Elliott	EMC Test Data
Client: Electricity Metering, ABB Inc.	Job Number: J47046
Model: ALPHA Meter	T-Log Number: T47058
Contact: Charles Cunnigham	Proj Eng: Juan Martinez
Emissions Spec: FCC 22 Subpart H	Class: N/A
Immunity Spec:	Environment:
FMC Test Da	ta
For The	la
Electricity Metering,	ABB Inc.
Model	
ALPHA Meter	

Client: Electric	city Metering, ABB Inc.		Job	Number:	J47046
Model: ALPHA	A Meter		T-Log	Number:	T47058
				Proj Eng:	Juan Martinez
Contact: Charle	s Cunnigham				
Spec: FCC 2	2 Subpart H			Class:	N/A
	Section 2.1047: N	<b>Nodulation Ch</b>	aracteri	stics	
est Specifics					
Objectiv	ve: The objective of this test session is specification listed above.	to perform final qualifica	tion testing of t	he EUT w	ith respect to the
Date of Te	st: 1/6/03	Config. Used:	1		
Test Engine	er: jmartinez	Config Change:	None		
			JVUC		
General Test C The EUT and all A 20-dB attenua	<b>Configuration</b> I local support equipment were located tor was used between the EUT and Te	on the table for testing. st Receiver.	The Eut was c	connected	directly to Test Re
General Test C The EUT and all A 20-dB attenua	Configuration I local support equipment were located tor was used between the EUT and Te itions: Temperature: Rel. Humidity:	on the table for testing. st Receiver. 23°C 31%	The Eut was c	connected	directly to Test Re
General Test C The EUT and all A 20-dB attenua Ambient Cond Cummary of R	Configuration I local support equipment were located tor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults	on the table for testing. st Receiver. 23°C 31%	The Eut was c	connected	directly to Test Re
General Test C The EUT and all A 20-dB attenua Ambient Cond Gummary of R Run	Configuration I local support equipment were located tor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults Test Performed	on the table for testing. st Receiver. 23°C 31% Limit	The Eut was c	connected	directly to Test Re
eneral Test C The EUT and all A 20-dB attenua mbient Cond ummary of R Run 1	Configuration I local support equipment were located itor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults Test Performed Modulation limiting	on the table for testing. st Receiver. 23°C 31% <u>Limit</u> 22.915(b)(1) & 22.915 ( c)	The Eut was c Result Pass	connected	directly to Test Re
General Test C The EUT and all A 20-dB attenua Ambient Cond Commary of R Run 1 Plot	Configuration I local support equipment were located itor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults Test Performed Modulation limiting Test Performed	on the table for testing. st Receiver. 23°C 31% Limit 22.915(b)(1) & 22.915 ( c)	The Eut was c Result Pass Result	connected	directly to Test Re
Seneral Test C The EUT and all A 20-dB attenua Ambient Cond Summary of R Run 1 Plot 2	Configuration I local support equipment were located tor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults Test Performed Modulation limiting Test Performed Frequency Response ( 300 - 3000 kHz)	on the table for testing. st Receiver. 23°C 31% Limit 22.915(b)(1) & 22.915 ( c) Limit 22.915(d)(1)	The Eut was c Result Pass Result Pass	connected	directly to Test Re
Seneral Test C The EUT and all A 20-dB attenua Ambient Cond Summary of R Run 1 Plot 2 3	Configuration I local support equipment were located itor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults Test Performed Modulation limiting Test Performed Frequency Response ( 300 - 3000 kHz) Frequency Response ( 3000 - 30.000 kHz)	on the table for testing. st Receiver. 23°C 31% Limit 22.915(b)(1) & 22.915 ( c) Limit 22.915(d)(1) 22.915(d)(1)	The Eut was c Result Pass Result Pass Pass	Com	directly to Test Re
Seneral Test C The EUT and all A 20-dB attenua Ambient Cond Summary of R Run 1 Plot 2 3	Configuration I local support equipment were located itor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults Test Performed Modulation limiting Test Performed Frequency Response ( 300 - 3000 kHz) Frequency Response ( 3000 - 30.000 kHz)	on the table for testing. st Receiver. 23°C 31% Limit 22.915(b)(1) & 22.915 ( c) Limit 22.915(d)(1) 22.915(d)(1)	The Eut was c Result Pass Result Pass Pass	connected	directly to Test Re
General Test C The EUT and all A 20-dB attenua Imbient Cond Immary of R Run 1 Plot 2 3 Iodifications	Configuration I local support equipment were located itor was used between the EUT and Te itions: Temperature: Rel. Humidity: esults Test Performed Modulation limiting Test Performed Frequency Response ( 300 - 3000 kHz) Frequency Response ( 3000 - 30.000 kHz) Made During Testing: s were made to the EUT during testing	on the table for testing. st Receiver. 23°C 31% Limit 22.915(b)(1) & 22.915 ( c) Limit 22.915(d)(1) 22.915(d)(1)	The Eut was c Result Pass Pass Pass	Com	directly to Test Re

E C	Elliott	EM	C Test Data
Client:	Electricity Metering, ABB Inc.	Job Number:	J47046
Model:	ALPHA Meter	T-Log Number:	T47058
		Proj Eng:	Juan Martinez
Contact:	Charles Cunnigham		
Spec:	FCC 22 Subpart H	Class:	N/A

## Run# 1: Modulation Limiting response.

		Modulati	ion Limiti	ng	
Limiting	<u>300 Hz</u>	<u>1kHz</u>	<u>2.5 kHz</u>	<u>3kHz</u>	<u>15 kHz</u>
10%	-58.4	-77.7	-80	-74	-29.9
20%	-45.4	-69.4	-75.9	-61.9	Note 1
30%	-36.5	-62.9	-72	-69.1	Note 1
40%	-32.8	-58.1	-68.9	-66.6	Note 1
50%	-29.9	-54.4	-66	-63.2	Note 1
60%	Note 1	-51.4	-63.3	-60.4	Note 1
70%	Note 1	-48.6	-60.9	Note 1	Note 1
80%	Note 1	-46.4	-58.8	Note 1	Note 1
90%	Note 1	-44.4	-56.5	Note 1	Note 1
100%	Note 1	Note 1	-49.3	Note 1	Note 1
110%	Note 1	Note 1	Note 1	Note 1	Note 1
120%	Note 1	Note 1	Note 1	Note 1	Note 1

Input levels are in dBm units.

Note 1: Although input levels are not stated, the input voltage was increase, but no deviation was produce beyond limiting point.

## Frequency Response (.3 - 3000 MHz) Plot# 7



## Frequency Response (3 - 30 kHz) Plot# 8



					14704/	
Client: Electricity	Metering, ABB Inc.		JO	b Number:	J4/046	
Model: ALPHA M	eter		I-L0	g Number:	14/058	
				Proj Eng:	Juan Martinez	
Contact: Charles C	unnigham			Class	N1/A	
Spec: FUC 22 S				Class:	N/A	
	Section 2.104	9: Occupied	d Bandw	idth		
est Specifics						
Objective:	The objective of this test session specification listed above.	is to perform final qua	alification testing	g of the EU	T with respect	to th
Date of Test:	1/6/03	Config. Use	ed: 1			
Test Engineer:	jmartinez	Config Chang	e: None			
Test Location:	SVOATS #1	EUT Voltag	e: 5 Vdc			
The EUT and all loc Receiver. A 20-dB	al support equipment were locate attenuator was used between the	ed on the table for test EUT and Test Recei	ting. The Eut w ver.	as connect	ed directly to T	Fest
The EUT and all loc Receiver. A 20-dB Ambient Conditio	al support equipment were locate attenuator was used between the ons: Temperature: 7 Rel. Humidity: 9	ed on the table for tesi e EUT and Test Recei 14°C 52%	ting. The Eut w ver.	as connect	ed directly to T	ſest
The EUT and all loc Receiver. A 20-dB Ambient Condition	al support equipment were locate attenuator was used between the ons: Temperature: Rel. Humidity: ! ults	ed on the table for tesi EUT and Test Recei 14°C 52%	ting. The Eut w	as connect	ed directly to T	ſest
The EUT and all loc Receiver. A 20-dB Ambient Condition Summary of Res Plot	al support equipment were locate attenuator was used between the ons: Temperature: 7 Rel. Humidity: 9 ults Test Performed Occupied Bandwidth	ed on the table for tesi e EUT and Test Recei 14°C 52% Limit 22 917(b)	ting. The Eut w ver. Result Pass	as connect	nment	ſest
The EUT and all loc Receiver. A 20-dB Ambient Condition Summary of Rest Plot 4	al support equipment were locate attenuator was used between the ons: Temperature: 7 Rel. Humidity: 9 ults <u>Test Performed</u> Occupied Bandwidth	ed on the table for tesi EUT and Test Recei 14°C 52% Limit 22.917(b)	ting. The Eut w ver. Result Pass	as connect	nment + SAT	ſest
The EUT and all loc Receiver. A 20-dB Ambient Condition Summary of Rest Plot 4 5 Nodifications Ma	al support equipment were locate attenuator was used between the ons: Temperature: Temperature: Rel. Humidity: ! ults Test Performed Occupied Bandwidth Occupied Bandwidth	ed on the table for tesi e EUT and Test Recei 14°C 52% Limit 22.917(b) 22.917(d)	ing. The Eut w ver. Result Pass Pass	as connect Con Voice Wideba	nment e + SAT and data	<b>Γest</b>





Model: ALPHA M			In	b Number: 147046	
	eter		T-L 0	a Number: T47058	
				Proj Eng: Juan Martine	Z
ontact: Charles C	unnigham			, ,	
Spec: FCC 22 S	ubpart H			Class: N/A	
Sectio	n 2.1051: Spuriou	s emission a	at the An	tenna Termin	al
st Specifics					
Objective:	The objective of this test session specification listed above.	n is to perform final qu	alification testing	g of the EUT with respec	t to the
Date of Test:	1/6/03	Config. Use	ed: 1		
Test Engineer:	jmartinez	Config Chang	je: None		
Test Location:	SVOATS #1	EUT Voltaç	je: 5 Vdc		
neral Test Con the EUT and all loc ecciver. A 20-dB	nfiguration cal support equipment were local attenuator was used between th	ed on the table for tes e EUT and Test Recei	ting. The Eut w ver.	as connected directly to	Test
neral Test Con he EUT and all loo eceiver. A 20-dB abient Condition mmary of Res	nfiguration al support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults	red on the table for tes e EUT and Test Recei 14°C 52%	ting. The Eut w ver.	as connected directly to	Test
neral Test Con the EUT and all loc ecciver. A 20-dB bient Condition nmary of Res	nfiguration cal support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults	eed on the table for tes e EUT and Test Recei 14°C 52%	ting. The Eut w ver.	as connected directly to	Test
heral Test Con the EUT and all loc ecciver. A 20-dB bient Condition himary of Res Plot 6	nfiguration cal support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults Test Performed Out-Of-Band	eed on the table for tes e EUT and Test Recei 14°C 52% Limit 22.917(e)	ting. The Eut w ver. Result Pass	as connected directly to Comment Voice + SAT	Test
eral Test Con e EUT and all loc ceiver. A 20-dB bient Condition nmary of Res Plot 6 7	nfiguration cal support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults <u>Test Performed</u> Out-Of-Band Out-Of-Band	eed on the table for tes e EUT and Test Recei 14°C 52% Limit 22.917(e) 22.917(e)	ting. The Eut w ver. Result Pass Pass	as connected directly to Comment Voice + SAT Voice + SAT	Test
e EUT and all loc e EUT and all loc ceiver. A 20-dB bient Condition mmary of Res Plot 6 7 8	nfiguration al support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults Test Performed Out-Of-Band Out-Of-Band Out-Of-Band	eed on the table for tes e EUT and Test Recei 14°C 52% Limit 22.917(e) 22.917(e) 22.917(e)	ting. The Eut w ver. Result Pass Pass Pass	as connected directly to Comment Voice + SAT Voice + SAT Wideband data	Test
e EUT and all loc e EUT and all loc eceiver. A 20-dB bient Condition mmary of Res Plot 6 7 8 9	nfiguration cal support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults Test Performed Out-Of-Band Out-Of-Band Out-Of-Band	Eed on the table for tes e EUT and Test Receinant 14°C 52% Limit 22.917(e) 22.917(e) 22.917(e) 22.917(e)	ting. The Eut w ver. Result Pass Pass Pass Pass	Comment Voice + SAT Voice + SAT Wideband data Wideband data	Test
e EUT and all loc eceiver. A 20-dB bient Condition nmary of Res Plot 6 7 8 9 10	nfiguration cal support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults Test Performed Out-Of-Band Out-Of-Band Out-Of-Band Out-Of-Band Mobile Emission	Limit 22.917(e) 22.917(e) 22.917(e) 22.917(e) 22.917(e) 22.917(e) 22.917(e) 22.917(f) 22.917(f)	ting. The Eut w ver. Result Pass Pass Pass Pass Pass	Comment Voice + SAT Voice + SAT Wideband data Wideband data	Test
neral Test Con the EUT and all loc ecciver. A 20-dB bient Condition mmary of Res Plot 6 7 8 9 10 11 12	nfiguration cal support equipment were local attenuator was used between th ons: Temperature: Rel. Humidity: ults Test Performed Out-Of-Band Out-Of-Band Out-Of-Band Out-Of-Band Mobile Emission Mobile Emission	Limit 22.917(e) 22.917(e) 22.917(e) 22.917(e) 22.917(e) 22.917(f) 22.917 (f) 22.917 (f) 22.917 (f)	ting. The Eut w ver. Result Pass Pass Pass Pass Pass Pass Pass	Comment Voice + SAT Voice + SAT Wideband data Wideband data Voice + SAT Voice + SAT Voice + SAT	Test







