

Purpose:

To maintain a list of equipment scheduled for calibration and the test methods where is involved.

Responsibility:

Technical manager, EMC lab technicians

Overview:

The actual calibration schedule is maintained and coordinated by Test Engineering Department (TEN205 CALIBRATION PROCEDURE). Equipment scheduled for calibration that might affect scheduled validations must be temporarily replaced with similar equipment rented from ISO-17025 accredited suppliers.

EMC Lab Equipment Calibration Scheduler

Next-Calib	Equipment	Manufacturer	Model#	Serial#	Notes: in what tests is used
	CIRCULAR TEMP/HUMIDITY CHART RECORDER	OMEGA	CT485B-110V-G-AL	CT90608623W1	EMC & Electrical Testing
	ETS LINDGREN Model 2090 Multi Device Controller ("Z" Tuner assy)	ETS EMC Test Systems	ETS2090	MFG 00029059	Reverberation mode tuning
	RF AMPLIFIER 9KHz-1300MHz	HEWLETT PACKARD	8447F OPT H64	2805A02756	Radiated RF Emissions (0.15 to 2500 MHz)
	LOG PERIODIC ANTENNA	SCHAFFNER-CHASE EMC	UPA6109	1068	Radiated Immunity Mode Tuning (Reverberation Method) 200MHz to 1GHz RI 114 RF Immunity (400 to 3100 MHz) - reverb mode tuning GMW3097 RI, Reverberation Chamber, Mode Tuning Radiated Emissions (76 TO 1000 MHz CISPR-25 ALSE method) LP-388C-73
	LINE IMPEDANCE STABILIZATION NETWORK	SOLAR ELECTRONICS	9117-5-TS-50-N	17550	LISN 5uH/50A/600VDC Artificial Network (AN) CE 410 Conducted Transient Emissions (+100V/-150V) on Power Supply CE 420 Conducted RF Emissions RE 310 Radiated RF Emissions (0.15 to 2500 MHz) RI 112 RF Immunity (1 to 400 MHz) RI 140 Magnetic Field Immunity (50 Hz to 10 MHz) - Helmholtz Coil GMW3097 CE, Artificial Network (AN) GMW3097 CE, Transients (+100 V, -150V) GMW3097 RE, Absorber Lined Shielded Enclosure (ALSE) 0.15 - 1583 MHz GMW3097 RI, Bulk Current Injection (BCI) Bulk Current Injection (BCI) Test LP-388C-72 CISPR 25 Conducted RF Emissions - Current on all Lines in Harness LP-388C-73 CISPR-25 Conducted RF Emissions - Voltage on Supply Lines LP-388C-73 Radiated Emissions (76 TO 1000 MHz CISPR-25 ALSE method) LP-388C-73 ELECTROSTATIC DISCHARGE LP-388C-42
	RF SIGNAL GENERATOR 2 GHz - 20 GHz	RHODE & SCHWARZ	SMP02	829839/004	Radiated Immunity Absorber Lined Shielded Enclosure Test LP-388C-35
	LINE IMPEDANCE STABILIZATION NETWORK	SOLAR ELECTRONICS	9117-5-TS-50-N	17551	LISN 5uH/50A/600VDC Artificial Network (AN) Conducted Emissions, Radiated Emissions, Radiated Immunity - BCI
	MIXED SIGNAL OSCILLOSCOPE	AGILENT TECHNOLOGIES	54622D	MY40006919	Electrical Testing
	DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	DC6080	25096	GMW3097 RI, Reverberation Chamber, Mode Tuning RF Immunity ALSE without a Ground Plane

EMC LAB EQUIPMENT CALIBRATION SCHEDULER

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					LP-388C-35
	DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	DC6080	25097	GMW3097 RI, Reverberation Chamber, Mode Tuning RF Immunity ALSE without a Ground Plane LP-388C-35
	DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	DC7350	24097	Radiated Susceptibility ANECHOIC Chamber (MATC) LP-388C-35
	DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	DC7144	25043	RI 114 RF Immunity (400 to 3100 MHz) - reverb mode tuning GMW3097 RI, Reverberation Chamber, Mode Tuning RF Immunity ALSE without a Ground Plane LP-388C-35
	DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	DC7144	25044	RI 114 RF Immunity (400 to 3100 MHz) - reverb mode tuning GMW3097 RI, Reverberation Chamber, Mode Tuning RF Immunity ALSE without a Ground Plane LP-388C-35
	DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	DC7144	25045	RI 114 RF Immunity (400 to 3100 MHz) - reverb mode tuning GMW3097 RI, Reverberation Chamber, Mode Tuning RF Immunity ALSE without a Ground Plane LP-388C-35
	DIRECTIONAL COUPLER	WERLATONE	C5086	7040	Radiated Immunity, 10 KHZ TO 200 Mhz, TEM Cell Test
	FREQUENCY COUNTER	HEWLETT PACKARD	5316A	2308A05209	CAL. OK
	OSCILLOSCOPE	HEWLETT PACKARD	54504A	2944A01382	CAL. OK
	POWER SWEEP GENERATOR	SOLAR ELECTRONICS	8850-1	970524	GMW3172 Superimposed Alternating Voltage Conducted Immunity Test LP-388C-33 Supply Voltage Ripple LP-388C-33 Low Frequency Conducted Immunity Test, 30 Hz to 100 KHz LP-388C-35 GMW3172 Superimposed Alternating Voltage
	RF POWER SENSOR	BOONTON	51013-4E	30764	CAL. OK
	RF POWER SENSOR	BOONTON	51013-4E	30848	CAL. OK
	RF WATTMETER	BIRD	43	209703	CAL. OK
	PREAMPLIFIER 10 MHZ - 3 GHZ	AGILENT TECHNOLOGIES	87405A	3950M00632	Radiated Emissions (76 TO 1000 MHz CISPR-25 ALSE method) LP-388C-73 RE 310 Radiated RF Emissions (0.15 to 2500 MHz) GMW3097 RE, Absorber Lined Shielded Enclosure (ALSE) 0.15 - 1583 MHz
	PRE-AMPLIFIER 9KHz - 2 GHz, 2-500 MHz, 30 dB gain, sensitivity =< -100 dBm	SCHAFFNER-CHASE EMC	CPA 9231A	3303	RE 310 Radiated Emissions 0.1 MHz to 2 GHz
	Reverberation Chamber				Radiated Immunity BCI & Reverberation Mode Tuning
	Reverberation Method Tuner Assembly				Ford RI-114
	SIGNAL GENERATOR	HEWLETT PACKARD	8656B	3012U08171	Audio Feedthrough Test (125 Hz to 20 KHz) Low Frequency Test (15 Hz to 250 kHz) Conducted Immunity Test LP-388C-33 Low Frequency Conducted Immunity Test, 30 Hz to 100 KHz
	SPECTRUM ANALYSER	HEWLETT PACKARD	8596E	3826A01436	CAL. OK
	SPECTRUM ANALYSER	HEWLETT PACKARD	8591A	3009A00951	Conducted Emissions, Radiated Emissions, Radiated Immunity Reverberation Mode Tuning, BCI
	LF IMPEDANCE ANALYSER	HEWLETT PACKARD	4192A	2514J04070	DCX Magnetic Field Emissions

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	ARBITRARY WAVEFORM GENERATOR	SONY/TEKTRONIX	AWG2021	J320687	Low Voltage Cranking Test LP-388C-68 Supply Voltage Ramp Down Test LP-388C-68 Supply Voltage Ramp Up Test LP-388C-68 Low Voltage Cranking Test LP-388C-68 CI 230 Immunity to Power Cycling
	ELECTROSTATIC VOLTMETER	SENSITIVE RESEARCH INSTRUMENTS	ESH-17	ES 18103	ESD
	HP-11947A Transient Limiter (9KHz to 200 MHz)	HEWLETT PACKARD	HP-11947A	2820A00365	CE 420 Conducted RF Emissions GMW3097 CE, Artificial Network (AN)
	CALIBRATION FIXTURE	FISCHER CUSTOM COMMUNICATIONS	FCC-BCICF-1	448 AR-307467/MFG	10 KHz - 400 MHz GMW3097 RI, Bulk Current Injection (BCI) Bulk Current Injection (BCI) Test LP-388C-72 RI 112 RF Immunity (1 to 400 MHz)
	CONTINUOUS WAVE SIMULATOR (CWS)	AMPLIFIER RESEARCH / EM TEST	CWS 500D	307466	Bulk Current Injection (BCI) Test LP-388C-72 RI 112 RF Immunity (1 to 400 MHz) BCI GMW3097 RI, Bulk Current Injection (BCI)
	CURRENT INJECTION CLAMP	FISCHER CUSTOM COMMUNICATIONS	F-130A-1	11	10KHz - 400 MHz GMW3097 RI, Bulk Current Injection (BCI) Bulk Current Injection (BCI) Test LP-388C-72 RI 112 RF Immunity (1 to 400 MHz)
	CURRENT MONITOR CLAMP	FISCHER CUSTOM COMMUNICATIONS	F-55	64 AR-307470/MFG	10KHz - 500 MHz GMW3097 RI, Bulk Current Injection (BCI) Bulk Current Injection (BCI) Test LP-388C-72 RI 112 RF Immunity (1 to 400 MHz)
	LD200S18 FIELD DECAY SIMULATOR	EM Test	LD200S18	AR-308321/MFG 0803-02	Toyota TSC 7001G
	LD200S19 LOAD DUMP SIMULATOR	EM Test	LD200S19	AR-307322/MFG 0803-02	Toyota Test 1,2,3
	RDS200S1 DC Source, 600V, 2A	EM Test	RDS200S1		Toyota I/O LINE SPIKE TESTS (PF-10540-A Figures 2, 3 and 4) LP-388C-39 Supply Voltage Spike (Pulses 1, 2, 3, 4) LP-388C-39 Supply Voltage Dips (100 μ s, 1 ms, 10 ms and 500 ms) LP-388C-38 Low Voltage Cranking Test LP-388C-68 Supply Voltage Ramp-Down LP-388C-68 Supply Voltage Ramp-Up LP-388C-68
	CNA200B 50A Coupling network	EM Test	CAN 200B	AR-307704/MFG 0803-03	With the CNA 200B all pulses from the Generator models EFT200, MPG 200 and Load Dump LD 200 can be coupled to the EUT (pulses 1, 1a, 3a/ 3b, 4, 5, 6 and 7).
	PULSE/FUNCTION GENERATOR	HEWLETT PACKARD	8116A	3134G17341	GMW3097 RI, Reverberation Chamber, Mode Tuning Supply Voltage Dips (100 μ s, 1 ms, 10 ms and 500 ms) LP-388C-38 Magnetic Field Immunity Test LP-388C-58 CI 210 Immunity from Continuous Disturbances CI 250 Immunity to Volatge Offset RI 150 Charging System Coupled Immunity RI, Reverberation Chamber, Mode Tuning
	DC Blocking Capacitor 0.047 uF	Tektronix, Inc	015-0221-00		EMC
	EFT200B BURST GENERATOR	EM Test	EFT200B	AR-307718/MFG 0803-02	Pulse 3a, 3b per ISO 7637
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS	FCC-BAN-0.5-4-HDR	2013	Direct RF Power Injection Test LP-388C-32 Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-2-4	99135	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99129	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30

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	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99126	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-30-2	99138	PIN CONDUCTED RF EMISSIONS (PCE) - alternative method (0.15 to 200 MHz) LP-388C-41 Direct RF Power Injection Test LP-388C-32
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99131	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99139	Direct RF Power Injection (DRFI) Test LP-388C-32 Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99130	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99128	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99127	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-2-4	99136	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-30-2	99137	PIN CONDUCTED RF EMISSIONS (PCE) - alternative method (0.15 to 200 MHz) LP-388C-41 Direct RF Power Injection Test LP-388C-32
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99134	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99132	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	BROADBAND ARTIFICIAL NETWORK	FISCHER CUSTOM COMMUNICATIONS INC.	FCC-BAN-.5-4	99133	Conducted RF Emissions LP-388C-41 CONDUCTED TRANSIENT EMISSIONS voltage probe on power lines LP-388C-30
	AC / DC CURRENT PROBE	TEKTRONIX	A622	03JJ21863DV	Immunity
	CURRENT PROBE	TEKTRONIX	A6302	B051459	RF Conducted Immunity Test LP-388C-33 Low Frequency Conducted Immunity Test, 30 Hz to 100 KHz LP-388C-35 Power Line Magnetic Field Immunity LP-388C-58 Conducted Susceptibility Low Frequency (LFC) LP-388C-33
	CURRENT PROBE	TEKTRONIX	AM503B	B032905	Low Frequency Immunity, Magnetic Field Immunity

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	AMPLIFIER				
	CURRENT PROBE POWER MODULE	TEKTRONIX	TM502A	9042	Conducted Immunity Test LP-388C-33
	FIELD PROBE	AMPLIFIER RESEARCH	FP5000	24749	Radiated Immunity, 100 KHZ TO 200 mhz, Transverse electromagnetic Mode (TEM) Cell Test Radiated Immunity ANECHOIC
	FIELD PROBE	AMPLIFIER RESEARCH	FP5000	24750	Radiated Immunity, 100 KHZ TO 200 mhz, Transverse electromagnetic Mode (TEM) Cell Test Radiated Immunity ANECHOIC
	FIELD MONITOR	AMPLIFIER RESEARCH	FM5004	24910	Radiated Immunity, 200 MHz to 4 GHz (ANECHOIC CHAMBER) Test Radiated Immunity, 100 KHZ TO 200 Mhz, TEM Cell Test
	ATTENUATOR 100W/3dB 2 GHz	Delta OHM	09-208-032	AR-307468/MFG P-13	GM BCI
	FIELD PROBE	AMPLIFIER RESEARCH	FP5083	24931	Radiated Immunity, 200 MHz to 4 GHz (ANECHOIC CHAMBER) Test
	LINE IMPEDANCE STABILIZATION NETWORK	SOLAR ELECTRONICS	9117-5-TS-50-N	0310294	CISPR 25 Conducted RF Emissions - Current on all Lines in Harness LP-388C-73 CISPR-25 Conducted RF Emissions - Voltage on Supply Lines LP-388C-73 Radiated Emissions (76 TO 1000 MHz CISPR-25 ALSE method) LP-388C-73 ELECTROSTATIC DISCHARGE LP-388C-42 CE 410 Conducted Transient Emissions (+100V/-150V) on Power Supply RE 310 Radiated RF Emissions (0.15 to 2500 MHz) RI 112 RF Immunity (1 to 400 MHz) RI 140 Magnetic Field Immunity (50 Hz to 10 MHz) - Helmholtz Coil GMW3097 CE, Artificial Network (AN) GMW3097 CE, Transients (+100 V, -150V) GMW3097 RE, Absorber Lined Shielded Enclosure (ALSE) 0.15 - 1583 MHz GMW3097 RI, Bulk Current Injection (BCI) Bulk Current Injection (BCI) Test LP-388C-72 CISPR 25 Conducted RF Emissions - Current on all Lines in Harness LP-388C-73 CISPR-25 Conducted RF Emissions - Voltage on Supply Lines LP-388C-73 Radiated Emissions (76 TO 1000 MHz CISPR-25 ALSE method) LP-388C-73
	REFERENCE RADIATOR	ETS-LINDGREN	4630B	35301	RI 114 RF Immunity (400 to 3100 MHz) - reverb mode tuning GMW3097 RI, Reverberation Chamber, Mode Tuning
	FIELD PROBE	AMPLIFIER RESEARCH	FP5083	24932	Radiated Immunity, 200 MHz to 4 GHz (ANECHOIC CHAMBER) Test
	DISCHARGE NETWORK	KEYTEK	DN-6	9902229	CAL. OK
	DISCHARGE NETWORK	KEYTEK	DNX-150 PFD/2K	9312389	ESD
	DISCHARGE NETWORK	KEYTEK	DN-9	9902228	CAL. OK
	ESD SYSTEM	KEYTEK	SERIES 2000	8706322	ESD
	DISCHARGE NETWORK	KEYTEK	DN-7A	305239	ESD
	LINE IMPEDANCE STABILIZATION NETWORK	SOLAR ELECTRONICS	6338-5-TS-50-N	927238	CE 410 Conducted Transient Emissions (+100V/-150V) on Power Supply CI, Transients on Power Lines (Pulses 1, 2a, 2b, 3a, 3b, 4, 5b, 7) Conducted Transient Emissions CE
	LINE IMPEDANCE STABILIZATION NETWORK	SOLAR ELECTRONICS	6338-57-TS-50-N	910526	LISN 57uH/50A/600VDC Artificial Network (AN) Emissions (Emitted Disturbances) LP-388C-30
	R.F. COUPLER AND HIGH	SOLAR ELECTRONICS	7415-3	26902	GMW3100 Conducted Emissions with Artificial Network

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Next-Calib	Equipment	Manufacturer	Model#	Serial#	Notes: in what tests is used
	PASS FILTER				
	SPECTRUM ANALYSER	AGILENT	HP-3588A	3337A01383	Spectrum Analyzer 10Hz - 150 MHz Magnetic Field Emissions LP-388C-71
	BICONICAL ANTENNA	SCHWARZBECK	BBA 9106	-	RE-CISPR25
	LOG PERIODIC ANTENNA	ETS	3146	2762	Radiated Emissions, Radiated Immunity Mode Tuning (Reverberation Method)
	ATTENUATOR 20dB/15W	AMPLIFIER RESEARCH	1013547-501	AR-307472	
	ATTENUATOR 3dB/100W 2GHz	AMPLIFIER RESEARCH	1013415-501	AR-307468	Radiated Immunity BCI
	CANB.A.N.	FISCHER CUSTOM COMMUNICATIONS	FCC-CANBAN-.5-1	3016	CAN BUS
	ACTIVE MONOPOLE ANTENNA	EMCO	3301B	2994	Radiated Emissions 0.1 MHz to 2 GHz (GM and Ford)
	CWS500D RF Conducted Immunity Generator (BCI)	EM Test	CWS500D	AR-307466/MFG 0803-01	ISO 11452-4/IEC 1000-4-6 Bulk Current Injection (BCI)
	MAGNETIC FIELD PICKUP COIL	EMCO	7604	9904-2462	Magnetic Field Emissions LP-388C-71
	RF SIGNAL GENERATOR 5 KHz - 3 GHz	RHDOE & SCHWARZ	SMT03	829889/003	RI 114 RF Immunity (400 to 3100 MHz) - reverb mode tuning GMW3097 RI, Reverberation Chamber, Mode Tuning RF Conducted Immunity Direct RF Power Injection LP-388C-32 PIN CONDUCTED RF EMISSIONS (PCE) - alternative method (0.15 to 200 MHz) LP-388C-41 CISPR 25 Conducted RF Emissions - Current on all Lines in Harness LP-388C-73 CISPR-25 Conducted RF Emissions - Voltage on Supply Lines LP-388C-73
	INJECTION PROBE	EATON	95242-1	259	Bulk Current Injection (BCI)
	OPERATIONAL BIPOLAR POWER SUPPLY	KEPCO	BOP-20-20M	E143175	GMW3172 Battery Voltage Dropout Test
	CISPR-25 ALSE	BRADEN SHIELDING SYSTEMS		241431	Radiated & Conducted Emissions DCX Radiated Immunity
	SHIELDED ENCLOSURE	U.S.C.	USC-26	USC-6173YI	CAL. OK
	RF CURRENT PROBE	FISCHER CUSTOM COMM.	F-301	220	CAL NOT REQUIRED
	RF CURRENT PROBE	FISCHER CUSTOM COMM.	F-301-2	21	
	RF CURRENT PROBE	FISCHER CUSTOM COMM.	F-301-1	21	

Revision History:

REFERENCE: 200093 LABORATORY MANAGEMENT SYSTEM MANUAL

EMC LAB EQUIPMENT CALIBRATION SCHEDULER

Rev.	Description of Change	Date	ECN#	Originator	Sign-off
A	Release	JAN 20, 2006	E06015	Christian Rosu	