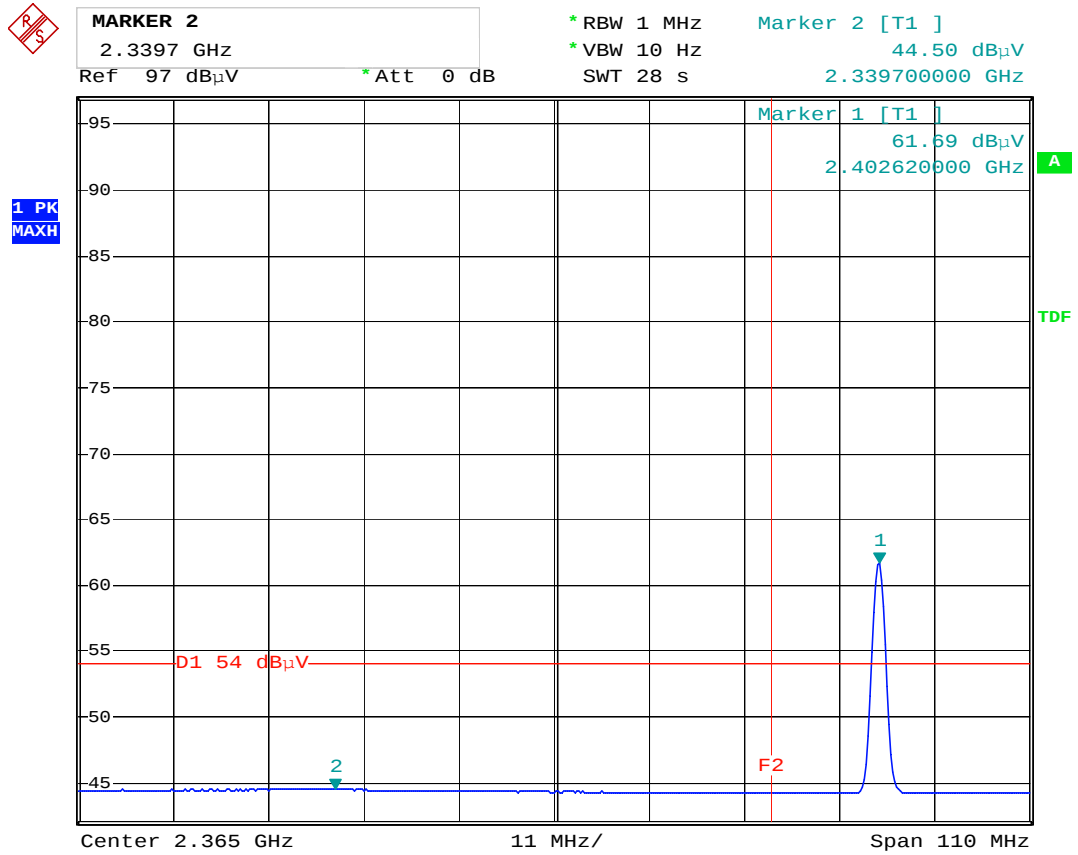


Comment: Band-edge test at high channel
Comment: Average detector F2=2390MHz
Date: 19.MAR.2004 11:18:41

EUT 36122 Base unit with charger 1
Test Condition : Continuous transmit at low channel

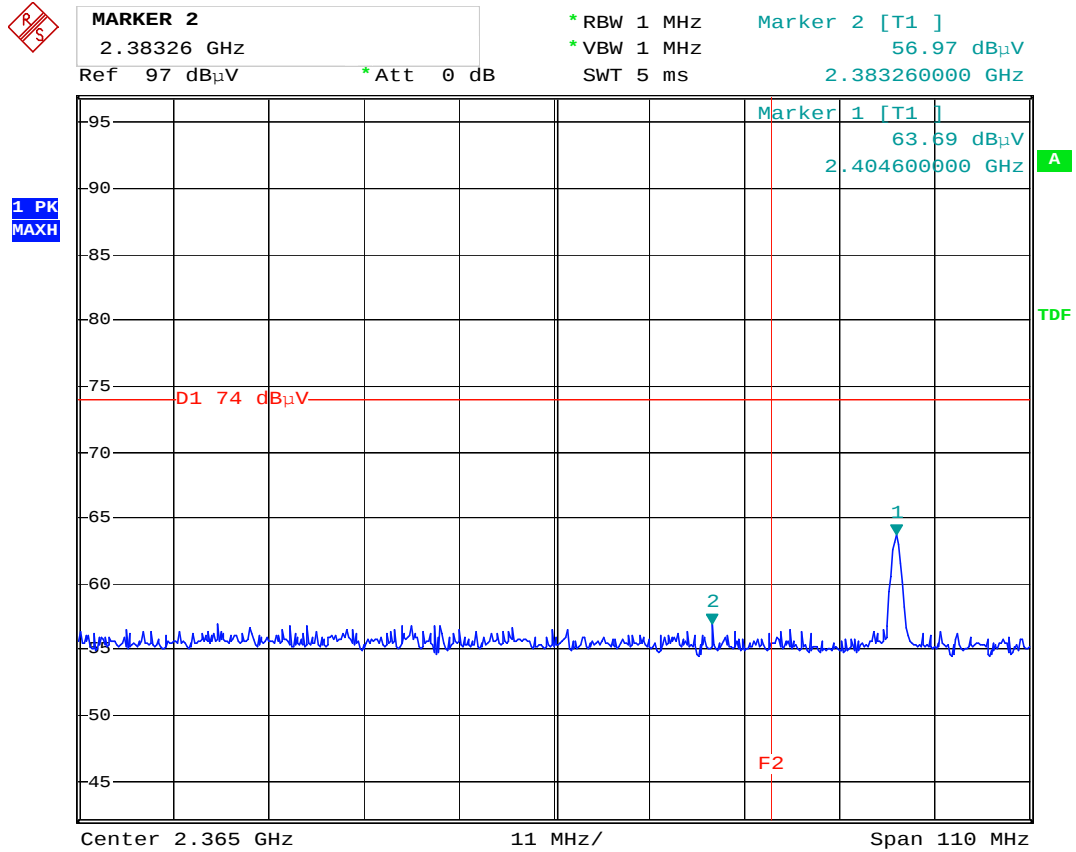


Comment: Band-edge test at low channel
Comment: Peak detector F2=2390MHz
Date: 22.MAR.2004 09:30:15

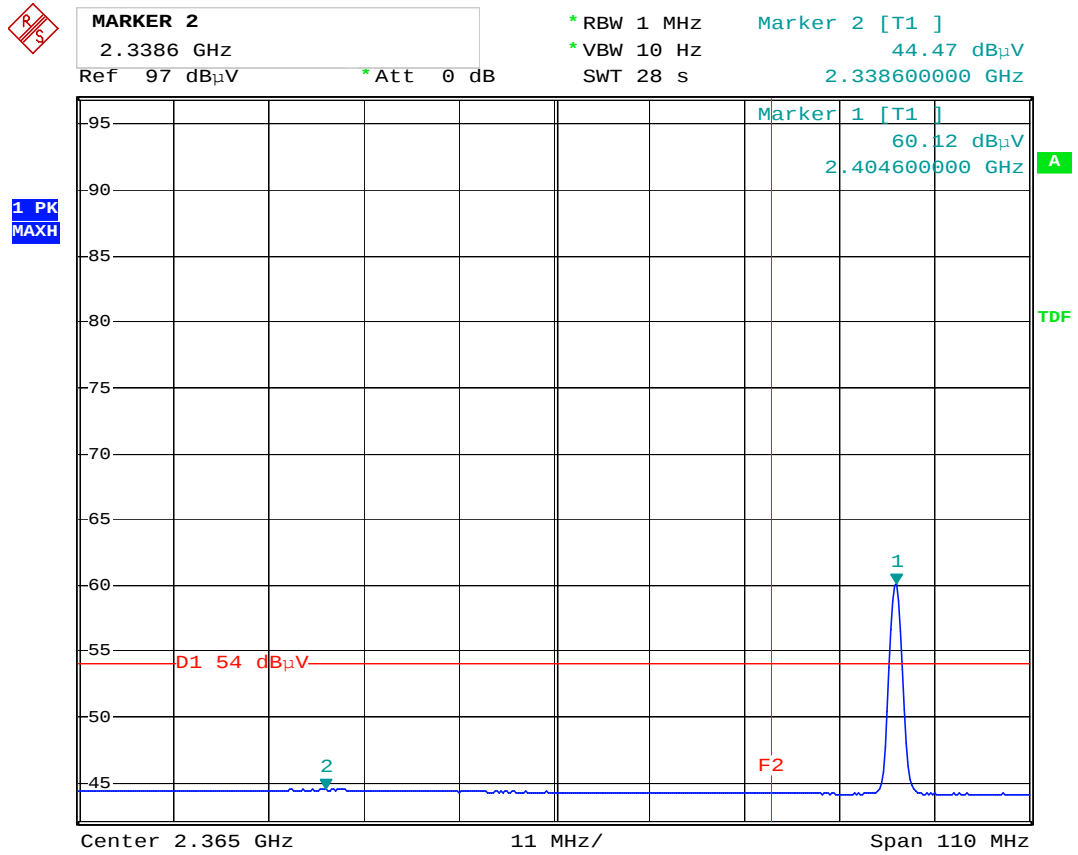


Comment: Band-edge test at low channel
Comment: Average detector F2=2390MHz
Date: 22.MAR.2004 09:33:12

EUT 36122 Base unit with charger 2
Test Condition : Continuous transmit at high channel

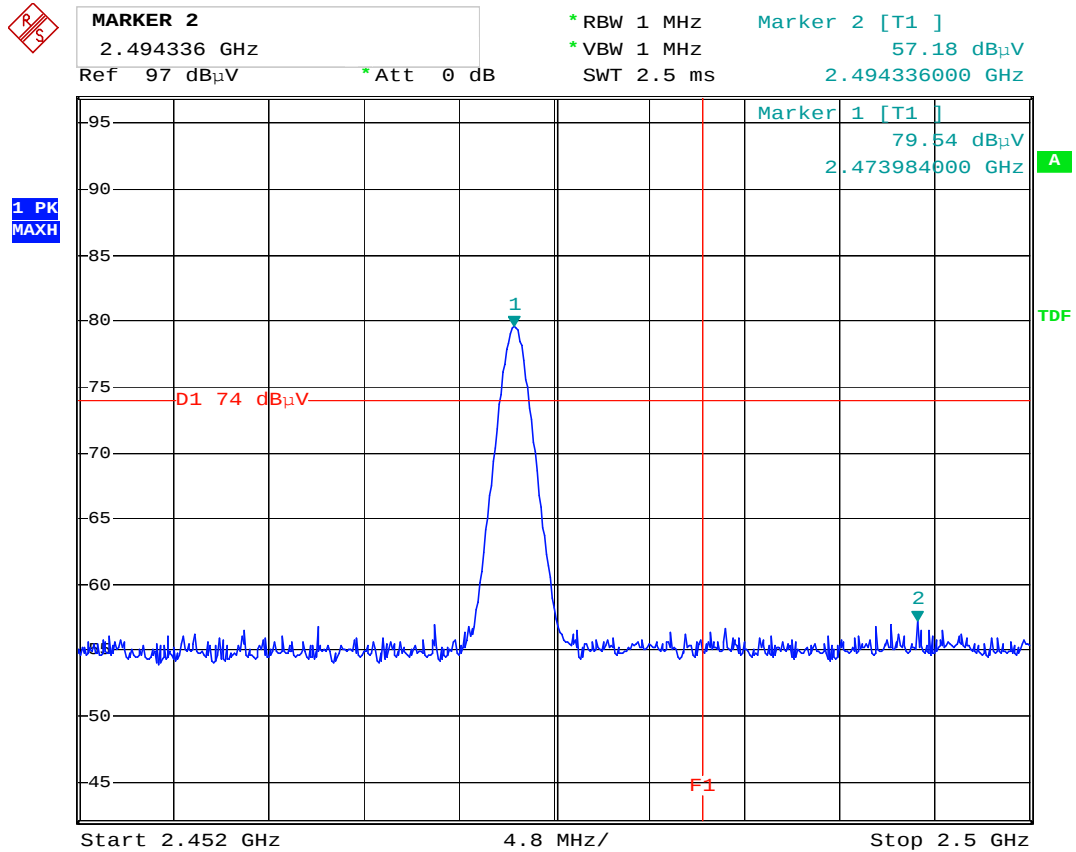


Comment: Band-edge test at high channel
Comment: Peak detector F2=2390MHz
Date: 22.MAR.2004 10:35:03

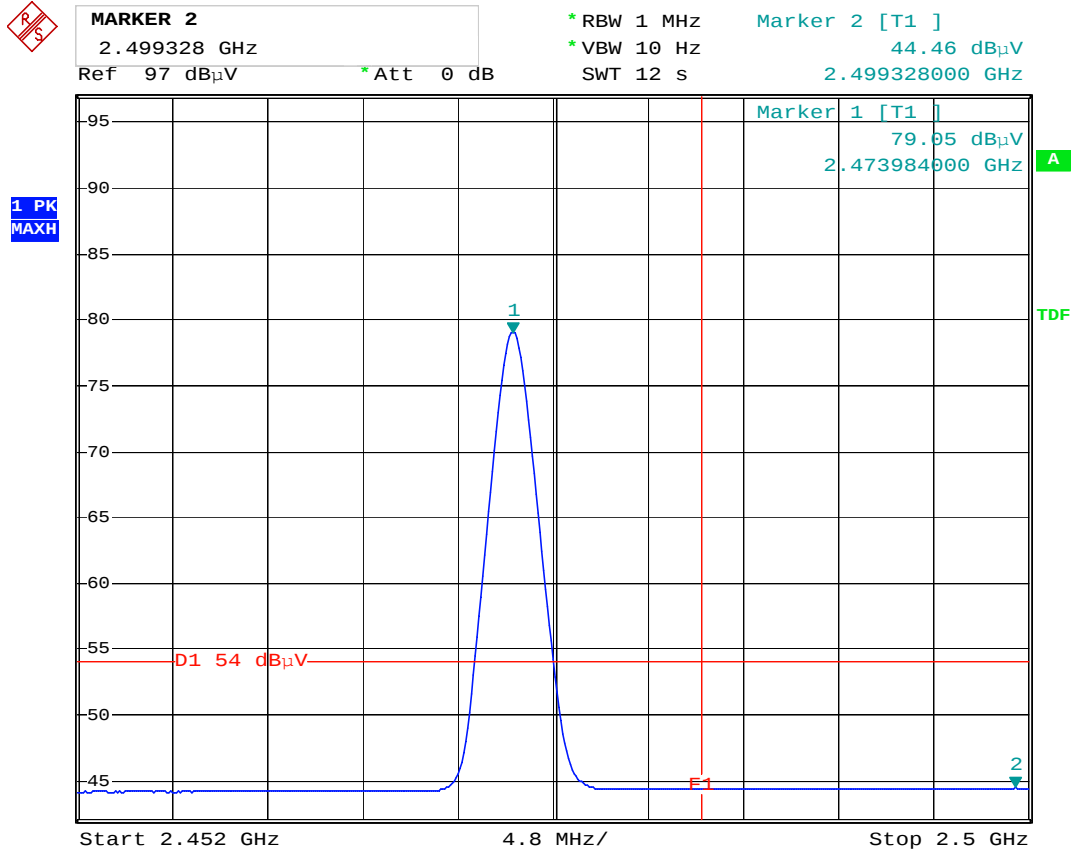


Comment: Band-edge test at high channel
Comment: Average detector F2=2390MHz
Date: 22.MAR.2004 10:38:37

EUT 36122 Handset unit
Test Condition : Continuous transmit at low channel

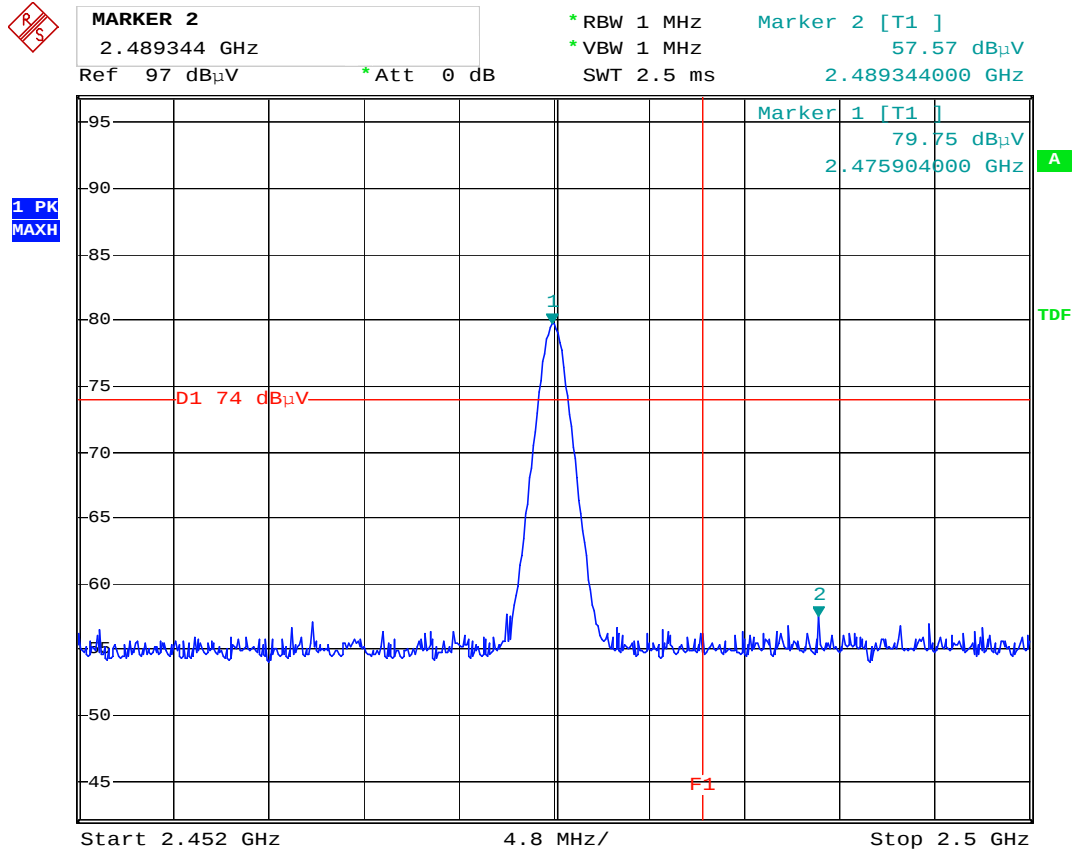


Comment: Band-edge test at low channel
Comment: Peak detector F1=2483.5MHz
Date: 24.MAR.2004 11:46:36

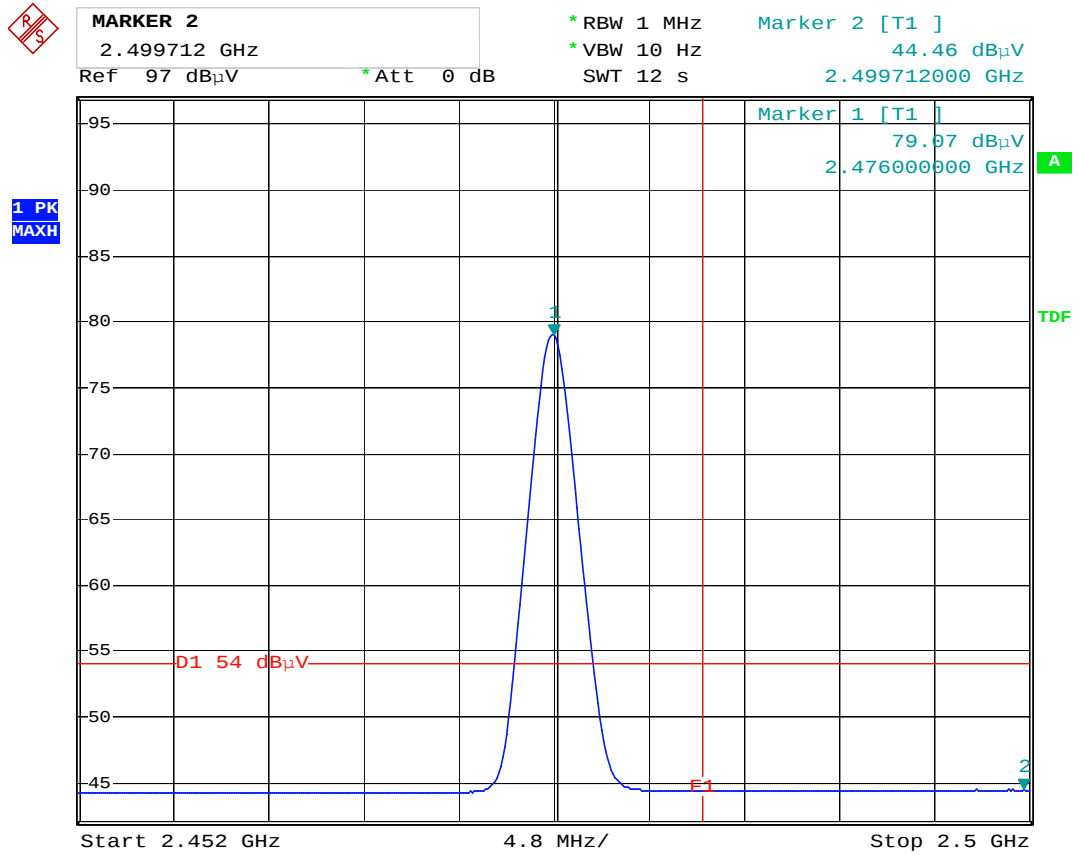


Comment: Band-edge test at low channel
Comment: Average detector F1=2483.5MHz
Date: 24.MAR.2004 11:48:27

EUT 36122 Handset unit
Test Condition : Continuous transmit at high channel



Comment: Band-edge test at high channel
Comment: Peak detector F1=2483.5MHz
Date: 24.MAR.2004 11:32:17



Comment: Band-edge test at high channel
Comment: Average detector F1=2483.5MHz
Date: 24.MAR.2004 11:37:25