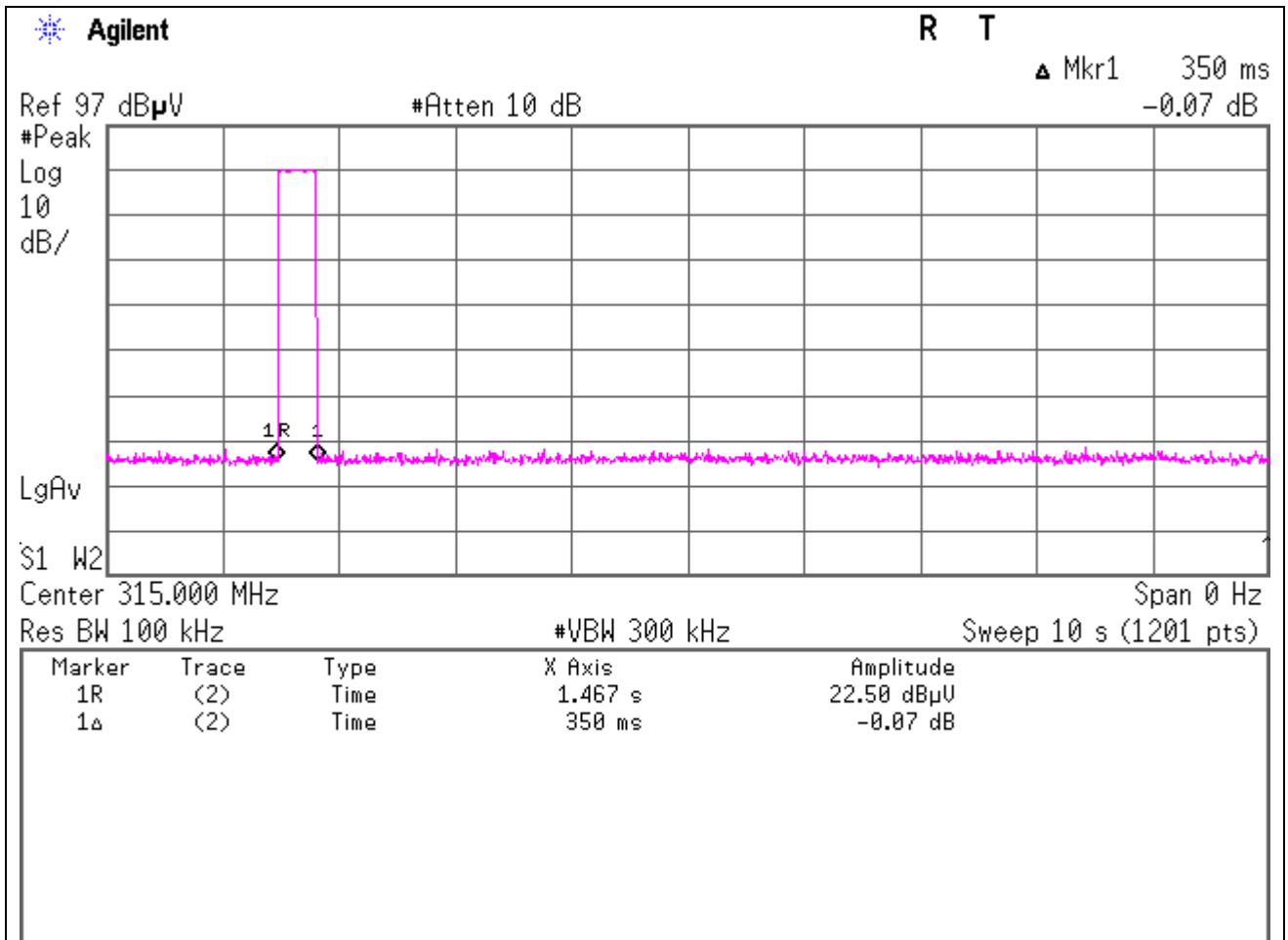


APPENDIX 2: Data of EMI test

Automatically deactivate

Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
 Report No. 31BE0219-HO-08
 Date 02/09/2011
 Temperature/ Humidity 24 deg.C./ 31%RH
 Engineer Motoya Imura
 Mode Normal use mode

Time of Transmitting [sec]	Limit [sec]	Result
0.35	5.00	Pass



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Radiated Emission (Electric Field Strength of Fundamental and Spurious Emission)

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 31BE0219-HO-08
Date : 02/09/2011
Temperature/ Humidity : 24 deg.C./ 31%RH
Engineer : Motoya Imura
Mode : Transmitting mode

PK

Frequency [MHz]	Detector	Reading [dBuV]		Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]		Limit dBuV/m	Margin [dB]		Remark Inside or Outside of Restricted Bands
		Hor	Ver					Hor	Ver		Hor	Ver	
315.000	PK	84.3	79.6	15.4	8.8	27.8	-	80.7	76.0	95.6	14.9	19.6	Carrier
630.000	PK	37.2	36.6	19.7	10.2	28.6	-	38.5	37.9	75.6	37.1	37.7	Outside
945.000	PK	35.2	33.1	22.6	11.3	27.8	-	41.3	39.2	75.6	34.3	36.4	Outside
1260.000	PK	51.1	54.7	24.7	2.3	33.4	-	44.7	48.3	75.6	30.9	27.3	Outside
1575.000	PK	56.1	58.5	25.7	2.6	33.0	-	51.4	53.8	73.9	22.5	20.1	Inside
1890.000	PK	51.0	49.5	26.5	2.8	32.6	-	47.7	46.2	75.6	27.9	29.4	Outside
2205.000	PK	52.5	51.9	27.1	2.9	32.5	-	50.0	49.4	73.9	23.9	24.5	Inside
2520.000	PK	55.7	51.6	27.6	3.1	32.4	-	54.0	49.9	75.6	21.6	25.7	Outside
2835.000	PK	56.9	53.2	28.1	3.3	32.4	-	55.9	52.2	73.9	18.0	21.7	Inside
3150.000	PK	48.0	46.9	28.6	3.4	32.2	-	47.8	46.7	75.6	27.8	28.9	Outside

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

PK with Duty factor

Frequency [MHz]	Detector	Reading [dBuV]		Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]		Limit dBuV/m	Margin [dB]		Remark
		Hor	Ver					Hor	Ver		Hor	Ver	
315.000	PK	84.3	79.6	15.4	8.8	27.8	-5.8	74.9	70.2	75.6	0.7	5.4	Carrier
630.000	PK	37.2	36.6	19.7	10.2	28.6	-5.8	32.7	32.1	55.6	22.9	23.5	Outside
945.000	PK	35.2	33.1	22.6	11.3	27.8	-5.8	35.5	33.4	55.6	20.1	22.2	Outside
1260.000	PK	51.1	54.7	24.7	2.3	33.4	-5.8	38.9	42.5	55.6	16.7	13.1	Outside
1575.000	PK	56.1	58.5	25.7	2.6	33.0	-5.8	45.6	48.0	53.9	8.3	5.9	Inside
1890.000	PK	51.0	49.5	26.5	2.8	32.6	-5.8	41.9	40.4	55.6	13.7	15.2	Outside
2205.000	PK	52.5	51.9	27.1	2.9	32.5	-5.8	44.2	43.6	53.9	9.7	10.3	Inside
2520.000	PK	55.7	51.6	27.6	3.1	32.4	-5.8	48.2	44.1	55.6	7.4	11.5	Outside
2835.000	PK	56.9	53.2	28.1	3.3	32.4	-5.8	50.1	46.4	53.9	3.8	7.5	Inside
3150.000	PK	48.0	46.9	28.6	3.4	32.2	-5.8	42.0	40.9	55.6	13.6	14.7	Outside

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier) + Duty factor (Refer to Duty factor data sheet)

*Other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

- * The test was performed with PK detect. Average emission measurements were calculated with PK detect and Duty cycle factor.
- * Duty Factor was calculated with the assumption of the worst condition in 100msec.
- * All the measured noise was pulse emission.

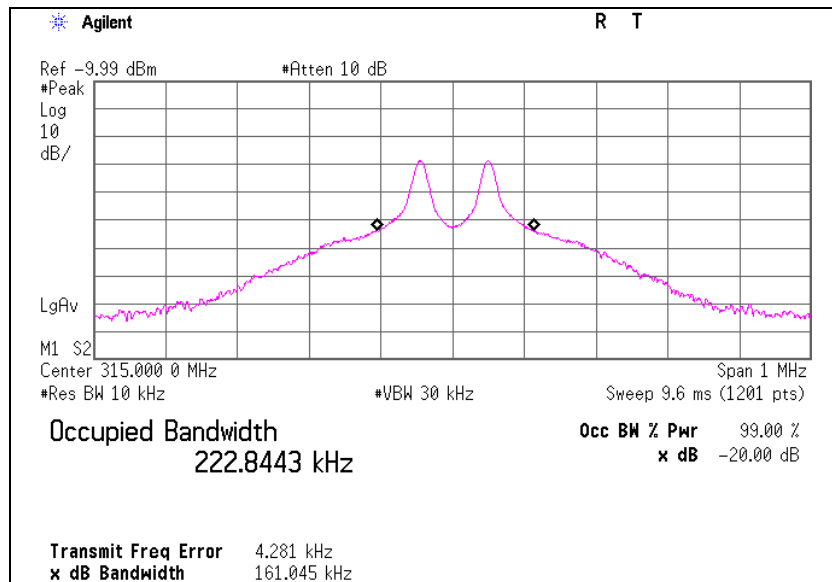
-20dB and 99% Occupied Bandwidth

Test place	Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No.	31BE0219-HO-08
Date	02/09/2011
Temperature/ Humidity	24 deg.C./ 31%RH
Engineer	Motoya Imura
Mode	Transmitting mode

Bandwidth Limit : Fundamental Frequency $315 \text{ MHz} \times 0.25\% = 787.50 \text{ kHz}$

-20dB Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
161.05	787.50	Pass

99% Occupied Bandwidth [kHz]	Bandwidth Limit [kHz]	Result
222.84	787.50	Pass



Duty Cycle

Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. 31BE0219-HO-08
Date 02/09/2011
Temperature/ Humidity 22 deg.C./ 31%RH
Engineer Motoya Imura
Mode Normal use mode

Type	Times	ON time(One pulse) [ms]	ON time(in 30ms) [ms]
A	63	0.132	8.316
B	22	0.253	5.566
C	4	0.377	1.508

*1)ON time(in 30ms) = Times * ON time(One pulse)

*2)The train of pulses was exceeding 100msec, and that sampled 100msec was the worst case against the puls

(Total)

ON time [ms]	Cycle [ms]	Duty (On time/Cycle)	Duty [dB]
51.30	100.00	0.51	-5.8

*3)ON time = Type A's ON time (in 100ms) + Type B's ON time (in 100ms)+TypeC's ON time

*4)Duty = $20\log_{10}(\text{ON time}/\text{Cycle})$

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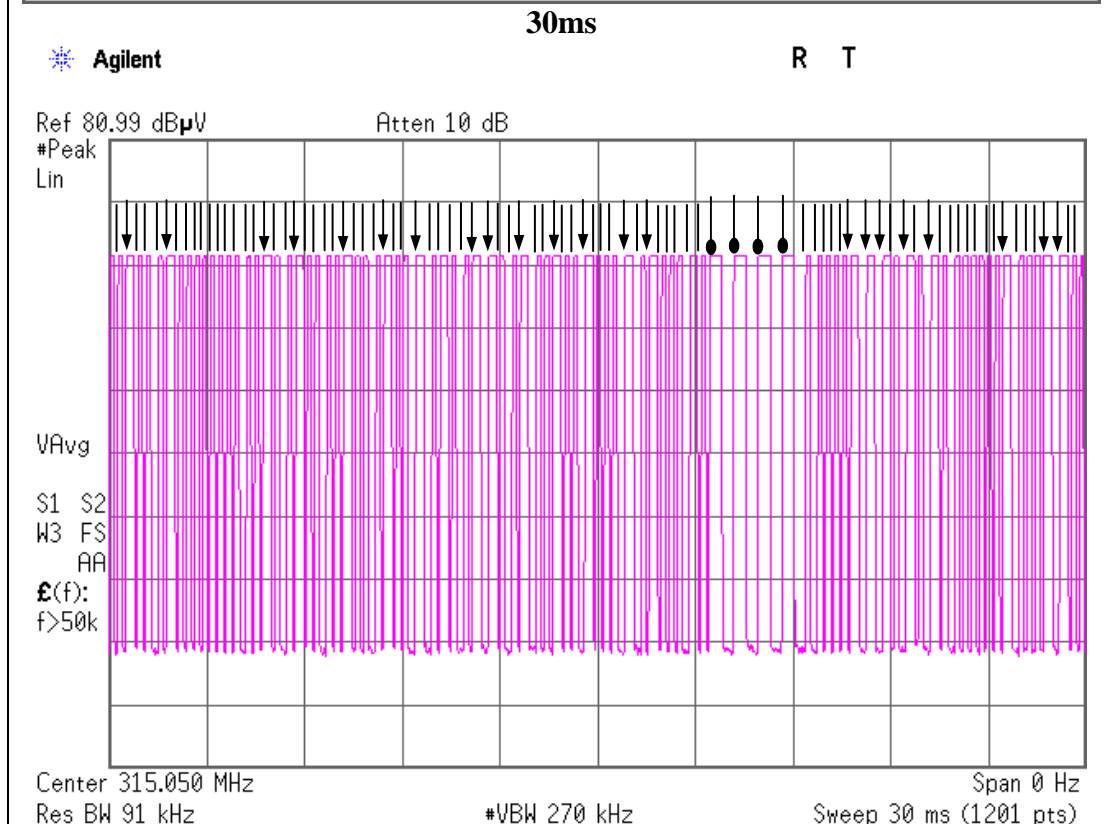
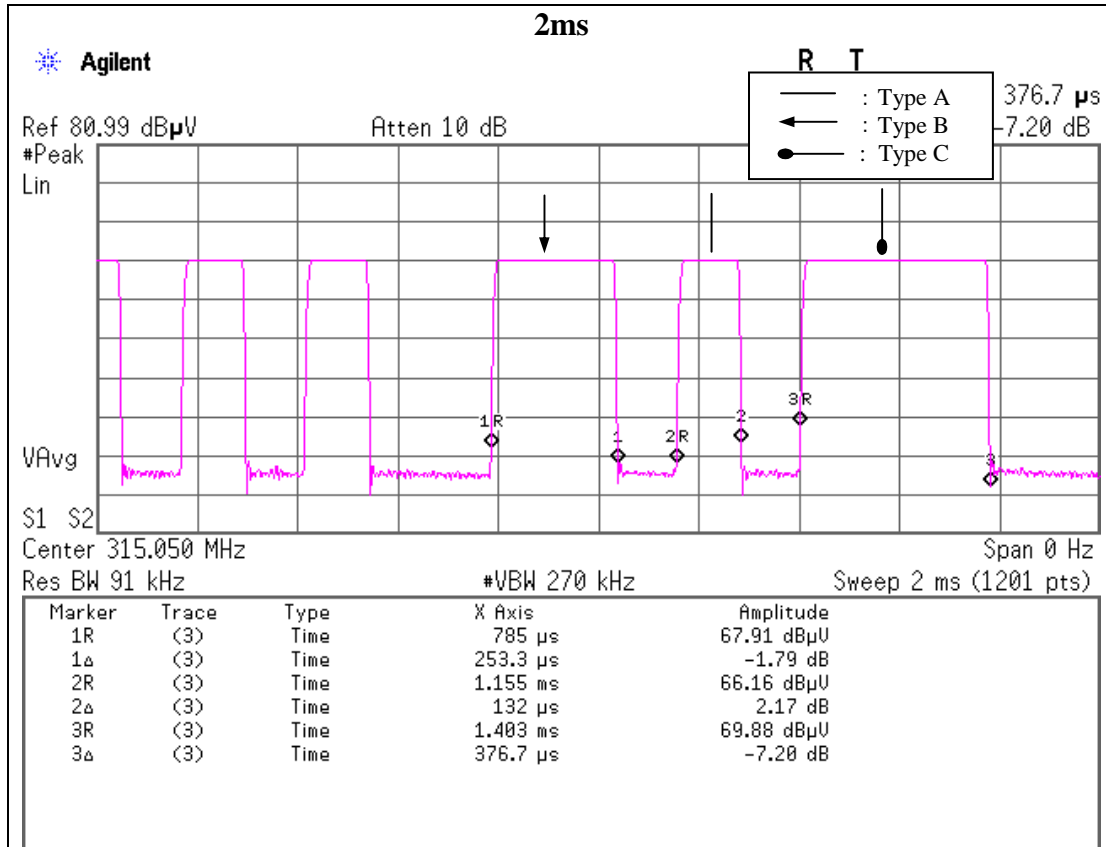
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Duty Cycle



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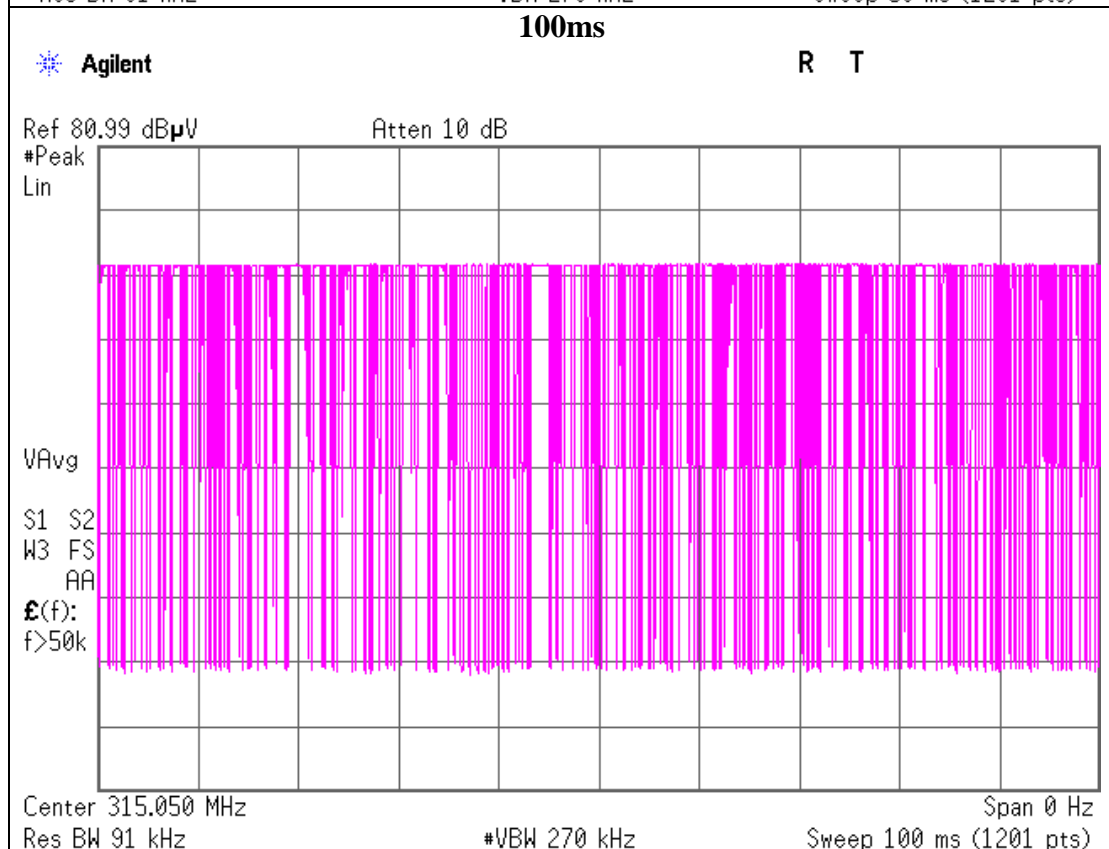
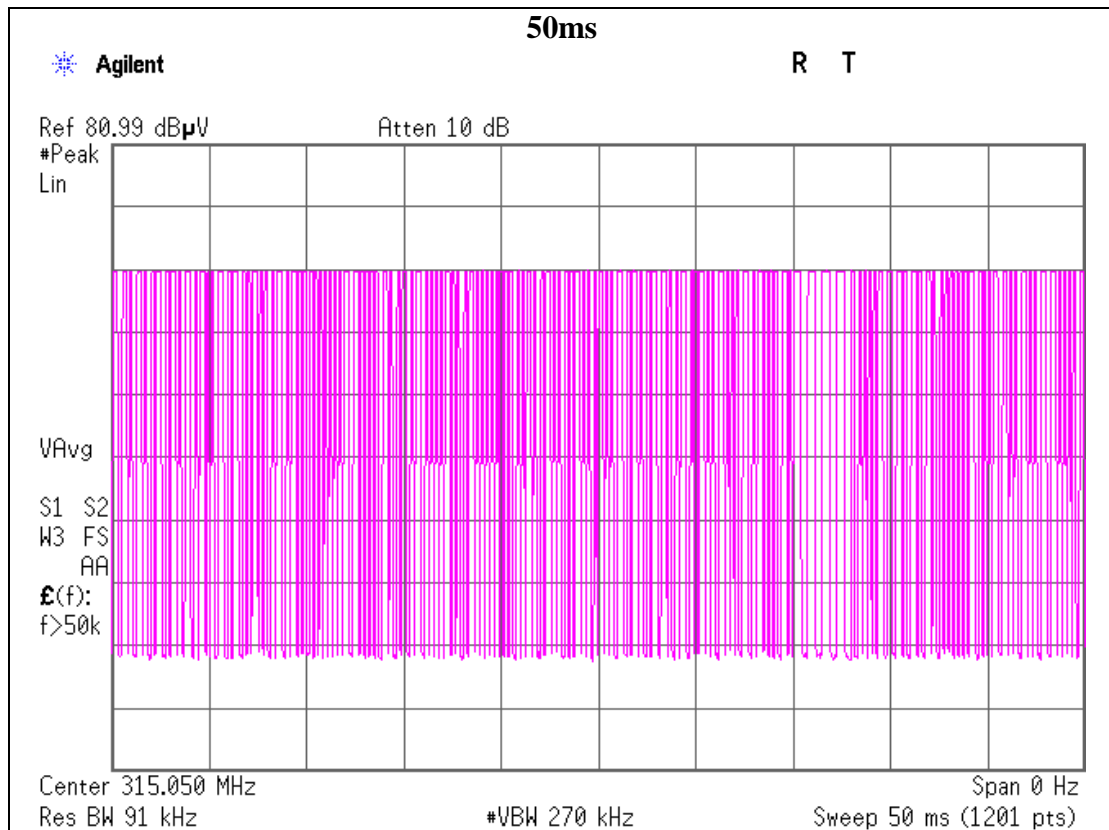
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Duty Cycle



APPENDIX 3:Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2010/02/01 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2010/02/09 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2010/11/30 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2010/08/23 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2010/10/11 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2010/10/11 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2010/07/06 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2010/11/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2010/03/23 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2010/05/07 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	174410(1m) / 284655(5m)	RE	2011/01/18 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2010/03/03 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item:

RE: Radiated emission, 99% Occupied Bandwidth, -20dB bandwidth , Automatically deactivate and Duty cycle tests

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